

**EXPLORING THE ROLE OF EXPECTANCIES IN
THE MENTAL AND PHYSICAL HEALTH OUTCOMES
OF WRITTEN SELF-DISCLOSURE**

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ABSTRACT

Emotional self-disclosure yields mental and physical health benefits. Methods for enhancing this intervention have largely been ignored in the literature. Building from research that indicates that expectations play a role in self-disclosure's outcomes, the current research examined expectations and self-disclosure. Health outcomes were assessed in 40 female college students who participated in a written self-disclosure exercise for 15 minutes for 3 consecutive days. In order to determine the interactive influence of self-disclosure and expectancy on mental and physical health outcomes, participants self-disclosed a traumatic or trivial topic and the researchers attempted to manipulate participants' expectancies concerning the benefits produced by self-disclosure. Women who disclosed traumas and were given the expectancy that disclosure would yield benefits had decreased interpersonal sensitivity and interpersonal alienation 1 month after disclosure. Limitations and recommendations are discussed. Creating positive expectations may represent a method for enhancing the positive effects of emotional expression.

Self-disclosure of trauma is a healthy and normal action that has been effectively modeled in experimental research (Fratraro, 2006). Over two decades of experimental research provides substantial support for the structured self-disclosure of trauma yielding psychological and physical health benefits (Fratraro, 2006;

Pennebaker, 1997a). The most recent meta-analysis found that experimental disclosure yields an overall average effect size of 0.075 (Fratraro, 2006). However, fewer research studies have focused on factors that contribute to these benefits or possible strategies for improving self-disclosure outcomes. One possibility that has been minimally explored with an experimental design is that expectations of benefits from disclosure may contribute to or enhance positive outcomes. In the present study, the researchers requested that participants engage in different degrees of self-disclosure in a writing exercise, while simultaneously manipulating their expectations about the mental and physical effects of this writing task. The following review begins with a summary of the research on emotional self-disclosure and a summary of the expectations literature as it relates to emotional expression. Finally, we propose that expectations play a role in the benefits produced by emotional self-disclosure and that expectations may be manipulated in order to enhance the benefits brought about by emotional self-disclosure.

SELF-DISCLOSURE AND HEALING

Pennebaker (1997a) pioneered research on the psychological and physical effects produced by written self-disclosure. Pennebaker and Beall (1986) created a design that enabled researchers to manipulate self-disclosure (written and spoken) in a laboratory setting. Their research design has been replicated and altered (e.g., varying the number of writing sessions) in numerous studies that examined and, with reasonable consistency, demonstrated the physical and psychological benefits of self-disclosure. Specifically, it has been repeatedly found that self-disclosure of painful or traumatic experiences leads to lower levels of depression, decreased number of physician visits, reduced pain and medication use, higher grades in college, and improved immune functioning (Fratraro, 2006; Pennebaker, 1997a, 1997b; Pennebaker & Francis, 1996; Pennebaker & Seagal, 1999; Smyth, 1998). The effectiveness of Pennebaker's paradigm appears to be applicable to a myriad of populations, including undergraduate college students, medical students, maximum-security prisoners, arthritis and chronic pain sufferers, men laid off from their jobs, and women who have recently given birth to their first child (Pennebaker & Seagal, 1999).

SELF-DISCLOSURE AND EXPECTATIONS

Although it appears to be clear that emotional self-disclosure is beneficial, far less is known about the reasons why self-disclosure produces positive outcomes and how these changes occur. One possibility is that expectations contribute to the relationship between self-disclosure and health outcomes. Research on expectations demonstrates that one's expectations affect his or her subjective mood and physical health (Langens & Schuler, 2007). Initial research on the role of

expectations in Pennebaker's paradigm suggests that expectations may help, at least in part, to explain the origin of the positive health outcomes yielded by emotional self-disclosure. Fratraro (2006) examined expectations as a potential moderator of effect sizes in self-disclosure research. In some self-disclosure studies, participants in the experimental and control conditions received differing expectations regarding the effectiveness of the disclosure intervention (Fratraro, 2006). Hence, it is assumed that these unequal expectations provided in the disclosure instructions led treatment group participants to have higher expectations about benefits from disclosure, as compared to those in the control condition. As hypothesized, Fratraro found that expectations moderate the relationship between self-disclosure and outcome (i.e., effect sizes for self-disclosure studies). Studies in which treatment group participants, but not control group participants, received expectations about the benefits of writing had significantly higher psychological and overall effect sizes as compared to studies in which treatment and control group participants received equal expectations about the benefits of writing. This finding suggests that participants' expectations about the benefits of self-disclosure likely play a role in the health outcomes produced by Pennebaker's writing paradigm. Further support for the role of expectations in emotional self-disclosure comes from Langens and Schuler's research, which directly tests the hypothesis that positive expectations play a role in written emotional expression. In two studies, these authors found that emotional self-disclosure was associated with more positive expectations, as compared to trivial disclosure. Also, Langens and Schuler found that positive expectations relate to positive changes in emotional and physical well-being. Taken together, these findings suggest that expectations account for some of the positive results produced by emotional self-disclosure.

THE PRESENT RESEARCH

In sum, Pennebaker's writing paradigm has allowed researchers to manipulate and explore the action of self-disclosure. Taken together, the available literature indicates that emotional self-disclosure is healing and that positive expectations associated with emotional disclosure may prove to be one mechanism through which self-disclosure yields health benefits. Psychotherapy and self-help groups, such as Alcoholics Anonymous, emphasize the recollection and disclosure of painful memories, as well as the disclosure of current struggles. The widespread influence of psychotherapy and self-help groups has led to a pervasive cultural message that revelation of trauma is salutary. The extensive literature on expectations (Kirsch, 1999) has demonstrated that, in many circumstances, expectations in and of themselves lead to more positive therapeutic outcomes. Kirsch (1999) explained that expectancies alter a person's perceptions with such force that "the perception is not just of the experience, it is the experience" (p. 6). Thus, the next reasonable step is to utilize previous research findings in an attempt to improve the

mental and physical outcomes produced by emotional expression by enhancing persons' positive expectations about the benefits produced by emotional self-disclosure.

The present study examined the comparative influence of expectancies and trauma disclosure on mental and physical health. For this study, the researchers employed Pennebaker's writing paradigm and attempted to manipulate the participants' expectancies about the effects produced by the writing task. Participants wrote on an assigned topic for 15 minutes for 3 consecutive days and completed pre-intervention and post-intervention (i.e., one month post-writing) mental and physical health measures. Participants were assigned to one of four conditions: trauma/expectancy condition; trauma/no expectancy condition; trivial/expectancy condition; and trivial/no expectancy condition. Thus, half of the participants wrote about experiences from their lives that were painful or traumatic, while the remaining participants wrote about trivial, non-emotional topics. The researchers tried to create an expectancy about the mental and physical health benefits brought about by written self-disclosure to half of the participants who wrote about traumas and to half of the participants who wrote about trivial topics.

It was hypothesized that there would be an interaction effect for the writing topic (trauma versus trivial) and the presence or absence of an expectancy concerning the mental and physical health benefits of the writing task (expectancy versus no expectancy). In other words, individuals who received both the trauma and expectancy manipulation would show the greatest mental and physical health improvements; whereas, individuals in the trivial writing topic and "no expectancy given" condition would show the least amount of improvement.

METHOD

Participants

Forty female college students volunteered to participate in this study. The rationale for excluding males from this study was based on the small probability of having an equal number of males and females in each group due to the marked gender imbalance in the participant pool. The results of the study could have been confounded if there was an unbalanced number of males and females in each condition (Smyth, 1998). Ten participants were randomly assigned to each condition. Participants ranged in age from 17 to 41, with a mean age of 19.43. Participants ranged in class year from freshman to senior, with the majority from the freshman and sophomore classes. There were 30 European-American participants, 2 African-American participants, 2 Hispanic-American participants, and 6 participants of multiethnic or international background.

All of the participants were enrolled in a small, private, liberal arts college in the Northeast. Thirty-two of the participants were enrolled in an Introduction to Psychology class. These participants were recruited by a sign-up sheet placed in

the psychology building on campus. Upon completion of the study, these participants received two and one-half hours of credit toward the 5 hours of credit necessary for the Introduction to Psychology class. Five of the participants were recruited through an advertisement for the study placed in the college's daily newsletter. These participants were eligible for one of two chances to win \$50.00 upon completing the study. The remaining three participants were recruited through announcements made in two different psychology classes at the college. Each of these participants received extra credit in her psychology class for completing the study. Every participant was treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 2001) and the researchers received IRB approval to conduct the study.

Materials

Three different measures were administered to each of the participants and the participants' visits to Student Health Services were tracked. The measures given to the participants were the Symptom Checklist-90-R (SCL-90-R; Derogatis, 1994), the Mental Health Inventory (MHI; Rand Corporation & Ware, 1987), and the Last Day of Writing Questionnaire: (<http://homepage.psy.utexas.edu/homepage/faculty/Pennebaker/questionnaires/WritingStudy.pdf>).

Symptom Checklist-90-R

The SCL-90-R (Derogatis, 1994) consists of 90 items that reflect psychological symptoms. The SCL-90-R is a self-report inventory that provides answer choices on a 5-point scale of distress. Answer choices range from "Not at all" to "Extremely" and refer to the presence of distress from symptoms during the past 7 days. For the purpose of this study, participants were asked about the presence of distress from the past month, as opposed to the past 7 days. This measure can be scored and interpreted in terms of nine primary symptom dimensions and three global indices of distress. The primary symptom dimensions have sufficient internal consistency and consist of Somatization ($\alpha = .86$), Obsessive-Compulsive ($\alpha = .86$), Interpersonal Sensitivity ($\alpha = .86$), Depression ($\alpha = .90$), Anxiety ($\alpha = .85$), Hostility ($\alpha = .84$), Phobic Anxiety ($\alpha = .82$), Paranoid Ideation ($\alpha = .80$), and Psychoticism ($\alpha = .77$). The three global indices are the Global Severity Index (GSI), Positive Symptom Distress Index (PSDI), and Positive Symptom Total (PST).

Mental Health Inventory

The MHI (Rand Corporation & Ware, 1987) was developed for use in population surveys and is a measure of psychological distress and well-being. This

measure is made up of 38 questions. The MHI is a self-report inventory in which answer choices differ from question to question, but all answer choices are given on either a 5- or 6-point Likert scale. All of the questions refer to mental health during the past month. The MHI consists of five scales: Anxiety, Depression, Behavioral/Emotional Control, General Positive Affect, and Emotional Ties (feelings of loneliness or connectedness in relationships). Veit and Ware (1983) reported adequate internal consistency for these five scales: Anxiety ($\alpha = .90$), Depression ($\alpha = .86$), Behavioral/Emotional Control ($\alpha = .83$), General Positive Affect ($\alpha = .92$), and Emotional Ties ($\alpha = .81$).

Last Day of Writing Questionnaire

The Last Day of Writing Questionnaire consists of 13 questions and was adapted from a measure that Pennebaker administered in some of his writing studies and provided on the Internet:

(<http://homepage.psy.utexas.edu/homepage/faculty/Pennebaker/questionnaires/WritingStudy.pdf>). These questions have answer choices in the form of a Likert scale that ranges from 1 (*not at all or no effect*) to 7 (*extremely or a large effect*). All of the questions from this measure focus on the participant's experience during the 3 days of writing, as well as the participant's expectancies related to the writing task. For example, this measure contains questions such as "Overall, how much did you reveal your emotions in what you wrote?" and "Having completed the first part of this study, do you think the writing task will have a positive effect on your physical health in the coming months?" Internal consistency was adequate for the three scales (positive expectancy, $\alpha = .86$; negative expectancy, $\alpha = .86$; content of essays, $\alpha = .90$). The data collected from this measure allowed the investigators to perform manipulation checks.

Student Health Services Visits

The Director of College Student Health Services recorded health center data for each participant from August through February of the academic year. Participants' visits were recorded as: Illness (a visit based on a presenting symptom(s) of some kind, such as a sore throat or headache, or any symptom(s) involving the immune system); injury (splinter, blister, twisted ankle, etc.); or other (routine prescription refill, for example). Illness visits for the same problem had to be separated by more than 5 days to be counted as more than one illness visit. However, if a participant visited the health center more than once in 5 days for different illnesses, then all visits were recorded.

Procedure

The first author met each participant in her office individually on each day of writing, reviewed the self-disclosure instructions, led the participant to a 'writing

room,' and showed the participant the box for placing essays at the end of each meeting. On the first day, participants completed a brief demographics form, the SCL-90-R, and the MHI before being read the writing instructions. Instructions for participants in the trauma/no expectancy condition were based on the instructions provided in Pennebaker and Seagal's (1999) article. Participants in the trauma/no expectancy condition were told:

For the next three days, I would like for you to write about your very deepest thoughts and feelings about the most traumatic experience of your entire life. In your writing, I'd like you to really let go and explore your very deepest emotions and thoughts. You might tie your topic to your relationships with others, including parents, lovers, friends, or relatives, or 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 topics each day. All of your writing will be completely confidential and anonymous. Don't worry about spelling, sentence structure, or grammar. The only rule is that once you begin writing, do not stop until your time is up.

Participants in the trivial/no expectancy condition were told:

For the next three days, I would like for you to write about how you use your time. In your writing, I want you to be as objective as possible. I am not interested in your emotions or opinions. Rather, I want you to try to be completely objective and non-emotional in your writing. Feel free to be as detailed as possible. In today's writing I want you to describe what you did yesterday from the time you woke up until the time you went to bed. You could include the things you ate, where you went, which buildings or objects you passed as you walked from place to place. The most important thing in your writing, however, is for you to describe your day as accurately and objectively as possible. Don't worry if you do not have time to describe your entire day. Don't worry about spelling, sentence structure, or grammar. The only rule is that once you begin writing, do not stop until your time is up.

Participants in the trauma/expectancy condition were told the following paragraph before being read the directions for the trauma/no expectancy group, and participants in the trivial/expectancy condition were told the following information before being told the directions that were read for the trivial/no expectancy group:

Through scientific research, an international expert psychologist named James Pennebaker has repeatedly demonstrated that students who participate in the writing task you are about to take part in have significantly greater health improvements than students who have not engaged in this activity. Students who have engaged in this writing task also report improved overall psychological well-being and mood. These findings have been replicated in prominent psychological and medical labs throughout the world for over ten years. It is important to mention that the physical and mental health

improvements produced by this writing task often are subtle and participants may actually feel worse in the days surrounding the writing task. Thus, it is important to remember that *over time* you will be very likely to experience the psychological and physical benefits brought about by this writing task.

Participants wrote about their topics for 15 minutes for 3 consecutive days. On the third day, each participant returned to the researcher's office after the writing session and completed the Last Day of Writing Questionnaire. Participants received a Follow-Up Information form, which explained that the researchers were not able to provide a complete debriefing at that point in time because of the potential for biasing the results of the study. This form provided the number of the school's counseling center.

One month following this writing task, the researcher met with participants either individually or in small groups of two to four participants. Participants completed the SCL-90-R and the MHI for the second time. Participants received a second Follow-Up Information form, which resembled the form described in the preceding paragraph. A final debriefing form was mailed to each participant in February when health center data collection was complete.

RESULTS

Two categories of data were analyzed. The first analyses, which were based on the participants' responses to the Last Day of Writing Questionnaire, served the purpose of manipulation checks. The second category of data that was analyzed examined the Mental Health Inventory, the SCL-90-R, and the number of health center visits. An alpha level of .05 was used for all statistical tests.

Manipulation Checks

On the third and final day of writing, each participant completed the Last Day of Writing Questionnaire, a self-report inventory in which participants used a 7-point Likert scale to answer questions about various aspects of their essays, the study, and their expectancies regarding their mental and physical health (see Table 1 for means and standard deviations). To examine the effects of topic and expectancy, a 2 (topic) \times 2 (expectancy) MANOVA was conducted on ratings of the essays' content and the participants' expectancies about the possible effect of the writing task on their mental and physical health. The results of the MANOVA were significant for topic, Wilks' Lambda = .34, $F(6, 31) = 10.25$, $p < .05$. Follow-up univariate analyses revealed that, compared to those in the trivial conditions, participants in the two trauma conditions reported that their writings were more personal, $F(1, 36) = 41.06$, $p < .05$, and that they revealed more emotions in their writings, $F(1, 36) = 59.04$, $p < .05$. The MANOVA revealed that

Table 1. Means and Standard Deviations for Selected Items from the Last Day of Writing Questionnaire ($N = 40$)

Item	Trauma/Expectancy		Trauma/No Expectancy		Trivial/Expectancy		Trivial/No Expectancy	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Personal Essay	6.30	(0.82)	5.90	(0.74)	3.10	(1.66)	3.60	(1.84)
Emotional Essay	6.00	(1.05)	5.00	(1.25)	2.40	(1.65)	2.30	(1.16)
Positive Physical Health Expectancy	3.80	(1.87)	3.00	(1.63)	2.40	(1.43)	3.20	(1.62)
Negative Physical Health Expectancy	2.10	(1.20)	1.70	(1.06)	1.40	(0.70)	1.60	(0.97)
Positive Psychological Expectancy	3.90	(1.97)	3.40	(1.71)	3.10	(1.66)	3.10	(1.85)
Negative Psychological Expectancy	2.20	(1.03)	1.90	(0.88)	1.30	(0.48)	1.50	(1.27)

Note: The personal and emotional means are based on participants' self-reports of their own essays. Ratings were based on 7-point scales, where 7 = essays were very personal or revealed a great deal of emotions in the essays and 1 = essays were not at all personal or emotions were not revealed at all in the essays. The expectancy means are based on participants' self-reported expectancies concerning the effects of the writing task. Ratings were based on a 7-point scale, where for the respective item 7 = participant thinks the writing task will have a large effect on her health in the months following the writing task and 1 = participant thinks writing task will have no effect on her health in the months following the writing task.

participants in the four different conditions reported having similar expectations to one another with regard to the possible psychological and physical effects of their respective writing task, despite being given different information about what to expect in terms of the effects from the task, Wilks' Lambda = .91, $F(6, 31) = .52$, $n.s.$ However, it is important to note that participants in the trauma/expectancy condition produced the highest means for both positive physical and psychological expectancies. The participants in this condition also produced the highest means for negative physical and psychological expectancies, possibly indicating that this condition had the greatest emotional impact in both directions.

Sub-scale	Trauma/Expectancy		Trauma/No Expectancy		Trivial/Expectancy		Trivial/No Expectancy	
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Hostility	.45 (.32)	.28 (.32)	.39 (.52)	.38 (.49)	.87 (1.77)	.35 (.27)	.28 (.28)	.20 (.17)
Phobic Anxiety	.14 (.15)	.11 (.15)	.29 (.25)	.26 (.27)	.14 (.23)	.01 (.19)	.01 (.18)	.01 (.14)
Paranoid Ideation	.88 (.69)	.68 (.47)	.55 (.47)	.78 (.82)	.73 (.72)	.57 (.64)	.57 (.62)	.32 (.21)
Psychoticism	.41 (.45)	.20 (.25)	.44 (.40)	.39 (.40)	.20 (.21)	.26 (.28)	.48 (.57)	.26 (.27)

Table 4. Means and Standard Deviations for the SCL-90-R (N = 40)

Sub-scale	Trauma/Expectancy		Trauma/No Expectancy		Trivial/Expectancy		Trivial/No Expectancy	
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Somatization	.67 (.54)	.28 (.25)	.52 (.52)	.38 (.41)	.60 (.55)	.56 (.35)	.44 (.43)	.36 (.25)
Obsessive-Compulsive	.88 (.38)	.74 (.31)	1.07 (.62)	1.11 (.77)	.74 (.59)	.49 (.42)	.77 (.58)	.83 (.59)
Interpersonal Sensitivity	1.14 (.80)	.83 (.46)	1.08 (.60)	1.18 (.69)	.69 (.46)	.60 (.33)	.79 (.36)	.59 (.31)
Depression	.85 (.52)	.72 (.40)	.91 (.70)	.96 (.81)	.59 (.37)	.50 (.37)	.78 (.50)	.66 (.39)
Anxiety	.49 (.36)	.41 (.36)	.51 (.38)	.47 (.44)	.52 (.51)	.22 (.23)	.31 (.19)	.30 (.29)

Table 3. Means and Standard Deviations for the SCL-90-R (N = 40)

Health Center Visits

To examine the interaction of writing topic and expectancy on the two categories of health center visits ('illness' and 'other'), a 2 (topic) \times 2 (expectancy) MANOVA was conducted on the change scores created from these data (pre-writing visits subtracted from post-writing visits). Only two visits were classified as injuries, so this variable was removed from the study and the injuries were added to the 'other' category. Pre-writing visits (baseline visits) consisted of recording the two months of visits prior to the study for each participant and the post-writing visits consisted of three months of visits after the participant engaged in the writing task. The result of the MANOVA was not significant for the interaction effect, Wilks' Lambda = .99, $F(2, 35) = .21, n.s.$

DISCUSSION

Initial research suggests that individuals' expectations regarding the outcomes of emotional expression contribute to the benefits yielded by Pennebaker's writing paradigm (Frattaroli, 2006; Langens & Schuler, 2007). The aim of the current study was to determine whether inducing positive expectations could enhance the mental and physical health outcomes produced by written self-disclosure. In the current study, the researchers examined the individual and interactive influence(s) of self-disclosure and the expectancies of its benefits on mental and physical health outcomes. The researchers utilized Pennebaker's writing paradigm (Pennebaker & Keough, 1999) and attempted to manipulate the participants' expectancies concerning the effects of the writing task.

The initial finding supported the validity of Pennebaker's writing paradigm (Pennebaker & Beall, 1986; Pennebaker & Francis, 1996). Participants who self-disclosed traumas rated the content of their essays as more personal than individuals who self-disclosed trivial topics. Also, individuals who self-disclosed traumas felt they revealed more emotions in their essays during the 3 days of writing as compared to individuals who wrote about trivial topics.

In spite of receiving different information about the mental and physical health effects produced by the writing task, self-report data indicate that participants did not differ greatly in the degree to which they expected the writing task to affect them, either positively or negatively. However, the measures of participants' mental health outcomes indicate that, in fact, participants who wrote about traumas and were provided with the expectancy about the benefits of written self-disclosure were influenced by the expectancy manipulation given in this study. As was hypothesized, these women experienced significant mental health improvements across time on several dimensions.

It was found that participants who self-disclosed traumas and were given the expectancy that this writing task yields psychological and physical benefits, had

lower levels on the Interpersonal Sensitivity dimension of the SCL-90-R one month following self-disclosure. In other words, through the process of self-disclosure of a trauma(s) and the expectancy of benefits from this process, within one month's time these individuals exhibited improvement in an area that "is consistent with the traditional notion of the 'inferiority complex' (Derogatis & Cleary, 1977, p. 984). Thus, these women's feelings of inferiority and inadequacy, particularly in comparison with other people, decreased one month after receiving the expectancy of the benefits from, and engaging in, the written self-disclosure of a personal and emotional trauma(s). Finally, as was predicted, individuals who self-disclosed a trauma(s) and received an expectancy of its mental and physical health benefits, revealed symptom reductions on the Psychoticism dimension of the SCL-90-R. This dimension reflects a continuum of human behavior and feelings that range from mild interpersonal alienation to florid psychosis (Derogatis, 1994). The women in this study reflected changes in the Psychoticism dimension one month following the writing by exhibiting reductions in feelings of alienation, such as feeling alone even when in the presence of other people, and never feeling close to another person. Most notably, the only experimental condition in which these two effects were obtained was the condition that combined emotional self-disclosure and the expectation about the benefits of this disclosure. Neither self-disclosure nor expectation alone yielded an effect on mental health improvement or physical symptom reduction.

Although the findings described in the preceding paragraph lend initial support to the researchers' primary hypothesis, there was one unexpected finding. It is not clear why the following effect was found, yet the results indicate that simply self-disclosing about a trivial topic reduced participants' feelings of alienation one month following the written disclosure (e.g., feeling alone when in the presence of another person and never feeling close to another person).

Limitations and Recommendations

The first limitation of this study involves the sample, both its size and the exclusion of male participants. Due to time and resource constraints, the sample size was quite small ($N = 40$; with 10 participants per experimental cell), which decreased the power of the analyses to uncover significant changes. Because this study limited participants to females, the findings cannot be generalized to males. Also, the results of Smyth's (1998) meta-analysis indicate that the higher the percentage of males in a self-disclosure study, then the higher the mean effect sizes. Thus, the exclusion of males may have been a contributing factor to the inability of the researchers to replicate some of Pennebaker's results (Smyth, 1998).

Again, time and resource constraints placed limitations on when the participants' mental health was measured following the written self-disclosure, as well as the length of time that participants' health center visits were recorded. Participants returned for a single follow-up assessment one month after completing

their respective writing tasks, and health center visits were recorded for 3 months. Frattaroli (2006) found that self-disclosure studies that followed participants for less than one month had larger psychological effect sizes than studies that followed participants for at least one month. Future research should incorporate multiple follow-up assessments in order to track the changes that may occur over time. Additionally, this study was unable to gain an accurate picture of the possible changes in physical health since participants' visits to the health center were minimal.

One final limitation with the design of this study involves the manipulation of the participants' expectancies. It is not clear at this point in time (due to other limitations in the study), if the expectancy manipulation will have the ability to produce a main effect. It may be that the researchers did not create a strong enough expectancy for the participants. Future researchers should vary this manipulation by providing participants with an article that outlines the mental and physical health benefits of written self-disclosure or by showing participants a video testimony of past participants discussing the benefits they received from written self-disclosure. Additionally, the measure designed to assess expectancies was not validated. This measure was designed specifically for this study, but its psychometric properties are unknown. It is possible that this measure did not tap the construct that it was intended to assess. Finally, the expectancy questions were administered after participants engaged in the writing process. It is likely that having participants complete this measure directly after engaging in the writing task impacted their responses and thus participants' responses may not represent a valid reflection of their overall expectancies. Future researchers should administer this measure at additional time points, including directly after the investigators provide the participants with an expectancy. While the manipulation check indicates that the expectancy manipulation was not successful, the investigators believe this article and the paradigm presented in this article are worthy of attention and further study.

CONCLUSIONS

Even in light of the limitations described above, the results from the current study display promise that should encourage future work along similar lines. The interactive effect of self-disclosure of traumas and the expectancy of its benefits yielded positive mental health outcomes, despite the study's limitations. Perhaps with the incorporation of some of the suggestions provided in the preceding paragraphs, future researchers will be able to replicate the current study's results as well as decipher the distinct roles of self-disclosure and expectancies on individual outcomes. Further examination of the influence and manipulation of expectations on emotional expression could serve to ensure that this effective intervention is delivered in the most beneficial manner possible.

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