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Writing and Well-Being: Comparing Varied Expressive Writing Tasks on Posttraumatic Stress Symptoms and Life Satisfaction

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ABSTRACT

WRITING AND WELL-BEING: COMPARING VARIED EXPRESSIVE WRITING TASKS ON POSTTRAUMATIC STRESS SYMPTOMS AND LIFE SATISFACTION

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Northern Illinois University, 2021
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Frontline treatments for posttraumatic stress disorder (PTSD) have been extensively researched, and there is significant support for their efficacy in decreasing PTSD symptomatology and improving life quality. However, the treatments seem to be burdensome, as a significant minority do not improve or drop out before the continuation of treatment. This pattern could be explained partially by the time commitment, cost of and access to treatment, and the resulting emotional overload. Therefore, it is useful to explore other avenues that could lead to improvements in symptomatology and well-being but that are more accessible and manageable. One possible direction is expressive writing (EW), a task that has highlighted the value of writing and emotional disclosure in improving well-being and health. EW has been found to benefit traumatized and nontraumatized populations struggling with a variety of concerns (e.g., romantic breakups, cancers, depression, PTSD, sexual disorders). Indeed, EW is being applied as a core component of a newly developed treatment for PTSD that has received preliminary support. However, more investigations are needed to test whether the valence of the writing task plays a role in recovery and mood. Some have found
that positive-valence writing tasks lead to comparable improvements; none have tested it in a sample endorsing PTSD symptomology. Further, research has not been successful in identifying different moderators of the writing task. The proposed study aimed to address this gap by comparing the short-term impact of a positive writing task to the effects of a classic EW task. Undergraduates with a history of traumatic exposure and presenting with PTSS were invited to complete the study. Thirty-eight participants completed two 15-minute writing tasks on two days and completed a follow-up timepoint immediately after the second writing session, as well as a two-week follow-up to measure potential changes in PTSD symptomatology and life satisfaction. Results showed that, controlling for trauma history, both conditions significantly improved in PTSD symptomatology at the two-week follow-up, and the two conditions were deemed statistically equivalent. Life satisfaction overall did not change over time, but there were significant group and sex differences in changes in life satisfaction. Specifically, male participants and those in the positive valence condition improved significantly more at the two-week follow-up. Finally, the classic condition seemed to lead to a greater reduction in positive mood compared to the positive condition, which suggests that participants may experience a lower level of emotional burden when engaged in a positive writing task.
ACKNOWLEDGEMENTS

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DEDICATION

To the brave people of Syria
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Posttraumatic stress disorder (PTSD) is a psychological disorder that could develop following a traumatic event. While many recover from the traumatic exposure without experiencing long-term distress or dysfunction, approximately 8% of the general population continue to develop and maintain a PTSD diagnosis in their lifetime. Due to the costly nature of the disorder, different treatments have been developed to address its consequences. Research on the frontline treatments suggest that they are costly, emotionally taxing, time consuming, and lead to dropouts of a large minority of those receiving the treatments.

Other promising treatment directions include expressive writing (EW). Research indicates that EW leads to improvements in PTSD and life satisfaction. However, there is a gap in the literature assessing whether positive writing leads to decreases in PTSS and well-being similar to EW. Further, the two have not been compared in studies using PTSD-positive samples. If positive writing leads to improvements similar to EW, it might be a more tolerated and less emotionally taxing treatment option. Additionally, moderators of EW tasks have not been successfully supported with research. The literature is mixed on whether emotion regulation skills moderate the effects of EW. Further, there is mixed support that EW benefits males more than females, as males tend to have less self-disclosure in their daily lives. Therefore, the current study tested whether emotion regulation difficulties predict improvement postwriting. It also
tested if males benefited more from such tasks compared to females. This study, to my knowledge, is the first to compare the effects of a positive writing task to a classic EW task in a trauma-exposed undergraduate sample.

Across the lifespan, the likelihood of exposure to events of a traumatic nature is quite high. Although estimates of exposure to at least one traumatic experience reach approximately 90%, only a minority of trauma-exposed individuals develop PTSD. PTSD is a psychological disorder that can develop after exposure to traumatic events such as motor vehicle accidents, sexual assaults, natural disasters, and war experiences (American Psychiatric Association [APA], 2013). PTSD lifetime prevalence is estimated at 8.3% in the general population (Kilpatrick et al., 2013). Hallmark symptoms of PTSD include intrusive recollections of the trauma, avoidance of reminders of the adverse experience, an increased state of arousal and reactivity, and alterations in cognitions and mood (APA, 2013). Such symptoms and their frequency vary among individuals, with some presenting with immediate symptomatology and others displaying a delayed expression of the disorder. PTSD has been estimated to be incredibly costly to communities and the economy in general (Savoca & Rosenheck, 2000), as it has correlated with significant levels of social, physical, and occupational dysfunction and high medical utilization (Litz & Maguen, 2007; Taylor, 2006). Furthermore, PTSD has been shown to be highly comorbid with other psychiatric diagnoses such as depressive, bipolar, and substance abuse disorders (APA, 2013); suicidality; physical health problems; and poor life quality (Sareen et al., 2007).

Due to the debilitating nature of the disorder, the high comorbidity with other disorders, and poor life quality, researchers and clinicians have worked on studying and developing trauma-focused treatments in the past few decades (Asmundson et al., 2019; Cusack et al., 2015; Kline et
The most widely applied treatments include cognitive processing therapy (CPT; Resick et al., 2016) and prolonged exposure (PE; Foa et al., 2007). Theories behind cognitive trauma treatments such as CPT suggest that PTSD symptoms are the result of one’s inability to integrate his or her traumatic experience into preexisting psychological schemas (McCann & Pearlman, 1990; Resick & Schnicke, 1992). Such inabilities lead to one of two types of cognitive distortions: assimilation and overaccommodation. Therefore, the goals of CPT include identifying and addressing the distortions that maintain the disorder and to develop more helpful and accurate thought processes. PE, a different treatment that also falls under cognitive behavioral techniques, typically includes repeated reliving of the trauma and confrontation with feared and avoided situations, places, people, and objects that represent reminders of the trauma (Foa & Jaycox, 1999). Goals of treatment include exposure to feared stimuli in order to decrease the negative reinforcement of avoidance, learning that such avoided situations and objects are not intrinsically dangerous, and helping differentiate the trauma from nontraumatic events (Foa & Jaycox, 1999).

Although such evidenced-based treatments are successful in reducing symptomatology for the majority of individuals, a significant minority ranging between 18 and 46% are unresponsive to and/or drop out of such treatments (Bradley et al., 2005; Foa et al., 2005; Hoge et al., 2014; Imel et al., 2013; Resick et al., 2002; Schottenbauer et al., 2008; Steenkamp et al., 2015). Cited reasons explaining the relatively high dropout and nonresponse rates include the perceived inefficacy of such therapies and their time-intensive and emotionally demanding nature, as they typically run for at least 8-12 sessions and include lengthy homework assignments and strenuous exposure components (Hoge et al., 2014; Steenkamp et al., 2015). This has encouraged the investigation of different treatment components in the hopes of
developing more manageable and successful therapies for those struggling with trauma sequelae. One such direction is Written Exposure Therapy (WET; Sloan et al., 2012), a five-session intervention in which individuals write about their traumatic experience. Multiple randomized control trials (RCTs) have shown WET’s effectiveness in reducing PTSD symptoms (Sloan et al., 2013; Sloan et al., 2012; Thompson-Hollands et al., 2018), and a recent RCT showed that improvements in the WET condition were noninferior to those evidenced in a CPT condition at four different assessment periods (Sloan et al., 2018). Of note, WET was not included in the American Psychological Association’s (2017) most recent PTSD treatment guidelines.

Expressive Writing

The research team developing the WET protocol recognized the similarities in the Pennebaker and Beall (1986) procedure of EW and exposure-based treatments for PTSD (Sloan et al., 2012), and they have cited such commonalities as the starting point of their investigation into whether written disclosure may reduce PTSD symptomatology. EW is an experimental manipulation originally developed to explore the value of writing and disclosing emotional or stressful experiences in enhancing health. The original Pennebaker and Beall (1986) investigation tested whether inhibition and poor emotional disclosure lead to stress-related health outcomes. The inhibition theory suggests that disclosure and emotional release in a benign setting, without social feedback, would enhance one’s well-being and decrease stress overtime (Pennebaker & Beall, 1986). Forty-six undergraduate subjects were asked to write for 15 minutes on four consecutive days about either a trivial topic (control condition) or a trauma from their own lives. The trauma writing took the form of three conditions. First, the trauma-emotion group was instructed to only write about feelings about the trauma without discussing the event details.
Secondly, the trauma-fact subjects were asked to write factually about the trauma without discussion of feelings. Finally, the trauma-combination group was asked to write about both the event and the associated feelings. Results suggested that compared to the control and trauma-fact groups, writing emotionally about a traumatic experience (i.e., the trauma-emotion and trauma-combination groups) led to higher levels of physiological reactivity and more negative mood immediately postwriting. At the four-month follow-up timepoint, however, participants from the emotional EW groups showed significantly lower physiological problems.

Pennebaker and Beall’s (1986) promising study has been encouraging research for decades, and more than 150 investigations of EW and its effects have been conducted thus far. EW has significantly led to improved mental and physical health outcomes in different investigations with student, nonstudent, and trauma survivors compared to control groups (Frattaroli, 2006; Frisina et al., 2004; Smyth, 1998; Smyth & Pennebaker, 2008). Investigated outcomes have included life satisfaction (Booker, 2015; Froh et al., 2008; Seih et al., 2008; Toepfer & Walker, 2009), mood (Burton & King, 2004; Frattaroli, 2006; Frisina et al., 2004; Smyth et al., 2008), symptoms of PTSD (Bragdon, & Lombardo, 2012; Hoyt & Yeater, 2011; Mattina, 2011; Meston et al., 2013; Morris et al., 2005; Sayer et al., 2015; Sloan et al., 2011; van Emmerik et al., 2008), and depression (Frattaroli, 2006; Hoyt, 2013; Mattina, 2011) as well as physical health complaints (e.g., headaches and respiratory problems; Frattaroli, 2006; Frisina et al., 2004; Smyth, 1998).

A few meta-analyses have examined the effectiveness of EW. Smyth’s (1998) meta-analysis was the first to investigate the overall significance and effect size of the brief writing task developed by Pennebaker and Beall (1986), and it attempted to identify different moderators through which this effect might be enhanced. Examining 13 experimental studies using the EW
task, Smyth (1998) concluded that EW led to significant improvements in self-reported physical health \((d = .42; p < .001)\), psychological well-being \((d = .66; p < .001)\), physiological functioning \((d = .68; p < .001)\), and general functioning \((d = .33; p < .001)\). However, health behaviors were not improved \((d = .02; p > .05)\). The analyses showed an overall mean weighted effect size \(d = .47\) and a 23% overall improvement in the EW groups. Student samples showed better psychological and overall well-being compared to nonstudent samples, and sex predicted stronger effect sizes overall. Specifically, the proportion of males included in the study positively correlated with the overall effect, suggesting that males might benefit more from EW tasks.

Further, the length of time over which the writing sessions were spaced, which ranged from 1 to 28 days, was positively associated with the overall effects but not the specific physiological or psychological effects. However, the number of writing sessions, which ranged from a single 20-minute session to one such session per week for four weeks, and the length of the writing session, which ranged from 15 to 30 minutes, were not related to improvements. Further, participants instructed to write only about ongoing traumas had better psychological well-being outcomes compared to participants instructed to write about any trauma (either past or ongoing); those not instructed either way had better physical health outcomes compared to those instructed to write about past traumas.

Frisina and colleagues (2004) examined nine different studies investigating the effects of EW on physical or psychological disorders in the second meta-analysis on EW and found an overall significant effect size, \(d = .19, p < .05\). It showed significant improvements in physical health outcomes \((d = .21, p < .01)\) but failed to show significant improvements in psychological outcomes \((d = .07, p = .17)\). The authors highlighted the problem of small and heterogeneous samples used in EW studies, which led to nonsignificant tests of homogeneity. However, it was
determined through planned contrasts that EW had significant effects on physical health for groups with diseases of both low and high mortality risk (e.g., asthma, arthritis, cancers). In terms of psychological health, although some mental health measures (i.e., depression, mood, anxiety, and sleep quality) were significantly improved, others (e.g., perceived stress, PTSD symptoms) showed nonsignificant changes, suggesting that EW was more beneficial for physically ill populations than psychiatric populations. Outcomes were better in “healthy” or nonclinical populations compared to clinical populations.

The most recent meta-analysis conducted by Frattaroli (2006) included 146 articles that were analyzed with a random effects approach. Moderators tested include dose-related factors (e.g., spacing and length of sessions), topic-related factors (e.g., valence of disclosure topic, time since event, topic switching), instructions-related factors (e.g., focus of what to disclose, mode of instruction administration and disclosure), and participant-related factors (e.g., age, ethnicity, sex, and education level). Frattaroli (2006) concluded that EW is effective in improving well-being, with an overall effect size of $d = .151$ and a 54% improvement rate. Frattaroli commented on the smaller observed effect size. First, she argued her study included a higher percentage (48%) of unpublished studies, compared to 23% in Smyth’s (1998) analysis and 0% in Frisina and colleagues’ (2004) analysis. Since unpublished studies generally have smaller effect sizes, this may have lowered the overall average effect size. She further proposed that instead of relying on Cohen’s (1988) guidelines, some have argued that the practical importance of an effect depends on the coinciding costs and benefits (Glass et al., 1981). Although an effect of $r = .075$ is interpreted as very small by traditional standards such as Cohen’s (1988), Frattaroli states that even Cohen (1988) argues “there is a certain risk in offering conventional operational definitions for [the terms of small, medium, and large] for use in power analysis in as diverse a
field of inquiry as behavioral science” (p. 112). She points out that considering the noninvasive, low cost, independent act of the EW task, which is perceived as helpful by participants, any positive effect that is nonzero is important and worth consideration. In addition, in comparing the effect size with that detected in reviews of psychotherapy, she cited Smith and Glass’s (1977) review of approximately 500 studies, which found effect size of psychotherapy to be $r = .32$. This is larger than the effect size of .075; however, she argues that comparing the amount of effort, training, and time invested in psychotherapy, it is impressive that EW can improve different facets of life, albeit a small improvement by common standards. She also compared it to the preventative use of aspirin against heart attacks in individuals at risk for or with cardiovascular disease, which has a small effect but is inexpensive and tolerated by patients (Leucht et al., 2012). Finally, she raises the issue of average effect sizes, as meta-analyses include studies with a variety of methodological differences that may not have been conducted in optimal conditions. She highlighted that considering only the eight studies that were conducted in ideal conditions, the average effect size was $d = .20$, a large improvement compared to the overall average effect size.

Specifically, Frattaroli (2006) concluded that effect sizes were larger when studies used smaller and nonstudent samples, included more male participants, used at-home or private disclosure, offered specific directions or examples of what to disclose or whether participants should switch topics or not, instructed participants to discuss previously undisclosed topics, and had follow-up periods of less than one month. Further, effect sizes were stronger when participants were paid, had physical health problems or trauma histories, disclosed more recently occurring events, wrote for at least three sessions and for at least 15 minutes, and kept the products of disclosure. Moderators that were anticipated to significantly impact effect size but
failed to do so included spacing of sessions (i.e., daily or weekly), mode of disclosure (i.e., handwriting, typing, or talking), valence of topic, whether disclosure instructions were standard or cognitively focused, time reference of disclosure (i.e., current vs. past vs. no specification), warning participants prewriting about disclosing traumas, selection condition of psychological difficulties, and participant age, ethnicity, and education level. Many of the tested moderators have not received much research attention, and Frattaroli concluded that while the meta-analysis was encouraging, more research into the ideal conditions under which EW can be the most beneficial is needed.

Many studies investigating EW have been conducted since Frattaroli’s (2006) meta-analysis. Sloan and colleagues (2009) showed that EW is effective in undergraduate students experiencing college-related stress. Specifically, symptoms of depression significantly decreased at a two-month follow-up period (Cohen’s $d = 0.43$) compared to control participants, who wrote about how they spent their time during their days. Others have expanded the EW task and tested different writing tasks. For instance, Danoff-Burg and colleagues (2010) compared a narrative writing (i.e., asked to create a narrative about the trauma), a standard EW, and a control group. One hundred participants were randomly assigned to one of the three groups and wrote for two 20-minute sessions, two days apart. Results showed that depression and perceived stress were significantly lower in the experimental groups compared to the control group (Cohen’s $d$ ranged from 0.48 to 0.62).

Some have applied the task to understand linguistic predictors of pathology. For instance, D’Andrea et al. (2012) tested EW in undergraduate students residing in the Boston area within one week of the 9/11 attacks. Participants were asked to describe in detail what they heard about the attack, and five to six months later they completed the narrative task again, as well as the
Impact of Events Scale (IES; Horowitz et al., 1979). The authors concluded that participants using more “we” words at Time 1 had fewer symptoms of acute PTSD, and using more cognitive mechanism and religion words, more first-person pronouns, and fewer anxiety-related words at Time 1 was associated with more chronic PTSD symptoms. The authors suggested that the finding relating to fewer anxiety words could suggest that avoidance of thinking about disclosing negative emotions may indicate a heightened risk for PTSD.

Further, investigators have tested EW with samples suffering from PTSD and depression. For instance, Bragdon and Lombardo (2012) were the first to examine the effects of EW on symptoms of PTSD and depression in individuals with comorbid PTSD and substance use disorder. Results showed that writing sessions taking place on four consecutive days at a treatment center led to significant decreases in symptomatology from pretreatment to the two-week posttreatment assessments (Cohen’s $d$ ranged from 1.35 to 1.57). Results were still promising at a three-month follow-up, though effect sizes diminished (ranged from 0.57 to 0.76). Similarly, Sloan et al. (2011) tested the effects of EW on a sample of undergraduates ($N = 42$) who met criteria for PTSD. The 20-minute EW sessions took place on three consecutive days. Heart rate activity was measured during the writing tasks, and emotional ratings were assessed immediately after writing. All participants showed decreases in PTSD symptoms ($r$ effect size = .61) but not depression.

Further, EW has been tested with veterans struggling with readjusting to civilian life (Sayer et al., 2015). Participants were randomly assigned to EW, factual writing, or no writing and completed four 20-minute writing sessions online. Results indicated that compared to no writing, EW was associated with larger reductions in PTSD symptomatology ($d = 0.24$), distress ($d = 0.31$), anger ($d = 0.35$), physical symptoms ($d = 0.33$), difficulty with reintegration ($d = 0.35$), and avoidance ($d = 0.33$).
0.22), and greater improvement in social support \((d = 0.17)\). Contrary to expectations, the writing tasks did not impact life satisfaction, suggesting that it is perhaps a less malleable outcome in veterans. Finally, compared with factual writing, EW was correlated with larger reductions in physical symptoms \((d = 0.20)\) and anger and greater reductions in distress by the six-month follow-up \((d = 0.15)\). Along a similar vein, Sloan and Marx (2004a) randomly assigned 49 undergraduate females endorsing at least moderate levels of PTSD to either an EW or control group. The EW participants reported significantly lower PTSD \((r = .43)\) and depression symptomatology \((r = .72)\) and improvements in physical health \((r = .49)\) at follow-up compared with control-group participants. Of note, using the reliable change index (RCI; Jacobson & Truax, 1991), clinical significance testing indicated that decreases in depression were clinically meaningful, RCI = 2.54, \(p < .05\). On the other hand, the changes in PTSD symptom severity and physical health were not clinically significant, although the statistical results were robust.

Other disorders have been tested as outcomes as well. For instance, Meston et al. (2013) investigated if EW would lead to improved depression, PTSD, and sexual problems in a sample of adult female survivors of sexual violence. Participants randomly assigned to different EW groups wrote five times for 30 minutes. Results showed that PTSD symptoms decreased from pre- to posttreatment and were maintained at follow-up across both experimental groups. Depressive symptoms also decreased from pre- to posttreatment but were not maintained at follow-up. Significant recovery rates from diagnoses of sexual dysfunction were seen across different disorders, including hypoactive sexual desire disorder \((R^2 = 0.13)\) and female sexual desire disorder \((R^2 = 0.09)\).

As the research on EW is still ongoing and fruitful, with its benefits detected in many populations, some have ventured into different variations of the “classic” EW task. Recently,
researchers have tested whether positive writing (e.g., writing about the perceived benefits of the trauma, writing about one’s best possible self), in contrast to writing about the trauma per se, would predict similar mental and physical health improvements. The next section reviews the literature on variations of positive writing.

Valence of Disclosure Topic

With an increased interest in the field of positive psychology, research has supported the benefits of having a positive or optimistic approach to life (Carver & Scheier, 2000; Diener et al., 2002; Seligman, 2000). Relatedly, a finding of particular interest from Frattaroli’s (2006) meta-analysis is regarding the valence of the disclosure topic. At the time of her meta-analysis, only a few studies had examined positive writing tasks. The motivation behind this alteration of the classic EW task is to put the participants more at ease. If positive writing predicts health outcomes comparable to writing about traumatic events, it would further support EW as a short-term, cost-effective, and manageable treatment for individuals struggling in the aftermath of trauma.

The first investigation introducing a positive writing task (Marlo & Wagner, 1999) aimed to test if valence of the disclosure topic predicts benefits similar to the classic EW task. The researchers randomized 156 participants to one of three writing groups: negative life events (Negative Group [NG]), positive life events (Positive Group [PG]), and neutral life events (Control Group [CG]). The instructions asked participants in the NG and PG to write about their feelings and thoughts about a certain time or event in their lives; however, the instructions differed between the NG and PG in one way: the phrase “a negative, traumatic, stressful, or depressing time or event” in the NG was altered to “a positive, special, beautiful, or happy time
or event” in the PG. The CG was asked to write about trivial topics. Participants completed the four writing tasks in group sessions held twice a week for two consecutive weeks. The sessions lasted for 30-60 minutes, and measures of psychological distress, physical health, and subjective reactions to the writing assignments were completed postwriting. Results showed no significant differences in physical health benefits across the groups, but participants showed significant decreases in psychological distress as evidenced by Wilks’ lambda, $F(2, 153) = 4.33, p < .01$. Specifically, the PG displayed the most significant changes in psychological well-being, followed by the CG, and finally the NG. Post hoc analyses showed that NG participants showed the largest increase in negative mood, which was positively associated with inhibition, physical sensations, and psychological distress and symptoms. Although promising, such results did not present the first evidence for a variation of EW, as the positive life events group were not asked to focus on the positive aspects of their traumatic or stressful experiences for writing and instead were told to write about positive and happy events.

**Benefit Finding**

The first investigation to examine a trauma-focused positive writing task tested whether writing about the perceived benefits of traumatic events might lead to enhanced health outcomes (King & Miner, 2000). The authors postulated that writing about the benefits arising from trauma is advantageous, borrowing from many theories of coping posttrauma that highlight the theme of finding benefits in traumatic life events (Affleck & Tennen, 1996; Taylor, 1983; Taylor et al., 1983; Tennen et al., 1991a, 1991b; Thompson, 1991). Thompson (1991) found that, consistent with cognitive adaptation theories, both stroke patients ($r = .50, p < .001$) and their caregivers ($r = .29, p < .01$) who reported finding meaning in their illness were better adjusted. Further,
Tennen and colleagues (1991b) investigated benefit finding in patients with smell and taste disorders and found a significant positive correlation ($r = .32$) with symptoms of distress on the Symptom Checklist-90 (SCL-90-R; Derogatis & Unger, 2010). Further, the varied types of benefits reported (e.g., “I don’t have to worry about the litter box, mildew, or the laundry basket”) suggested to authors that such benefits are creatively generated by writers and are not merely reflections of actual changes (Tennen et al., 1991b). Similarly, benefit finding proved to be correlated with less distress on the SCL-90-R ($R^2 = .36$) in women with impaired fertility (Tennen et al., 1991a). Specifically, participants reported an increase in the strength of their marriage, personal growth, and overall greater appreciation. Along a similar vein, Taylor (1983) put forth a model of cognitive adaptation that centers the process of adjustment on three different components: finding meaning, regaining mastery, and reinstating self-esteem, all of which include uncovering or construing benefits. Similarly, Taylor and colleagues (1983) proposed mechanisms used by survivors of sexual assault in efforts to manage and de-emphasize their experience of victimization and for self-enhancement. The hypothesized mechanisms included downward comparisons, viewing oneself in advantageous ways, focusing on positive self-evaluations, and considering how much worse their experiences could have been (Taylor et al., 1983).

In King and Miner’s study (2000), 118 undergraduates were randomly assigned to one of four groups in a 2 (trauma vs. no trauma) x 2 (perceived benefits vs. no perceived benefits) analysis of variance (ANOVA) design. The instructions for the perceived benefits were:

Please recall a traumatic life event or some loss you have experienced in your life. Think about the experience for a few moments. Now, focus on the positive aspects of the experience. Please write about how you have changed or grown as a person as a result of the experience. Focus on the positive aspects and how the experience has benefited you as a person—how has the experience made you better able to meet the challenges of the
future? As you write, do not worry about punctuation or grammar, just really let go and write as much as you can about the positive aspects of the experience.

Participants filled out measures of mood before and after the writing task and wrote in 20-minute sessions on three consecutive days. After each writing session, they again completed mood measures and rated how personal, difficult, and emotional the writing task was. University health records were accessed postwriting as a measure of physical health, and essay contents were later analyzed and examined as an outcome variable. Results showed that individuals writing about the trauma had lower positive affect (PA) than those who did not. Further, no differences were found among the groups on the experience of negative affect (NA), and that writing was not associated with the expected increase in NA. Further, there were differences in the essay contents that proposed that the perceived-benefits-only group wrote differently from the trauma groups. Specifically, the perceived-benefits-only group used more insight and positive emotion words compared to the other groups, and their essays were judged by trained raters as more positive. Participants in the trauma conditions reported less positive emotion compared to the other groups and wrote essays judged as more negative and less resolved. In addition, each of the EW groups used more cognitive mechanism words (e.g., realize, understand, because) than the controls. Regarding physical health, all three EW conditions were associated with fewer university health center visits three months postwriting. At the five-month timepoint, only the perceived-benefits group and trauma group had fewer health center visits compared to the other two groups. Finally, participants in the perceived-benefits-only group who used more insight-related terms had fewer health center visits three months postwriting. To summarize, participants writing about the perceived benefits displayed long-term improvements in physical health, had lower PA and no increase in NA, and wrote more positive essays using
terms that suggest a sense of efficacy in cognitive capacities to find meaning. Taken together, the findings propose that positive writing focused on benefit finding has remarkable potential. Of note, effect sizes were not reported by the authors. However, using the reported mean and standard deviation values in the study, the calculated effect size for the changes in positive affect was Cohen’s $d = 0.28$. Similarly, the effect size for physical health improvements was Cohen’s $d = 0.26$.

The effects of benefit finding have also been tested in adolescents’ self-concepts starting high school (Facchin et al., 2014). Two-hundred and twenty Italian high school freshman males were randomly assigned to a classic EW, benefit finding, or factual writing group. The three 15-minute writing sessions were conducted in classrooms on consecutive days at the start of the school year, and participants completed follow-ups at one, two, three, and four months after the final writing session. Differences between groups were only detected for the academic scale of self-concept, with the benefit-finding group reporting larger increases in self-concept compared to the EW (Cohen’s $d = 0.67$) and control groups (Cohen’s $d = 0.67$) at the second timepoint. This difference was approaching significance at Time 3, and no group differences were detected at Time 4. Students with low academic self-concept in the beginning of the year benefited the most from the benefit-finding intervention.

Similarly, Stanton et al. (2002) tested positive writing in early stage breast cancer patients completing medical treatment. Sixty women diagnosed with Stage I or II breast cancer who had completed treatment in the past five months were randomly assigned to one of three groups: writing about (a) deepest thoughts and feelings regarding the experience of having breast cancer (EMO group; $n = 21$), (b) positive thoughts and feelings regarding the experience of having breast cancer (POS group; $n = 21$), and (c) facts about cancer and its treatment (control group; $n$
= 18). The four 20-minute writing tasks took place over three weeks at either the participants’ homes, the research lab, or a medical center visited by participants. Participants completed one- and three-month follow-ups. Two different measures assessed cancer-related avoidance: the denial, mental disengagement, and behavioral disengagement subscales of the COPE scale (Carver et al., 1989) and the eight-item avoidance subscale of the IES (Horowitz et al., 1979). A significant condition × cancer-related avoidance interaction was detected on psychological outcomes. Specifically, EMO writing was more effective for participants low in avoidance, and POS writing was more beneficial for women high in avoidance. Significant effects of experimental condition emerged on self-reported somatic symptoms and cancer-related medical appointments. Compared with the control group at three months, participants in the experimental conditions reported significantly fewer physical symptoms and had significantly fewer medical appointments. No effect sizes were reported. However, using the reported mean and standard deviation values in the study, the effect size was calculated for the changes in somatic symptoms at the three-month follow-up \( r = 0.52 \). Similarly, the effect size for the medical appointments finding after three months was \( r = 0.61 \). To sum, writing about the positive aspects of having cancer benefited women who typically avoid thoughts and feelings regarding their cancer experience and predicted physical health improvements, further supporting the use of writing about benefit finding as another type of EW task that enhances well-being.

Using the same sample as Stanton et al. (2002), Low and colleagues (2006) investigated potential pathways of the different EW tasks on well-being. They hypothesized that decreases in autonomic arousal, expression of positive emotion, and words indicating cognitive processing of the experience of cancer will mediate the effects detected. Autonomic arousal was measured by participant’s heart rate (HR), which was monitored for an initial 4-minute resting baseline
period, followed by a 20-minute writing task and a 4-minute postwriting resting period. Findings suggest that the positive health results evident in the EW groups were mediated by the decreasing autonomic arousal that took place while participants partook in emotional processing of the negative memories (Cohen’s $d = 0.81$). Further, although the physical health differences did not vary among the experimental conditions, the POS wrote unique essays using significantly more positive emotion words and less negative emotion words compared to the EMO group. They also showed less evidence of cognitive processing words. Surprisingly, there was no significant effect on mood across the groups.

**Other Positive Writing**

In another take on positive writing, King (2001) randomly assigned 81 participants (69 females) to one of four groups: writing narrative descriptions on their best possible selves (BPS) in the future, their most traumatic event, a combined group, or a control topic (i.e., writing about their plans for the day). The topic of BPS was chosen based on evidence suggesting that imagining being successful at one’s high-level goals, considering previously unexamined parts of one’s motivational life, and considering life values require self-regulation processes typically included in cognitive-behavioral treatments (King, 2001). The study applied a 2 (trauma vs. no trauma) x 2 (BPS vs. none) ANOVA design. Participants wrote in the lab for four consecutive days. Mood measures were completed before the first session and after each writing session. Further, participants rated the essay writing experience and the essays were analyzed for their content by raters. Information from the university health center was collected prior to the study and five months after writing, and participants completed measures of psychological health three weeks postwriting. Controlling for mood before writing, the BPS-only group showed a
significant increase in net positive mood. The trauma-only group experienced less happiness than the other three groups. In addition, participants writing about their traumas were more likely to attribute responsibility to others, whereas individuals writing about their life goals were more likely to attribute responsibility to themselves. BPS writers tended to be more positive, optimistic, and less emotional than the trauma writers. Finally, the BPS-only and trauma-only groups had less frequent health center visits postwriting compared to the combined and control groups, suggesting that it may be possible to have the benefits of writing without the necessity of trauma-focused writing. Such studies seem to suggest that having the ability to reflect on life events in a positive light might be a critical component to successful adjustment posttrauma. Although no effect sizes were reported by the author, using the reported mean and standard deviation values in the study, the calculated effect size for the net postwriting positive mood at follow-up was Cohen’s $d = 0.48$. Similarly, the effect size for the changes in health center visits was Cohen’s $d = 0.64$.

Some have tested if positive writing helps with minor life stressors, such as romantic breakups. Lewandowski (2009) assessed the potential of an EW task to increase experience of positive emotions. Specifically, 87 single undergraduates were randomly assigned to three groups. The EW groups wrote on either the positive or negative aspects and feelings related to the experienced relationship dissolution and the control group wrote about general topics related to dating, then asked to argue rationally and logically regarding the presented issues. Participants in the experimental groups wrote for 20 minutes on three consecutive days at home. A $2 \times 2$ ANOVA analysis revealed no significant differences between the groups on experienced negative emotions. However, the positive group had significantly higher experienced positive emotions compared to the other two groups. Further, those in the positive-writing group
benefited the most when the break-up was mutual, whereas in the other two groups, those who self-initiated the break-up benefited the most. This study further revealed that focusing on the positive aspects of a stressful experience leads to increased positive emotion without the cost of coinciding negative emotions.

Despite the evidence for the benefits of positive writing, some failed to detect support for such writing. For instance, Klein and Boals (2001) tested whether EW produced less intrusive memories and avoidance when writing about the trauma compared to writing about a positive experience (i.e., positive writing) or about time management (i.e., control group). They also tested if writing about a positive, life-changing experience leads to effects similar to writing about a trauma. One hundred and twenty participants were randomly assigned to one of three groups: writing about a positive event, writing about a trauma, and writing about time management (control group). The IES (Horowitz et al., 1979) was used to measure changes in memories, and Turner and Engle's (1989) arithmetic operation/word memory span task (OSSPAN) was used to measure working memory. Participants came in for five sessions throughout the semester. The first session was a group session in which 2-15 participants were instructed to write about either a positive or negative event. The OSPAN was administered two weeks later, and afterwards participants were randomly assigned to one of the three groups. During the following two weeks, participants wrote in three sessions for 20 minutes each. The OSPAN was re-administered after the third writing session. Seven to eight weeks later, the OSPAN was administered a third time and participants were asked to complete the IES a second time. Results on working memory showed that the trauma group had higher scores on the final testing session compared to the control group. Self-rated emotional disclosure was related to changes in IES scores only for individuals assigned to write about the trauma. Specifically, the
more the EW participants reported they had revealed in their essays, the greater the decline in their IES scores \((r = .30)\). The positive event and the control groups reported significantly more intrusive and avoidant thinking compared with participants who had written about the trauma. Although no effect sizes were reported by the authors, the calculated effect size for the change in working memory was \(r = 0.58\). Similarly, the effect size regarding the differences on the IES was \(r = 0.27\). Overall, in contrast to other studies, evidence did not support beneficial outcomes for writing about positive events.

Lestideau and Lavallee (2007) applied a unique variation of positive writing. The authors tested how planful writing (i.e., writing about different options that could be used to deal with a stressful event) compares to the benefits of classic EW tasks. Sixty-four participants were randomly assigned to one of four groups: classic EW, planful writing, combined, and a control group that wrote about daily activities. Planful writers were asked to write about the facts regarding the stressful situation and to generate options for dealing with it. The combined group was asked to describe the facts, feelings, and thoughts associated with the trauma, as well as to brainstorm options of dealing with it. Participants wrote in their homes every other day for one week for a total of three writing sessions. Mood, physical health, and changes in appraisals were assessed before and after writing as a function of the interventions. Specifically, appraisals regarding the seriousness of the situation, central and compensatory control, and self-efficacy were assessed. Overall, all participants decreased in NA over time. Contrary to predictions, no changes in appraisals were detected in the EW group. Further, planners viewed the stressor as more significant and rated themselves as less competent and having less emotional control, compared to nonplanners who viewed themselves as having more emotional control and efficacy in dealing with the stressor. Physical symptoms initially increased in nonplanners before
decreasing again after the second writing session, whereas they did not change in planners. Although the findings indicate that planners had more pessimistic views, they still reported better health outcomes, allowing the authors to conclude that weighing options on how to deal with stress enhanced well-being, possibly by allowing them to organize more resources to resolve it. A major limitation is that most disclosed events were categorized as moderate stressors and not major life traumas. Additionally, the combined writing group had a significantly higher number of physical symptoms at baseline than the other groups. Finally, no changes in positive mood took place over the three days, but there was a decrease in negative mood across the sessions.

Intrigued by the benefits of positive writing, Toepfer et al., (2016) tested a proposed resource-orientated perspective. They randomly assigned 228 undergraduate students to either complete an expressive writing diary or a resource diary for three consecutive days over a four-week period (i.e., 12 diary entries). The resource diary group answered questions that were developed with the purpose of recalling, recognizing, and reflecting on intra- and interpersonal resources (e.g., Assuming you were to make a film about today, what would the viewer see if everything had gone exactly as you wished? What would have happened today? What is the first small step towards the fulfillment of your wishes?). Results showed that writing about resources led to significantly higher realization of social support (Cohen’s $d = 0.29$) and higher positive mood (Cohen’s $d = 0.79$) compared to the participants in the expressive writing condition. Positive writing was of particular benefit to those who were low in well-being at pretreatment, as they reported higher social support and self-esteem (Cohen’s $d = 0.34$). Further, baseline brooding levels moderated the relationship between treatment and well-being and self-esteem; the authors suggested that those high in brooding have an inability to re-evaluate or resolve adverse experiences because of a downward comparison of their situations inhibiting their
emotional processing. Overall, the findings further support positive writing, but of note, the participants did not necessarily need to have experienced a trauma to be included, and “healthy” people were also included in the study.

One realm of positive writing focuses on gratitude-focused paradigms, where participants are asked to write about blessings or things for which they are grateful. Froh and colleagues (2008) randomized 221 adolescents to either write about gratitude or daily hassles. Results suggested that gratitude-focused writing predicted higher optimism and life satisfaction and less negative affect ($\eta^2$ ranged from 0.1 to 0.6). Similarly, Toepfer and Walker (2009) tested if writing letters of gratitude enhanced well-being. Undergraduate students were asked to write three gratitude letters as a class assignment over the span of eight weeks. They were instructed to avoid writing about trivial topics and to focus on a meaningful and reflective process of writing. Compared to a control group that did not do any writing, letter writers improved in their happiness ($\eta^2 = .06$) and gratitude ($\eta^2 = .04$). Further, Wing et al. (2006) found that writing about intensely positive events while being cued for emotion regulation for three consecutive days increased life satisfaction at a two-week follow-up period (Cohen’s $d = 0.18$). Overall, research points towards a significant improvement in life satisfaction due to positive writing tasks. This is likely due to the fact that these tasks help to highlight positive aspects of one’s life and allow one to become more optimistic, thereby increasing one’s satisfaction with life.

Although there is extant literature on the benefits, or lack thereof, of EW in different populations, and although most of the studies asked participants to write about difficult or stressful events, not many investigations have tested it strictly using participants who have experienced a Criterion A trauma or who meet diagnosis for PTSD. In the following section, the most relevant studies using EW in PTSD-positive populations are reviewed.
Writing in PTSD-Positive Samples

EW has become an intervention of increasing interest with samples suffering from PTSD symptomatology. The limited literature on the effects of EW on PTSD is summarized in this document. Several authors cited above have found EW to decrease PTSD symptoms, such as Bragdon and Lombardo (2012; Cohen’s $d$ ranged from 1.35 to 1.57), Sloan and colleagues (2011; $r$ effect size = .61), Meston et al. (2013), and Sayer and colleagues (2015; $d = 0.24$). Similarly, van Emmerik and colleagues’ (2008) RCT tested the effects of cognitive behavioral therapy (CBT), structured EW, and a control waitlist on alcohol use disorder (ASD) and PTSD. One hundred and twenty-five participants at an outpatient clinic were randomly assigned to one of the three groups. Treatment consisted of five weekly 1.5-hour sessions of CBT or EW for participants with ASD or acute PTSD and ten weekly 1.5-hour sessions for participants with chronic PTSD. The waitlist received no intervention. Symptom reduction was observed for PTSD ($Cohen’s \ d = 0.86$ and 0.72 for the EW and CBT groups, respectively) and depression ($Cohen’s \ d = 0.55$ and 0.26 for the EW and CBT groups, respectively), and the treatment groups did not differ in their reductions across outcomes. Greater reductions in intrusive symptoms ($Cohen’s \ d = 0.59$), depressive symptoms ($Cohen’s \ d = 0.29$), and state anxiety ($Cohen’s \ d = 0.52$) were observed among participants who received either treatment compared to the control group. Overall, EW seemed to improve outcomes as well as CBT in a clinical group presenting with comorbid disorders.

Some have varied the EW task when applying it with PTSD-positive groups. For instance, Morris et al. (2005) implemented two variations to the EW task with German undergraduate students symptomatic for PTSD. The variations took place on the third session of
writing. The “coping” variation asked participants to reflect on what they have done in the past, what they continue doing, and what they will do in the future to cope with the trauma disclosed in the first two writing sessions. The second variation, the “helping” condition, asked participants to imagine themselves in an advisor role, asking them what they would recommend for better coping to someone facing their same trauma. The third group was the classic EW without any variations. Participants were randomly assigned to one of the three groups. Follow-up measures were administered six weeks postwriting. Results showed that the biggest impact on PTSD symptoms was observed in the “helping” group (Cohen’s $d = .71$), followed by the classic disclosure (Cohen’s $d = .52$) and “coping” (Cohen’s $d = .43$) groups. Contrary to expectations, the “coping” group did not fare better than the other two groups. The authors suggested that it is possible that instructions for the “coping” group may have triggered memories of the participants’ failed coping attempts and therefore led to worse outcomes.

Encouraged by the benefits of positive aspects of disclosure, Hoyt (2013) examined the effects of emotional disclosure on psychopathology in students who recently lost a loved one. Two studies were conducted to test a proposed model on disclosure targets and emotional valence. In the first study, 86 participants completed measures regarding disclosure and mental health. Results showed that social support and disclosure of positive emotions to partners significantly predicted a decrease in PTSD ($\Delta R^2 = .139$) and depressive symptoms ($\Delta R^2 = .106$), supporting the idea that positive valence disclosure is beneficial for trauma-inflicted groups. In the second study, the classic EW task was utilized with 25 undergraduates who wrote for 30 minutes about the loss of a loved one on two consecutive days. Results showed that expressed insight was correlated with lower depression ($r = -.30$) and PTSD symptoms ($r = -.39$), and the usage of first-person pronouns was associated with higher depressive ($r = .53$) and PTSD ($r =
symptomatology. Finally, the expression of negative emotions was not associated with symptoms of psychopathology, leading the authors to suggest that the disclosure of negative emotions may not assist in recovery from bereavement. Regression results showed that EW was beneficial for decreasing symptoms of PTSD ($\Delta R^2 = .395$) and depression ($\Delta R^2 = .484$).

One investigation did not find significant differences between emotional and nonemotional EW on PTSS (Hoyt & Yeater, 2011). The researchers randomized participants to either write about their traumas in an emotional way (EW condition), write about their traumas in a nonemotional manner (active control condition), or to write about daily activities (control group). Results showed significant between-subjects effect for writing condition, $\eta^2 = .11$, with both the EW and active control conditions showing larger decreases in PTSS compared to the control group. Another investigation with participants seeking treatment at two outpatient centers (i.e., a Veterans Affairs hospital and a local rape and trauma center) found nonsignificant decreases in PTSS at a three-month follow-up in both EW and control groups (Smyth et al., 2008). However, the EW group displayed less anger and tension compared to the control. Of note, all three 20-minute writing sessions were conducted in one day, with a 15-minute resting period in between.

Overall, findings from the variable applications of EW in different populations support its use as an ancillary intervention for decreasing PTSD symptomatology or possibly as Hoyt (2013) suggested, as homework assignments incorporated within therapy. Further, although positive writing and benefit finding have been investigated in multiple studies with nonclinical samples, it has not been tested with PTSD-positive samples. Therefore, this study aims to test whether different expressive writing tasks (i.e., classic EW, benefit finding) on two consecutive days lead
to similar changes in psychological outcomes at postwriting and at a two-week follow-up
timepoint in a sample of undergraduate students presenting with elevated PTSD symptoms.

Potential EW Moderators

Research efforts have not yet been successful in identifying moderators that impact the
effects of EW tasks (Frattaroli, 2006; King, 2002). In the following sections, two potential
moderators are introduced and discussed.

Emotion Regulation

Emotion regulation (ER) has been extensively studied in the field of mental health and
psychopathology (Koole, 2009). Most descriptions define ER as the way in which people
manage the experience of emotions (i.e., process, modulate, and express the emotional
experiences) and the way in which one interprets and reacts to internal and external events
(Bradley, 2000; Greenberg & Watson, 2006; Gross, 1998; Gross & Muñoz, 1995; Koole, 2009;
Watson, 2007). Such interpretations of occurring events create response patterns, allowing for a
person to direct attention, change cognitive appraisals, and respond to the internal or external
stimulus (Koole, 2009). While these response tendencies tend to be impulsive, they can be
overcome with effort (Gross & Muñoz, 1995), meaning that ER is both an automatic and
deliberate response. ER could be used to decrease or control negative experiences and could be
used to modulate positive experiences as well (Gross, 2002). ER is neither inherently good nor
bad (Gross, 2002); emotion dysregulation is a state described as a particularly impaired ability to
understand, identify, and accept emotions and to have poor access to emotion regulation
strategies (Gross, 1998; Seligowski et al., 2015).
The Gross process model of emotion regulation argues that different regulation strategies have varying impact depending on when they occur throughout the emotional response (Gross, 1998). The model highlights distinctions between antecedent- and response-focused emotion regulation strategies; the former occurs before the emotional response becomes fully activated, and the latter occurs after the emotion is underway. Consequently, researchers describe emotion regulation as having crucial roles in making sense and meaning of difficult events, in identifying ways to solve conflicts, and in understanding one’s own needs, goals, and priorities (Bradley, 2000; Cameron & Nicholls, 1998; Frattaroli, 2006; Greenberg & Watson, 2006; Watson, 2007). A recent change to studying ER has been examining the state of flexibility in terms of ER (Aldao et al., 2015). It is proposed that ER flexibility is important for identifying, preventing, and treating emotional difficulties that are often the hallmark of mental disorders (Aldao et al., 2015; Bonanno & Burton, 2013). Different definitions for ER flexibility have been proposed, with some operationalizing it as variability in using ER strategies between different situations (e.g., Aldao & Nolen-Hoeksema, 2012) and others as the interaction between different ER strategies (e.g., Aldao et al., 2014). One new definition proposes that ER flexibility is the degree to which the variability in using certain ER strategies is in sync with environmental demands (Aldao et al., 2015). This proposal considers ER flexibility to be adaptive when it leads to increased likelihood of achieving one’s goals. For instance, using suppression during a work meeting due to feeling irritated at an obnoxiously loud co-worker might lead to worse outcomes if the person’s goal is to listen to the co-worker’s contribution. In comparison, using reappraisal might allow the person to better meet their goal of taking in the information the co-worker is offering.

Understanding the relationship between ER flexibility and the pursuit of one’s goals can lead to better comprehension of the dysregulated affective and motivational aspects of
psychopathology (Aldao et al., 2015). Therefore, research on the impact of treatments on ER flexibility has been encouraged (Aldao et al., 2015); although the current project is not directly measuring flexibility in ER, it is interesting to consider how flexibility in ER might impact benefits from a treatment such as EW. This may be particularly relevant within therapeutic tasks that help the individual reappraise a stressful and difficult event (e.g., writing about the perceived benefits of a trauma) and if such tasks may be more helpful for those with more adaptive ER flexibility.

ER impacts the experience of emotions depending on the effectiveness of the regulation strategy (Koole, 2009). Impairing emotional states, such as the continuation of negative emotions or incorrect responses to emotional cues, may be maintained if individuals fail to engage in effective emotion regulation strategies (Koole, 2009). Unsurprisingly, difficulties with emotion regulation predict worse psychological outcomes, including various anxiety and mood disorders (Campbell-Sills & Barlow, 2007; Greenberg & Watson, 2006) as well as poorer general well-being, such as lower grade point average and worse adjustment to college (Cameron & Nicholls, 1998). It has also been suggested that the development of clients’ emotion regulation skills and their abilities to identify their inner experiences and modulate them are key to successful therapeutic outcomes (Watson, 2007). Supporting evidence strongly indicates worse treatment outcomes in those with greater emotion regulation difficulties (Elliot et al., 2004; Paivio & Laurent, 2001; Wiser & Arnow, 2001), as therapy clients with higher emotion regulation difficulties engage less in their emotional experience in-session and are less able to regulate their affect towards the end of treatment (Watson et al., 2011).

Research has continually demonstrated emotion regulation difficulties in adults with PTSD (Gross, 1998; Seligowski et al., 2015) and prolonged forms of trauma exposure (Cloitre et
al., 2005; Cloitre et al., 2009; Frewen et al., 2012). A recent meta-analysis examining the role of emotion regulation difficulties in the progression and maintenance of PTSS found the strongest effect size for general emotion dysregulation \( (r = 0.53) \), followed by rumination \( (r = 0.51) \) and suppression \( (r = 0.47) \; \text{(Seligowski et al., 2015)} \). Accordingly, emotion regulation plays a role in enhancing posttrauma recovery (Cameron & Nicholls, 1998; Frattaroli, 2006). For instance, emotion regulation difficulties are salient in survivors of childhood abuse and strongly predict functional impairment, controlling for PTSD symptomatology (Cloitre et al., 2005). Further, suppression, or holding back negative emotional experiences, in veterans who underwent cognitive behavioral group therapy predicted exacerbated PTSD symptoms at treatment intake and discharge (Boden et al., 2013). Similarly, in an investigation of veterans with PTSD and sleep problems, it was found that those who utilized suppression endorsed higher levels of anxiety; however, in those who use more adaptive emotion regulation strategies, there was no relationship between PTSD and anxiety, regardless of whether they displayed sleep problems (Mantua, Helms, Weymann, Capaladi, & Lim, 2018). In addition, it has been found that rape victims displaying more emotional engagement in early sessions of prolonged exposure showed better improvements (Foa et al., 1995). Similarly, exposure therapy clients showing high emotional engagement in initial sessions had improved functioning posttreatment compared to clients with only moderate levels of emotional engagement (Jaycox et al., 1998), and in another study, participants who dropped out from either the prolonged exposure treatment or the waitlist reported higher emotional suppression (Crockett, 2015). Finally, the role of emotion regulation has been investigated in applications of Skills Training in Affect and Interpersonal Regulation (STAIR; Cloitre et al., 2004), and findings suggest that better affect regulation predicted lower
PTSD symptoms and mediated the relationship between therapeutic alliance and treatment outcomes.

Taken together, the literature suggests that individuals with enhanced emotion regulation and higher emotional engagement are more likely to benefit from trauma-focused treatments, which is of interest to EW. As the writing tasks involve acquiring insight into one’s experienced emotions and disclosing them on paper, it targets the internal knowledge systems of emotion regulation (Koole, 2009). In EW, participants are asked to directly address their thoughts and feelings about the adverse experiences; hence, individuals better equipped with emotion regulation skills might be able to incur more benefits. For instance, suppression, one emotion regulation strategy, could be related to EW. Suppression involves the conscious process of avoiding negative emotions and has shown to lead to many long-term adverse outcomes. Repressors seem to possess less insight into their own emotional states compared to nonrepressors (Lane et al., 2000). Suppressors also display higher rates of long-term intrusive thoughts regarding stressful events, even after the experienced short-term success at suppressing such thoughts (Geraerts et al., 2006). Research supports the adverse physical health outcomes that repressive coping can produce, including poorer immune functioning (Barger et al., 2000) and heightened risk of infectious diseases (Jamner et al., 1988), coronary heart disease, cancer, and asthma (Weinberger, 1990). Therefore, when participants completing EW are asked to do essentially the opposite of suppression, repressors might struggle more with the task and therefore would not benefit to the same extent as a nonrepressor participant.

Unfortunately, not many studies have examined the role of emotion regulation difficulties in EW tasks or whether those with enhanced affect regulation skills do in fact benefit more. In her push for the investigation of more moderators behind the effectiveness of EW, Frattaroli
(2006) suggested emotion regulation as a possible route of investigation. One dissertation project (Mattina, 2011) has examined the potential mediating and moderating role emotion regulation plays on the effects of EW. Results suggested that baseline emotion regulation abilities predicted better depression ($\Delta R^2 = 0.067$) and PTSD scores ($\Delta R^2 = 0.041$) when controlling for both group effects and baseline levels of depression and PTSD symptoms. However, recruitment for this project did not use a cutoff score on the Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995), and any participant endorsing distress at baseline screening was included in the study. It has still not been investigated whether emotion regulation difficulties in individuals with posttraumatic stress disorder symptomatology impacts outcomes following EW. Although Toepfer et al. (2016) did not test emotion regulation in their investigation discussed above, they proposed that guiding participants to focus on positive parts of the past and present during EW could thwart unhelpful or maladaptive emotion regulation by helping participants to consider more productive and positive perspectives. This study aims to clarify whether emotion regulation difficulties at baseline moderates the relationship between the EW tasks and psychological outcomes in a sample presenting with PTSD or subthreshold PTSD. Uncovering whether emotion regulation difficulties significantly predict who is more likely to improve from EW has clinical utility. Specifically, it may lead to easier treatment planning for clinicians and practitioners based on different clients’ needs and abilities.

**Sex**

Inhibition theories have been proposed to explain the health benefits of EW (Pennebaker & Beall, 1986), and based on such theories, it has been suggested that males should display higher benefits from a task such as EW compared to females for multiple reasons. First,
substantial research has been conducted on the “inexpressive male” (Balswick, 1988), in which males are encouraged to suppress emotional experiences, distress, and psychological suffering to their support systems and close social networks (Frattaroli, 2006; Ptacek et al., 1992). Modeling of low-disclosure has been shown to influence the extent to which people disclose (Thase & Page, 1977); hence, if suppression is modeled to males throughout their lives, it possibly makes it inherently difficult for them to communicate their emotions when they choose to do so, especially if they have limited experience with disclosure (Dindia & Allen, 1992). Women generally are not discouraged from emotional expression and, on the contrary, are expected to be willing, honest, and open about their emotional experiences and psychological distress, often accused of being “too emotional” (Allen & Haccoun, 1976; Balswick, 1988; Dindia & Allen, 1992; LaFrance & Banaji, 1992; Shields, 1987). This results in females feeling more comfortable self-disclosing to people in their lives compared to males, as has been shown in many investigations (Blier & Blier-Wilson, 1989; Dindia & Allen, 1992; Rivkin et al., 2006; Sprecher & Sedikides, 1993). Along those lines, given the opportunity to do so, females might not benefit from a disclosure opportunity as much as males, whose disclosures are more rarely accepted and tolerated. In a safe and nonjudgmental setting with no social feedback or judgment due to the disclosure, such as in an EW laboratory setting, males might be more encouraged to disclose their experienced distress or stressful experiences and therefore experience the cathartic release that might lead to the observed benefits of EW (Frattaroli, 2006; Smyth, 1998). Further, research suggests that males tend to apply more problem-focused coping (Ptacek et al., 1992), which may encourage them to focus on the trauma when writing. This differentiates them from females and may enable the beneficial effects of expression (Pennebaker, 1993; Solomon et al., 1990).
It is helpful to consider research on sex differences within the realm of trauma-focused treatments. It has been proposed that “healthy” females and males encode and recall emotional memories differently (Andreano & Cahill, 2009) and that females preserve emotional memories better temporally (Andreano & Cahill, 2009; Bloise & Johnson, 2007). If females are better in the recall of emotional memories, females with PTSD might display greater maintenance of gains from exposure-based therapies compared to men due to their superior ability in recalling and processing of memories. A recent meta-analysis on sex differences in trauma-focused therapy outcomes showed that this type of research is greatly limited in comparison to the breadth of the research on differences in trauma exposure and prevalence of PTSD between the sexes (Blain et al., 2010). Blain and colleagues’ (2010) review used a unique methodology of analyzing studies based on specific trauma types. Their results showed mixed findings on treatment benefits and dropout between males and females based on trauma types. For instance, two of the nine included RCTs reported better gains for females: one administered either eye movement desensitization and reprocessing (EMDR) or imaginal exposure and cognitive restructuring (E+CR) to the two treatment groups (Karatzias et al., 2007); the second administered either CBT or imaginal exposure to the two treatment groups (Tarrier et al., 2000). On the other hand, Blain et al. (2010) included an RCT with refugees presenting with war-related traumas (Schulz et al., 2006) that concluded men and women had equivalent outcomes after completing CPT. Blain et al. (2010) concluded their review stressing the need for the examination of sex as a moderator or mediator in trauma treatments, as well as other pretreatment sex-related confounding variables that could be exerting an effect (e.g., attendance, motivation, treatment credibility).
More recent investigations also examined sex differences in treatment outcomes. A study at a PTSD specialty clinic concluded that male and female veterans benefit equally immediately after completing PE (Mouilso et al., 2016); however, the researchers did not include a follow-up to test if maintenance of improvement took place differently between the sexes. Others found that although females benefit more immediately after treatment, they had higher dropout rates (Eftekhari et al., 2013), but similarly, no follow-up data were available. Another investigation found that while men and women do not significantly differ in improvement immediately after treatment, differences in PTSD symptoms were detected at a six-month follow-up (Felmingham & Bryant, 2012). Specifically, the authors found that males who received exposure-only therapy displayed the highest PTSD symptomatology at follow-up compared to males who received exposure and cognitive restructuring and to females in both groups. This suggests that males may benefit most in the long term from receiving both exposure and cognitive components.

Overall, the literature is mixed on whether sex differences exist in terms of benefits from trauma treatments. Unsurprisingly, the same is the case with EW. As mentioned, Smyth’s (1998) meta-analysis, the first on EW, concluded that the proportion of males included in studies positively correlated with the overall effect size, suggesting that males could benefit from EW tasks more than females. Further, Klein and Boals (2001) found that males showed increased memory benefits after EW compared to females. Specifically, males assigned to the control group showed the least improvement from the second to the third test of working memory (i.e., the OSPAN), and males in the EW group showed the greatest improvement. On the other hand, some researchers concluded that females benefited more than males (Crow, 2000; Pennebaker et al., 1990). Of note, Pennebaker and colleagues (1990) maintain that a baseline issue could explain why females may have seemed to benefit more from EW: females visited the university
medical center more often than males did prior to the writing tasks. Therefore, their conclusions regarding sex differences should be interpreted with caution.

On the other hand, many researchers failed to find sex differences in the effects of EW (Booth et al., 1997; Donnelly & Murray, 1991; Kelley et al., 1997; Rivkin et al., 2006; Russ, 1992; Sheese et al., 2004; van Middendorp, 2004). Similarly, Frattaroli (2006) did not find a moderating role for sex in her meta-analysis. However, she encouraged studies to continue to report effect sizes on the Sex × Treatment interactions; this will make it more feasible to conduct a large-scale meta-analysis on the effects of sex on EW. Of note, of the 146 studies included in her meta-analysis, only nine investigations (Booth et al., 1997; Crow, 2000; Donnelly & Murray, 1991; Kelley et al., 1997; Pennebaker et al., 1990; Rivkin et al., 2006; Russ, 1992; Sheese et al., 2004; van Middendorp, 2004) tested sex as a moderator. Further, many EW studies recruit majority female participants, which does not allow for the investigation of sex-based differences due to the lack of sex-balanced groups. Relatedly, Pennebaker (2004) commented on the demographics of the samples recruited for EW, suggesting that problems could arise if samples are only or mostly female, maintaining that it is imperative to better understand who benefits most from such an intervention. Therefore, further examination of potential sex differences in EW tasks has been strongly suggested in order to clarify whether demographic variables can be predictors of treatment decision making (Frattaroli, 2006; Pennebaker, 2004; Sloan & Marx, 2004a, 2004b; Smyth, 1998). Hence, this study also aimed to recruit an equal number of males and females to determine whether psychological benefits of the writing tasks differ based on sex.
This Study

The primary goal of this study was to test if the valence of disclosure topics in EW tasks leads to reductions of posttraumatic stress symptoms (PTSS) and increases in life satisfaction. There is support for EW as a potential treatment for PTSD (Bernard et al., 2006; Bragdon & Lombardo, 2012; Meston et al., 2013; Sayer et al., 2015; Schoutrop et al., 2002; Sloan et al., 2013; Sloan & Marx, 2004a), but a limited amount of research has been conducted on the potential benefits of a positive writing task on decreasing PTSD symptoms. The second outcome variable of interest, life satisfaction, has been found to increase after EW and positive writing tasks (Booker, 2015; Seih et al., 2008; Toepfer & Walker, 2009; Wing et al., 2006) and would be a beneficial outcome to test in a sample presenting with PTSS. Further, a second aim was to examine the moderating roles of emotion regulation difficulties on well-being (i.e., PTSS and life satisfaction) following two sessions of EW. As has been discussed (Frattaroli, 2006; Smyth, 1998), examination of potential moderators (e.g., emotion regulation difficulties) is imperative to shed light on the optimal conditions in which EW is the most beneficial. EW asks participants to write about an identified index traumatic experience, and the difficulties one has in emotion regulation might play a role in how beneficial it may be (Frattaroli, 2006; Pennebaker & Chung, 2007). Further, a third goal was to test for sex differences in the benefits of EW. Groups who are generally less likely to self-disclose to their social networks (i.e., males) might show larger improvements due to this intervention (Smyth, 1998). Finally, the study aimed to replicate previous findings (King, 2001; King & Miner, 2000; Toepfer et al., 2016) suggesting that higher positive mood postwriting is more likely to be induced in the positive-valence writing tasks compared to the classic EW conditions.
The study was designed based on research findings regarding the efficacy of EW (Frattaroli, 2006; Smyth & Pennebaker, 2008). EW tasks seem to be most effective when participants have a history of traumatic exposure, when instructions include clear directions regarding the disclosure topic, when participants are offered compensation, and when follow-up periods less than one month are used. In terms of the sufficient dose of the EW intervention (e.g., at least three sessions), findings are inconsistent, with some concluding that at least three writing timepoints are ideal for effects (Frattaroli, 2006) and others suggesting there is no indicated dosage for finding effects, as some studies with only one writing session appear to produce similar improvements (Burton & King, 2008; Smyth & Pennebaker, 2008).

Based on such findings, this study started with recruiting participants from a mass testing pool of introductory psychology courses; participants needed to report a history of traumatic exposure based on the Life Events Checklist (LEC-5; Weathers et al., 2013). In January 2020, due to low participation, data collection was extended to advanced psychology students enrolled in an upper division psychology course and were offered extra credit for participation. Additionally, in order to test whether EW is beneficial for undergraduates in terms of PTSS and life satisfaction, participants were required to meet a cutoff score of 25 on the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5; Blevins et al., 2015) before being invited to participate. A cutoff score of 33 on the PCL-5 indicates probable diagnosis of PTSD (Blevins et al., 2015); therefore, the proposed cutoff of 25 is consistent with subthreshold PTSD. Further, based on evidence suggesting that three sessions may not be necessary for effects and that dropout rates surpass 20% in EW studies that employ three or more writing sessions (Boykin, 2017; Bragdon & Lombardo, 2012; Meston et al., 2013; Sayer et al., 2015; Sloan et al., 2011;
Smyth et al., 2008), participants in this study completed two writing sessions on consecutive days to test whether it is possible to detect benefits from EW after two writing sessions.

Participants were randomly assigned to one of two conditions: the classic EW condition and the positive writing condition. Participants randomized into the classic EW condition were given instructions per Pennebaker and Beall’s (1986) task. Specifically, they were asked to “let go,” explore, and write about their deepest thoughts and feelings regarding the traumatic event affecting them the most. Those randomized to the positive writing condition were asked to write about the perceived benefits of their worst identified traumatic experience. Instructions for this condition are the aforementioned instructions taken from King and Miner’s (2000) investigation. Before starting the tasks, participants were asked to report which identified index trauma they were disclosing. This is following recommendations by Bardeen and Benfer (2018) to minimize misidentification of index trauma events in studies of trauma-exposed populations. Since evidence does not suggest that the spacing (i.e., daily vs. weekly) or length of the sessions significantly changes the effects of EW tasks (Frattaroli, 2006), participants completed two 15-minute writing sessions on two consecutive days in a private laboratory room. Immediately after the second writing session, participants completed the first follow-up timepoint. In addition, two weeks after the second writing session, participants were asked to complete another follow-up assessment. In order to improve participation at the two-week follow-up, participants were offered the opportunity to either complete it online or to come to the lab to complete it in person. After the completion of the two writing sessions and the follow-up session, participants received compensation of either six class credits or extra credit, depending on which course they were enrolled in. All participants were offered a chance to enter in a drawing for one of five $10 cash prizes.
Study hypotheses were as follows:

Hypothesis 1A: Based on findings suggesting that EW leads to improvements in PTSD symptoms (Bragdon & Lombardo, 2012; Meston et al., 2013; Sayer et al., 2015) and evidence that positive writing leads to beneficial outcomes (King & Miner, 2000; Stanton et al., 2002), it was hypothesized that both conditions would report decreases in the total scores on the PCL-5 at the first follow-up timepoint immediately after the second writing session and at the two-week follow-up.

Hypothesis 1B: Based on findings suggesting that EW leads to improvements in life satisfaction (Booker, 2015; Seih et al., 2008; Toepfer & Walker, 2009), it was hypothesized that both conditions would report improvements on the Satisfaction with Life Scale (SWLS; Diener et al., 1985) at the first follow-up timepoint immediately after the second writing session and at the two-week follow-up.

Hypothesis 1C: Based on previous findings that the classic EW task does not perform better compared to positive writing (King & Miner, 2000; Stanton et al., 2002), it was hypothesized that no significant differences in decreases in the PCL-5 total scores would be detected between the two conditions at the two-week follow-up timepoint.

Hypothesis 1D: Based on previous findings that the classic EW task does not perform better compared to positive writing (King & Miner, 2000; Stanton et al., 2002), it was hypothesized that no significant differences in increases in life satisfaction would be detected between the two conditions at the two-week follow-up timepoint.

Hypothesis 2A: Emotion regulation difficulties at baseline, as measured by the total score on the DERS, was hypothesized to moderate the relationship between conditions and outcomes
at each of the follow-up timepoints. Specifically, at lower levels of emotion regulation difficulties, it was hypothesized that the effects of both tasks on PTSS would be stronger.

Hypothesis 2B: Emotion regulation difficulties at baseline was hypothesized to moderate the relationship between conditions and outcomes at each of the follow-up timepoints. Specifically, at lower levels of emotion regulation difficulties, it was hypothesized that the effects of both tasks on life satisfaction would be stronger.

Hypothesis 3A: Based on limited evidence suggesting that males benefit more from EW (Smyth, 1998), it was hypothesized that males would benefit more from either EW condition compared to females at each of the follow-up timepoints. Specifically, it was proposed that males would display larger decreases on the PTSD measure compared to females across all conditions.

Hypothesis 3B: Based on limited evidence suggesting that males benefit more from EW (Smyth, 1998), it was hypothesized that males would benefit more from either EW condition compared to females at each of the follow-up timepoints. Specifically, it was proposed that males would display larger improvements on the Satisfaction with Life Scale compared to females across all conditions.

Hypothesis 4: Based on evidence suggesting that participants in positive writing conditions report higher positive mood postwriting compared to those in classic expressive writing conditions (King, 2001; King & Miner, 2000; Toepfer et al., 2016), it was proposed that those in the positive valence condition would show higher increases in positive mood compared to the classic condition.
CHAPTER TWO

METHOD

Participants

Data collection ended in March 2020 due to the COVID-19 pandemic and consequent changes in guidelines for in-person research studies. Thirty-eight participants were enrolled from the mass testing pool of the introductory psychology course (n = 30) and the advanced psychology course (n = 8). Participants who were a) 18 years old or older, b) fluent in English, c) with exposure to at least one traumatic event as reported on the LEC-5 (Weathers et al., 2013), and d) scoring between 20 and 65 on the PCL-5 (Blevins et al., 2015) were invited via email to participate. The cutoff PCL-5 score was proposed for a number of reasons. A PCL-5 cutoff score of 31 has been linked with a 15.97 higher chance of a positive PTSD diagnosis compared to those scoring less than 31 (van der Meer et al., 2017). Further, initial psychometric data suggest that a cutoff score of 33 indicates probable diagnostic status (Blevins et al., 2015). Participants scoring higher than 65 at baseline were not included due to the possibility that the experimental task would cause high distress. Further, for accurately including participants with Criterion A trauma exposure, upon arrival in the lab for the first writing session and after providing informed consent, participants completed the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000), which was used to identify the index trauma they disclosed in the writing sessions. This was following recommendations suggested to minimize misidentification of index trauma events in studies utilizing trauma-exposed populations (Bardeen & Benfer, 2018).
Power Analysis

A power analysis using G*Power (Erdfelder et al., 1996) indicated that a sample size of 38 would be necessary for determining small effects ($f^2 = .25, p = .05$) with a power of .80. A proposed sample size of 40 participants (divided evenly across conditions) was targeted to detect the anticipated effects based on the power analysis.

Measures

Trauma Exposure

The Life Events Checklist for DSM-5 (LEC-5; Weathers et al., 2013) was administered during mass testing and prescreening to determine eligibility (Appendix A). The LEC-5 is a measure of lifetime exposure to 16 potentially traumatic events that could result in posttrauma symptomatology. Participants endorsing exposure to at least one of these experiences, except for “other,” were invited via email to participate in this study. For each item, participants were asked to report their level of exposure (i.e., happened to me, witnessed it, learned about it, part of my job, not sure, or doesn’t apply) and were able to mark all options that apply.

No published psychometric data properties are available for LEC-5. They are only available for the LEC for DSM-IV (Gray, Litz, Hsu, & Lombardo, 2004), the previous version of the LEC-5, which was developed in concurrence with the PTSD Checklist for DSM-IV (PCL; Weathers et al., 1993), the older version of the PCL-5. The LEC has adequate psychometric properties as tested with undergraduate student and veteran groups (Gray et al., 2004) and has shown good convergence with other measures of trauma exposure, such as the TLEQ (Kubany et
al., 2000; \( r = -.55, p < .05 \)). Further, it has significant correlations with several posttrauma outcomes, such as PTSD (\( rs = -.33 \) to \(-.48 \)) and depression (\( r = -.32 \); Gray et al., 2004).

**PTSD Symptoms**

The PCL-5 (Blevins et al., 2015) was used to assess PTSD symptomatology during mass testing, at baseline, and at each of the follow-up timepoints (see Appendix A). Participants were asked to consider their worst experienced event endorsed on the LEC-5 and to indicate on a 5-point Likert scale (0 = *not at all* to 4 = *extremely*) how much they were bothered by each of the 20 symptom items in the last 30 days. During baseline, participants were asked to complete the PCL-5 based on the event endorsed on the TLEQ (discussed below). A total PCL-5 score was generated by tallying the items, and higher total scores indicate higher presence of PTSD symptoms. Psychometric data suggest that a 33 cutoff score indicates potential PTSD diagnostic status (van der Meer et al., 2017; Weathers et al., 2013). During the in-person follow-up timepoint, participants were asked to rate the severity of the symptoms in the last week. During the online follow-up, participants were asked to rate the severity of the symptoms in the past two weeks.

Psychometric properties of the PCL-5 have been tested in two independent trauma-exposed undergraduate samples and results support that it is a psychometrically sound measure of PTSD symptomatology (Blevins et al., 2015). Findings include strong internal consistency (\( \alpha = .95 \)), good one-week test-retest reliability (\( r = .82, p < .01 \)), good convergent validity with other measures of PTSD such as the PCL and PDS (\( rs = .74 \) to \(.85, p < .01 \)), and adequate discriminant validity as evidenced by low to moderate correlations with constructs such as
depression and mania ($r_s = .31$ to $r_s = .60$). In this project, internal consistency for the PCL-5 at baseline was $\alpha = .81$.

**Emotion Regulation Difficulties**

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) was used to assess emotion regulation difficulties at baseline (see Appendix A). The DERS is a 36-item self-report questionnaire that measures difficulties in emotion regulation frequently seen in clinical settings and commonly used in the emotion regulation literature. The DERS is comprised of six distinct, yet related factors of emotion regulation, including an inattention to or a lack of acknowledgement of emotions and emotional responses, a lack of emotional clarity about emotional experience, the nonacceptance or negative secondary emotional responses to emotional distress and emotions, difficulties engaging in goal-directed behavior when experiencing negative emotions, difficulties with impulse control when experiencing negative emotions, and a limited ability to generate and implement emotional regulation strategies. Participants were asked to indicate how often the items apply to themselves by rating the items on a 5-point Likert scale ($1 = \text{almost never}$, $2 = \text{sometimes}$, $3 = \text{about half the time}$, $4 = \text{most of the time}$, and $5 = \text{almost always}$). Eleven items were reverse-coded, and a total score was generated by tallying the items. Only the total score was included in analyses for this study. Higher total scores indicate greater emotion regulation difficulties. Average scores for men and women have been published in the literature (Gratz & Roemer, 2004), with women reporting lower total scores ($M = 77.99$, $SD = 20.72$) than men ($M = 80.66$, $SD = 18.79$).

Psychometric properties for the DERS have been validated in undergraduate samples (Gratz & Roemer, 2004). Results have shown high reliability ($\alpha = .93$), adequate item-total
correlations \( r = .16 \) to \( .69, \, p < .01 \), and adequate internal consistency (Cronbach’s \( \alpha > .80 \) for each subscale). Further, the DERS total score has shown good test-retest reliability \( r = .88, \, p < .01 \) and good convergent validity \( r = -.69, \, p < .01 \) with the Negative Mood Regulations scale (NMR; Catanzaro & Mearns, 1990). In this project, internal consistency for the total scale of the DERS was \( \alpha = .84 \).

**Life Satisfaction**

The SWLS (Diener et al., 1985) was administered at baseline and each follow-up to measure participants’ subjective well-being and satisfaction with life. The five-item measure assesses participants’ global views of their lives instead of assessing satisfaction with a single domain. Consequently, the items of the SWLS are global in nature, rather than specific, allowing participants to consider their own values. Comparing one’s own life circumstances to their values, they can globally judge their life satisfaction based on the level of discrepancy between their realities and values. Participants were asked to rate each of the five items on a 7-point Likert-type scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *slightly disagree*, 4 = *neither agree nor disagree*, 5 = *slightly agree*, and 6 = *agree*, 7 = *strongly agree*), and a total score was calculated by summing the five item responses. Research suggests that scores from five to nine indicate extreme dissatisfaction with life, scores ranging between 31 and 35 indicate extreme satisfaction with life. Additionally, a score of 20 represents the neutral point on the scale, scores from 21 to 25 represent the slightly satisfied range, and scores between 15 to 19 fall in the slightly dissatisfied range (Diener et al., 1985).

Psychometric properties of the SWLS have been tested multiple times, and it has been shown to be a psychometrically sound measure (Diener et al., 1985; Pavot & Diener, 1993). It
has been shown to have favorable psychometric properties, including high internal consistency (ranging from .61 to .81) and high test-retest reliability (ranging from .54 to .87) over periods of time spanning one month to four years (Pavot & Diener, 2008). It has shown good convergent validity with numerous measures of well-being (Arrindell et al., 1991; Blais et al., 1989). Specifically, it has significantly correlated with positive ($r = .44$) and negative ($r = -.48$) affect and with measures of distress such as the Beck Depression Inventory (Beck et al., 1961; $r = -.72$) and dimensions on the Revised Symptom Checklist-90 (Derogatis, 1977; $r$ from -.34 to -.56, $p < .01$). Internal consistency for the SWLS at baseline was $\alpha = .83$.

**Positive Mood**

The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) was used immediately pre- and postwriting to assess positive affect. The PANAS measures two dimensions of emotional experience: Positive Affect (PA) and Negative Affect (NA). The measure consists of 20 items (i.e., 10 assessing PA and 10 assessing NA), and participants are asked to rate each on a 6-point Likert scale (1 = *very slightly or not at all*, 2 = *a little*, 3 = *moderately*, 4 = *quite a bit*, 5 = *extremely*). Only the PA scale was used in this project. The wording in the instructions can be altered based on the timepoint of interest. For the purposes of this study, the instructions for the current moment (i.e., You feel this way right now, that is, at the present moment) were used to measure how much the participant currently feels each emotion (Charles, Mogle, Urban, & Almeida, 2016). State PA was computed as the average of the PA item ratings. To measure mood changes, the PANAS was administered before and after each writing session, providing two scores for prewriting and two scores for postwriting per participant. Those were averaged to get one pre- and one postwriting mood score. The two final
averaged scores were then used to test whether the positive writing condition showed a higher induction in positive mood compared to the classic EW condition.

The PANAS has been shown to have good discriminant validity between the two dimensions \((r = -.09;\) Watson et al., 1988). Additionally, research supports good internal reliability for the “moment” instructions (i.e., \(\alpha\) ranging from .86 to .90 for P, and \(\alpha\) ranging from .84 to .87 for NA). Eight-week test-retest reliability for the moment instructions scale has been found to be \(\alpha = .54\) for PA and \(\alpha = .45\) for NA. It has also demonstrated good convergent correlation with other measures of mood (i.e., .76 to .92; Watson et al., 1988). Internal consistency for the prewriting ratings on each of the writing days was \(\alpha = .80\) and \(\alpha = .85\), respectively. Internal consistency for the postwriting ratings on each of the days was \(\alpha = .87\) and \(\alpha = .91\), respectively.

Demographics Questionnaire

A demographics questionnaire was administered during mass testing and baseline to collect information on a number of variables including age, sex, marital status, education, race, and previous and current treatment use for mental health concerns. A different demographics questionnaire was used in the two-week follow-up.

Potential Covariates

Although the study was randomized, certain variables have confounding effects and hence a potential to reduce the internal validity and generalizability of study results. Therefore, the following variables were examined as potential covariates.
Trauma Exposure

Lifetime exposure to trauma might play a role in who benefits most from EW (Frattaroli, 2006). Therefore, the TLEQ (Kubany et al., 2000) was used to measure overall exposure to traumatic events. The TLEQ is a self-report questionnaire that assesses exposure to 23 different potentially traumatic events (Kubany et al., 2000). Event descriptions do not include emotionally charged terms such as rape or abuse and instead are described in behaviorally descriptive terms. Respondents were asked to indicate the number of times they experienced each of the events listed on a 7-point scale, with response options ranging from never to five times or more. They were also asked to indicate whether each event evoked feelings of horror, fear, or helplessness and then asked about any physical injuries. Of note, Item 5 (Have you experienced the sudden and unexpected death of a close friend or loved one?) was edited to be compatible with the DSM-5 Criterion A “Have you experienced the sudden violent death of a close friend or loved one [e.g., homicide, suicide]?). The final question asked participants to identify which of the previously endorsed traumatic experiences is considered the most distressing (i.e., index trauma). Further, participants were asked to estimate when the most distressing event occurred to determine the recency of the index trauma. The TLEQ has demonstrated good test-retest agreement ($r_s = .83 - .88$) across two weeks and high convergent validity with other measures of trauma exposure ($r = .92$; Kubany et al., 2000). This covariate was scored as a summed number of total traumatic events experienced.

Time Since Trauma

Research indicates that the recency of the index trauma might play a role on the effects of EW (Frattaroli, 2006). Specifically, it is proposed that recent traumas have a lower likelihood of
having yet been discussed, processed, and integrated into one’s life story (Frattaroli, 2006), suggesting that writing on more recent traumas might lead to higher improvements. Therefore, the number of months elapsed since the trauma was tested as a possible covariate. This information was collected as a part of the TLEQ.

**Previous Disclosure**

Research suggests that previous disclosure of the trauma might play a role in the effects of EW (Frattaroli, 2006). Specifically, it has been proposed that previously undisclosed traumas might be a better target for EW (Frattaroli, 2006). Therefore, previous disclosure of the trauma was tested as another possible covariate. This information was collected as a part of the demographics questionnaire administered after completing the TLEQ in the lab session. This is because the event that participants were asked to write about (i.e., the index trauma) was decided upon prewriting using the TLEQ during the first lab session.

**Current Treatment**

It is important to assess for treatment participants might be receiving, in addition to the writing interventions, to test for any possible confounding effects (Frattaroli, 2006; Sloan & Marx, 2004b). Therefore, participants were asked to report at baseline and at follow-up whether they were at the time a) taking psychotropic medications or b) undergoing psychotherapy. This was assessed in the demographics questionnaires.

**Procedure**

This project was conducted as a three-part study: two experimental laboratory writing sessions, one or two days apart (T1 and T2), and a two-week follow-up survey (T3). Eligible
participants from the mass testing pool and the advanced psychology course were invited via email to the lab to complete the first writing session, during which the second writing session was scheduled for the next day (Appendix B). A two-day grace period was offered to participants who could not attend the second writing session the next day (e.g., if a scheduling conflict prevented them from attending the session the next day). Sessions were run individually by a graduate student and research assistants who were not aware of participant condition assignment prior to the start of the session; this was ensured by using prepared sealed envelopes labeled with participant ID numbers. To ensure that each participant had an equal likelihood of being assigned to either condition, participants were randomized into the conditions using a random number generator prior to the first laboratory session. Block randomization by gender was predetermined (i.e., randomization occurred within the group of males and separately within the group of females). As a result, the positive valence condition had 16 participants and the classic valence condition had 22 participants. Unfortunately, due to the low numbers of males enrolled in the psychology courses, the total male to female ratio was approximately 1 to 3 (i.e., 9 males and 28 females total). Further within each condition, the numbers of males to female differed; within the classic condition, there were 7 males and 15 females. Within the positive valence condition, there were 2 males and 14 females.

In the first writing session, participants were informed of the study’s purpose and risks, benefits of their participation, and their rights as voluntary participants. Participants were asked to give informed consent (Appendix C) and complete a computerized battery of baseline self-report measures. The set of measures included the TLEQ, PCL-5, DERS, SWLS, PANAS, and a demographics questionnaire. Qualtrics software was used to administer the questionnaires on a lab computer. Upon the completion of the TLEQ and after verifying that they meet Criterion A,
the participants were asked to complete the PCL-5 based on the most distressing event, as well as the rest of the pretest battery (i.e., PANAS, DERS, SWLS, and demographics questionnaire). Afterward, the total PCL-5 score was verified to ensure the proposed cutoff score was met. Participants were then handed the sealed envelope with instructions, paper, and a pencil for either the positive or the classic EW conditions. All participants were asked to read their writing prompt aloud to the graduate student and were offered the opportunity to ask questions before writing. They were then left alone in the private room to complete the writing task. Research suggests that handwriting evokes a stronger emotional response than typing about traumatic experiences (Brewin & Lennard, 1999). Therefore, participants were asked to handwrite their essays. Those in the classic EW condition were asked to write for 15 minutes using the following prompt adapted from Pennebaker (1997):

I would like for you to write about your very deepest thoughts and feelings about the traumatic event that you identified as the most distressing earlier in this session. 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, 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. All of your writing will be kept completely confidential. Don’t worry about spelling, sentence structure, or grammar. The only rule is that once you begin writing, continue to do so until your time is up.

Participants in the positive valence condition were asked to write for 15 minutes using the following prompt adapted from King and Miner (2000):

I would like for you to recall the traumatic event that you identified as the most distressing earlier in this session. Think about the experience for a few moments. Now, focus on the positive aspects of the experience. Please write about how you have changed or grown as a person as a result of the experience. Focus on the positive aspects and how the experience has benefited you as a person—how has the experience made you better able to meet the challenges of the future? As you write, do not worry about punctuation or grammar, just really let go and write as much as you can about the positive aspects of the experience.
After the completion of the first writing session, the participant was asked to seal their essay in the envelope, completed the PANAS again, and were partially debriefed (see Appendix C). The second writing session (T2) was then scheduled, and an appointment card was given to the participant. Participants were asked if they would like to receive text or email reminders for the second session. If participants consented to receiving reminders, the participant was reminded the evening before and the morning of the appointment (see Appendix B). After arriving for the second writing session (T2), participants were given a second sealed envelope with instructions similar to the first session. After the second session writing was completed, the participant completed the first follow-up timepoint (i.e., PCL-5, SLWS, PANAS). They were partially debriefed again, awarded four course credits, and reminded that they would be contacted regarding the final follow-up survey two weeks later. In order to improve participation at the two-week follow-up, participants were offered to either complete it online or to come to the lab to receive an in-person credit. The two-week follow-up survey included a short demographics survey, the PCL-5, and the SWLS. Participants were given a five- to seven-day grace period to complete the follow-up survey. After the completion of the online survey, participants were fully debriefed and awarded with the final two credit hours (see Appendix C). They were also given the opportunity to enroll in a drawing for five $10 cash prizes. If they were interested in the drawing, the survey redirected them to a separate drawing survey where they entered their names and contact information.

Data Analysis

First, the data were cleaned and prepared for analysis using IBM SPSS 24 (IBM, 2016). Analyses examining potential between-condition differences on demographic variables (e.g.,
age, sex) and sample characteristics (e.g., baseline symptom severity) were conducted using t tests or chi-square analyses. Additionally, a manipulation check was proposed to ensure participants followed the writing instructions; this took the form of a question asked after each writing session. Participants were asked to rate the question, “In this task, I was instructed to write about the gains that were associated with my stressful event,” on a 3-point Likert scale (1 = Agree, 2 = Not sure, 3 = Disagree). It was proposed that only participants in the positive valence condition who chose “Agree” and only those in the classic expressive-writing condition who chose “Disagree” on both days would be included in the analyses. Of the 38 participants, 52.6% passed the manipulation check on both days, 7.9% answered “Not Sure” twice instead of “Agree,” and 39.5% chose a different answer on each day. A chi-square test was used to examine whether there were significant differences in who passed or failed the manipulation check. Results showed that there was no association between group membership and the result of the manipulation check, $X^2(2) = 3.812, p = .149$. All participants were retained in the analyses to ensure adequate power.

Prior to primary analyses, variables were examined utilizing histograms, graphs, and scatterplots. The data were examined for possible skewness and kurtosis. Variables with significant skew were transformed according to recommendations of Tabachnick and Fidell (2013), such that variables with significant skew (i.e., $z = +/-2.00$, based on the z-score calculated by dividing skew by the standard error of skew) were transformed using a square root transformation, depending upon the severity of the skew. The data were examined visually and statistically for any outliers. Finally, possible multivariate outliers were identified by computing Mahalanobis distances for each case. Further, based on recent recommendations (Tabachnick & Fidell, 2013), if more than five percent of the data were missing, it was proposed that the data be
analyzed for trends between missing and nonmissing data by running Little’s MCAR test (Little, 1988) in order to determine if the data were missing completely at random.

Additionally, $t$ tests and chi-square tests were used to examine whether conditions differed at baseline. In case the conditions did differ on one or more of the variables, such variables were added as controls for all subsequent analyses. Potential differences between study completers and noncompleters were also assessed. Completers are those who attended both writing sessions and completed the online follow-up. In the case that there were no differences between completers and noncompleters on baseline measures, only those who completed the study and follow-up assessment were included in the analyses. In the case that there were differences between completers and noncompleters, intent-to-treat analyses were proposed for consideration.

Main study hypotheses were tested using analysis of variance (ANOVA) or analysis of covariance (ANCOVA), inferential confidence intervals to establish equivalency, and the PROCESS macro. Across all hypotheses, the prescores represented the total scores on the PCL-5 and SWLS reported during the first lab session at baseline, immediately before writing. The postwriting scores represented the outcome total scores reported immediately after writing, in the second lab session. The final follow-up scores represented the total scores reported during the follow-up survey two weeks after the second writing session. Hypotheses 1A and 1B were proposed to be run twice: once using immediate scores and once using follow-up scores as outcomes.

Hypotheses 1A and 1B, proposing that both conditions will report decreases in the total scores on the PCL-5 and improvements on the SWLS immediately postwriting and at the two-week follow-up, were tested using repeated-measures ANOVA in case there was no need to
control for any differences between the conditions or ANCOVA if there was a need to control for any of the possible covariates. In order to reject the null hypothesis, a significant main effect of time on the outcome variables needed to be detected. Further, Hypotheses 1C and 1D, proposing that no significant differences in psychological well-being would be detected at two-week follow-up between the two conditions, were tested using confidence interval within tests of equivalence. To reject the null hypothesis for 1C and 1D, following procedures by Tryon (2001), the inferential CIs and the range (Rg) for the comparison were calculated and compared to test if the difference between the two conditions was very likely to be zero, beyond random chance.

The proposed moderations in Hypothesis 2, which proposed that emotion regulation difficulties would moderate the effects of writing on the outcomes, were tested using the PROCESS methodology outlined by Hayes (2013). To reject the null hypothesis, the confidence intervals for the interaction terms needed not to span zero. Simple slopes were investigated to confirm that the direction of the moderating effect was in the predicted direction. In order to reject the null hypothesis, significant main effects and nonsignificant interaction terms needed to be detected. Hypothesis 3, proposing that males will benefit more from either EW condition compared to females, was tested using repeated-measures ANOVA. In order to reject the null hypothesis, significant main effects and nonsignificant interaction terms needed to be detected. In other words, males needed to display a larger decrease in PCL-5 scores and larger increases in SWLS scores compared to females. In the case that there are condition differences in the outcomes, condition was proposed to be entered as a control for Hypotheses 3A and 3B.

Finally, Hypothesis 4, stating that there would be higher induction in positive mood ratings in the positive condition compared to the classic condition, was tested with repeated-measures ANOVA. The two prewriting mood ratings reported immediately prewriting during
each lab session were averaged to calculate one prewriting mood rating, and the two postwriting mood ratings reported immediately postwriting during each lab session were averaged to calculate one postwriting mood rating. To reject the null hypothesis, a significant interaction between time and mood needed to be detected. Simple slopes confirmed whether the associations were in the predicted direction, namely, if the slope in mood ratings was greater for the positive mood condition than the slope in mood ratings for the classic EW condition.
CHAPTER THREE

RESULTS

Primary Analyses

Descriptive Statistics

Thirty-eight participants completed all three timepoints of the study. Approximately 76% of the sample was female ($n = 29$). The average participant age was $M = 19.66$ years ($SD = 1.85$). The sample was diverse in terms of racial breakdown: $39.5\% (n = 15)$ identified as White, $28.0\% (n = 11)$ identified as African American, $26.5\% (n = 10)$ identified as Hispanic, and $5.3\% (n = 2)$ identified as Asian. At mass testing, 100% of the sample scored above 20 on the PCL-5 and endorsed at least one event on the LEC-5. At baseline (i.e., Timepoint 1), 100% of the sample scored 20 or above on the PCL-5, and all participants endorsed at least one event on the TLEQ, all of which met the DSM-5’s PTSD Criterion A (Table 1). Approximately 79% of participants reported having disclosed the event at least once prior to baseline, and this was not different for males and females, $t(36) = .10, p = .92$. The most frequent total score on the TLEQ was six events ($n = 7, 18.42\%$), followed by eight events ($n = 6, 15.79\%$). The lowest total score was two events, and the highest was 16 events, endorsed by one participant each. The event most commonly endorsed as the worst event was the sudden, unexpected death of a loved one ($n = 12, 31.6\%$). This is comparable to studies with undergraduate samples, as the sudden death of a loved one is consistently reported as the most commonly endorsed worst criterion event in
undergraduate samples (Anders et al., 2012; Edman et al., 2016; Frazier et al., 2009). The average number of months lapsed since the index trauma was $M = 43.64$ ($SD = 40.59$). Most participants ($n = 30, 78.9\%)$ had disclosed the event prior to the study, and at follow-up, nearly a quarter of participants ($n = 9, 23.7\%)$ reported disclosing to someone since participation in the study. At the two-week follow-up, two participants (5.26\%) reported a new trauma that meets the DSM-5 Criterion A since the second writing session (i.e., a robbery, an incident of getting stalked/harassment). Males and females did not differ at the two-week follow-up in the rate of disclosure since participating in the study, $t(36) = .12, p = .91$.

Table 1

Frequencies of TLEQ Trauma Events Written About in the Writing Tasks ($N = 38$)

<table>
<thead>
<tr>
<th>Traumatic Event</th>
<th>$n$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor vehicle accident</td>
<td>3</td>
<td>7.9</td>
</tr>
<tr>
<td>Sudden death of a close friend or loved one</td>
<td>12</td>
<td>31.6</td>
</tr>
<tr>
<td>Life-threatening or disabling event experienced by a loved one</td>
<td>2</td>
<td>5.3</td>
</tr>
<tr>
<td>Robbery/weapon used</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Assaulted by an acquaintance or a stranger</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Threatened with death or serious harm</td>
<td>2</td>
<td>5.3</td>
</tr>
<tr>
<td>Growing up: was physically punished</td>
<td>2</td>
<td>5.3</td>
</tr>
<tr>
<td>Growing up: witnessed family violence</td>
<td>2</td>
<td>5.3</td>
</tr>
<tr>
<td>Physically hurt by intimate partner</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Before 13: unwanted sexual contact with someone at least 5 years older</td>
<td>3</td>
<td>7.9</td>
</tr>
<tr>
<td>As a teen: unwanted sexual contact</td>
<td>2</td>
<td>5.3</td>
</tr>
<tr>
<td>As an adult: unwanted sexual contact</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Sexual harassment</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Stalked</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Miscarriage</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Some “other” traumatic event</td>
<td>3</td>
<td>7.9</td>
</tr>
</tbody>
</table>

*Note.* TLEQ = Traumatic Life Events Questionnaire
The mean and standard deviation of all relevant variables are reported in Table 2. At baseline, potential PTSD diagnostic status was examined based on a cutoff of 33 (Weathers et al., 2013); slightly more than half of the sample \((n = 22, 57.9\%)\) met this cutoff. At Timepoint 2, immediately after the second writing session, 40\% of the sample met this cutoff. Finally, at the third timepoint, 13.2\% met the cutoff. Based on published score ranges for the SWLS (Diener et al., 1985; Pavot & Diener, 2008), the mean life satisfaction score at baseline \((M = 19.36)\) was lower than the weighted average reported for different samples of college students \((M = 23.9;\) Pavot & Diener, 2008). Scores of life satisfaction at baseline varied, with the average score falling in the “neutral point” of the scale. The biggest percentage of participants fell in the “slightly dissatisfied” range \((n = 12, 31.58\%)\), followed by the “slightly satisfied” range \((n = 11, 28.95\%)\). The frequencies of “extreme dissatisfaction with life” \((n = 2, 5.26\%)\) and “extreme satisfaction with life” \((n = 1, 2.63\%)\) were low. The biggest percentage of participants at Timepoints 2 and 3 were in the “slightly dissatisfied” range \((n = 10, 26.32\%; n = 9, 23.7\%,\) consecutively), followed by the “slightly satisfied” range \((n = 9, 23.7\%\) for each timepoint).

Table 2
Range, Means, and Standard Deviations of Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Timepoint 1</th>
<th>Timepoint 2</th>
<th>Timepoint 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed Range</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>TSD</td>
<td>0 - 68</td>
<td>37.61</td>
<td>12.00</td>
</tr>
<tr>
<td>Life Satisfaction</td>
<td>5 - 35</td>
<td>19.63</td>
<td>5.93</td>
</tr>
<tr>
<td>Trauma Exposure</td>
<td>2 - 16</td>
<td>7.26</td>
<td>3.37</td>
</tr>
<tr>
<td>Emotion Regulation Difficulties</td>
<td>75 - 141</td>
<td>102.87</td>
<td>17.47</td>
</tr>
</tbody>
</table>

*Note.* PTSD = PCL-5 total score; Life Satisfaction = total score on the SWLS; Trauma Exposure = Traumatic exposure score on the TLEQ; Emotion Regulation Difficulties = Total score of on the DERS
A correlation matrix is presented in Table 3. Baseline PTSD symptom severity was significantly negatively associated with life satisfaction and positively associated with trauma exposure and difficulties with emotion regulation. Hence, trauma exposure was entered as a covariate for all analyses examining PTSD as an outcome. PTSS at the two-week follow-up was also significantly negatively correlated with DERS total scores ($r = .33, p = .046$). Life satisfaction was significantly negatively associated with difficulties in emotion regulation at baseline but not at the two-week follow-up. PTSD symptoms and life satisfaction were not significantly associated with time in months since the event, current treatment, or previous disclosure; as such, these variables were not included as covariates.

Table 3

Correlation Matrix for Study Variables at Baseline

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PTSD</td>
<td>-</td>
<td>-.62**</td>
<td>.40*</td>
<td>.48**</td>
</tr>
<tr>
<td>2. Life satisfaction</td>
<td>-</td>
<td>-.27</td>
<td>-.39*</td>
<td></td>
</tr>
<tr>
<td>3. Trauma exposure</td>
<td>-</td>
<td>.37*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Emotion regulation difficulties</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: PTSD = PCL-5 total score; Life Satisfaction = total score on the SWLS; Exposure = Traumatic exposure score on the TLEQ; Emotion Regulation Difficulties = Total score on the DERS; * $p < .05$ ** $p < .01$*

Further, demographic variables were examined for associations with primary outcome variables. Women and men did not significantly differ on trauma exposure, current treatment, PTSD symptom severity, life satisfaction, or emotion regulation difficulties. Further, the two conditions were compared on study variables at baseline. The conditions did not differ in age,
trauma exposure, current treatment, PTSD symptom severity, life satisfaction, or emotion regulation difficulties total scores. All participants were study completers (i.e., completed all three parts), and no participants were excluded from the analyses.

Data Screening

Data were examined visually and statistically for univariate and multivariate outliers using box plots and the Mahalanobis distance detection method. Following this, a transformation (square root) was performed on the total score for difficulties with emotion regulation that corrected the nonnormal distribution of this variable (pretransformation skewness of .193, posttransformation skewness of .089, pretransformation kurtosis of -1.118, posttransformation kurtosis of -1.202). There were no univariate or multivariate outliers and hence none were excluded from analyses. Further, there were no missing data. All assumptions for ANOVA/ANCOVA were met, including the normality, linearity, and sphericity assumptions.

Hypothesis Testing

All analyses were conducted using SPSS. Based on descriptive statistics, trauma exposure was the only covariate included in analyses that examined PTSD as an outcome. No covariates were included for analyses with life satisfaction as the outcome.

Hypotheses 1A, 1B, 1C, and 1D

To test Hypothesis 1A, which states that all participants would display a decrease in PTSD symptoms from Timepoint 1 to Timepoint 3, a repeated-measures ANCOVA was conducted to determine a statistically significant effect of time on PTSD symptoms across both
conditions while controlling for trauma exposure. At the postwriting follow-up, results showed that, controlling for trauma exposure, there was no significant change in PTSD symptoms across all participants, \( F(1, 37) = .836, p = .367 \). However, at the two week follow-up, there was a significant main effect of time on symptoms of PTSD after adjusting for trauma exposure, \( F(1, 37) = 5.34, p < .05 \), partial \( \eta^2 = 0.13 \). There was a nonsignificant interaction between trauma exposure and PTSD symptoms, \( F(1, 37) = .92, p = .34 \). In other words, the rate of symptom decrease for participants of different baseline trauma exposure was not different for the full sample. The effect size \( \eta^2 \) was computed manually using the formula \( \eta^2 = \frac{SS_{\text{effect}}}{SS_{\text{total}}} \). The result was a medium effect size, \( \eta^2 = 0.15 \). To test Hypothesis 1B, which states that all participants would display an increase in life satisfaction from Timepoint 1 to Timepoint 3, a repeated-measures ANOVA was conducted to determine whether a statistically significant effect of time on life satisfaction was present for the full sample. Results showed that there was no significant change in life satisfaction across all study participants over time at both the postwriting timepoint, \( F(1, 37) = .374, p = .545 \), and at the two-week follow-up, \( F(1, 37) = .073, p = .79 \).

Hypotheses 1C and 1D, proposing that no significant differences in psychological well-being would be detected at two-week follow-up between the two conditions, were tested using Tyron’s (2001) procedures for establishing equivalency. Specifically, inferential confidence intervals were calculated, and a 5% significance level was set. An inferential confidence interval (CI) was calculated around each of the condition means. Each standard descriptive CI was reduced “such that nonoverlapping inferential CIs are algebraically equivalent to” a null hypothesis statistical test (Tryon, 2001, p. 374). In such comparisons, the null hypothesis states that the groups are not equivalent. The range (Rg) for each comparison was calculated after
calculating the inferential CIs; the Rg is characterized as the difference between the lower CI limit of the smaller group mean and the upper CI limit of the greater group mean. The delta (Δ) interval, which reflects a difference that is considered insignificant based on certain considerations, was then established for each comparison. In the current analyses, Δ intervals were determined to be the full sample’s standard deviation for each condition.

For each of the hypotheses, the inferential CIs and the range (Rg) were calculated and compared (Tables 4 and 5). For Hypothesis 1C, it was established that the means of the PCL-5 scores were statistically equivalent (Rg < Δ), meaning the two conditions were comparable at the two-week follow up (see Table 4). On the other hand, for Hypothesis 1D, it was established that the means of the life satisfaction scores were not statistically equivalent (Rg > Δ), meaning the two conditions were not comparable at the two-week follow up (see Table 5). Although there was no significant change in life satisfaction across all participants over time (i.e., Hypothesis 1B), results from Hypothesis 1D revealed that the mean for life satisfaction for the positive condition was higher than the mean for the classic condition. This suggests that there was nonequivalence for life satisfaction as a function of condition. As such, condition was entered as a covariate for Hypothesis 3B (as seen below).

Hypotheses 2A and 2B

The PROCESS macro (Hayes, 2016) was used to test whether emotion regulation difficulties moderated the relationship between condition and PTSD (Hypothesis 2A) and condition and life satisfaction (Hypothesis 2B) at both Timepoints 2 and 3. Conditional effects were determined by inspecting the interaction terms. A moderation effect would have been present if the confidence intervals for the interaction terms did not span zero. The moderation
Table 4

Descriptive Statistics and Calculations for Establishing Equivalency of Conditions on PTSD

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Classic Condition ($n = 22$)</th>
<th>Positive Condition ($n = 16$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$M_{\text{baseline}}$</td>
<td>37.82</td>
<td>37.31</td>
</tr>
<tr>
<td>$M_{\text{follow-up}}$</td>
<td>24.27</td>
<td>20.81</td>
</tr>
<tr>
<td>$SD_{\text{baseline}}$</td>
<td>13.31</td>
<td>10.25</td>
</tr>
<tr>
<td>$SD_{\text{follow-up}}$</td>
<td>12.86</td>
<td>13.24</td>
</tr>
<tr>
<td>S.E.</td>
<td>2.74</td>
<td>3.31</td>
</tr>
<tr>
<td>$t$ value</td>
<td>2.080</td>
<td>2.131</td>
</tr>
<tr>
<td>$E$</td>
<td>0.71</td>
<td>0.71</td>
</tr>
<tr>
<td>$t_x$</td>
<td>1.46</td>
<td>1.51</td>
</tr>
<tr>
<td>Inferential 95% CI</td>
<td>[20.27, 28.27]</td>
<td>[15.81, 25.81]</td>
</tr>
<tr>
<td>$R_g$</td>
<td>12.46</td>
<td>12.46</td>
</tr>
<tr>
<td>$\Delta$</td>
<td>12.96</td>
<td>12.96</td>
</tr>
</tbody>
</table>

*Note. $M_{\text{baseline}} = \text{mean for PCL-5 at baseline}; M_{\text{follow-up}} = \text{mean for PCL-5 at the two-week follow-up}; SD_{\text{baseline}} = \text{standard deviation for PCL-5 at baseline}; SD_{\text{follow-up}} = \text{standard deviation for PCL-5 at the two-week follow-up}; S.E. = \text{Standard error}; E = \text{the extent to which the CI needs to be reduced to obtain an inferential CI}; t_x = E(t); R_g = \text{Range}; \Delta = \text{Standard deviation for the full sample at two-week follow-up.}
Table 5

Descriptive Statistics and Calculations for Establishing Equivalency of Condition on Life Satisfaction

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Classic Condition (n = 22)</th>
<th>Positive Condition (n = 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$M_{baseline}$</td>
<td>19.00</td>
<td>20.50</td>
</tr>
<tr>
<td>$M_{follow-up}$</td>
<td>18.36</td>
<td>21.75</td>
</tr>
<tr>
<td>$SD_{baseline}$</td>
<td>5.89</td>
<td>6.08</td>
</tr>
<tr>
<td>$SD_{follow-up}$</td>
<td>6.79</td>
<td>7.65</td>
</tr>
<tr>
<td>S.E.</td>
<td>1.45</td>
<td>1.91</td>
</tr>
<tr>
<td>t value</td>
<td>2.080</td>
<td>2.131</td>
</tr>
<tr>
<td>E</td>
<td>0.71</td>
<td>0.71</td>
</tr>
<tr>
<td>$t_x$</td>
<td>1.46</td>
<td>1.51</td>
</tr>
<tr>
<td>Inferential 95% CI</td>
<td>[12.33, 24.39]</td>
<td>[17.68, 25.82]</td>
</tr>
<tr>
<td>Rg</td>
<td>13.49</td>
<td>13.49</td>
</tr>
<tr>
<td>$\Delta$</td>
<td>7.26</td>
<td>7.26</td>
</tr>
</tbody>
</table>

Note. $M_{baseline}$ = mean for SWLS at baseline; $M_{follow-up}$ = average score for SWLS at the two-week follow-up; $SD_{baseline}$ = Standard deviation for SWLS at baseline; $SD_{follow-up}$ = Standard deviation for SWLS at the two-week follow-up; S.E. = Standard error; E = the extent to which the CI needs to be reduced to obtain an inferential CI; $t_x$ = E(t); Rg = Range; $\Delta$ = Standard deviation for the full sample at two-week follow-up.
analysis for Hypothesis 2A indicated that, controlling for trauma exposure, the total score on the DERS did not significantly moderate the relationship between condition and PTSD symptoms at both postwriting, $b = -1.42$, CI [-9.82, 6.79], and the two-week follow-up, $b = -2.51$, CI [-13.54, 7.53], failing to support Hypothesis 2A (Table 6). Further, the second moderation analysis indicated that emotion regulation difficulties did not significantly moderate the relationship between condition and life satisfaction at postwriting, $b = 3.50$, CI [-1.65, 8.65], and the two-week follow-up, $b = 2.40$, CI [-3.04, 7.83], failing to support Hypothesis 2B (Table 7).

Table 6

Emotion Regulation Difficulties as a Moderator of Relationship Between Condition and PTSD, Controlling for Trauma Exposure ($N = 38$)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Post-writing</th>
<th></th>
<th></th>
<th>Two-week follow-up</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$b$</td>
<td>S.E.</td>
<td>$p$</td>
<td>$b$</td>
<td>S.E.</td>
<td>$p$</td>
</tr>
<tr>
<td>Trauma Exposure</td>
<td>.160</td>
<td>.574</td>
<td>.278</td>
<td>.349</td>
<td>.686</td>
<td>.614</td>
</tr>
<tr>
<td>Condition</td>
<td>-3.70</td>
<td>3.56</td>
<td>.307</td>
<td>-2.6</td>
<td>4.25</td>
<td>.537</td>
</tr>
<tr>
<td>DERS</td>
<td>8.28</td>
<td>2.24</td>
<td>.001</td>
<td>4.51</td>
<td>2.68</td>
<td>.102</td>
</tr>
<tr>
<td>Condition x DERS</td>
<td>-1.42</td>
<td>4.13</td>
<td>.732</td>
<td>-2.51</td>
<td>4.93</td>
<td>.615</td>
</tr>
</tbody>
</table>

Note. Trauma Exposure = Total score on TLEQ; DERS = Total score of emotion regulation difficulties on the DERS.

Table 7

Emotion Regulation Difficulties as a Moderator of Relationship Between Condition and Life Satisfaction ($N = 38$)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Post-writing</th>
<th></th>
<th></th>
<th>Two-week follow-up</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$b$</td>
<td>S.E.</td>
<td>$p$</td>
<td>$b$</td>
<td>S.E.</td>
<td>$p$</td>
</tr>
<tr>
<td>Condition</td>
<td>1.70</td>
<td>2.18</td>
<td>.442</td>
<td>-3.17</td>
<td>2.30</td>
<td>.177</td>
</tr>
<tr>
<td>DERS</td>
<td>-3.34</td>
<td>1.29</td>
<td>.014</td>
<td>-2.49</td>
<td>1.36</td>
<td>.075</td>
</tr>
<tr>
<td>Condition x DERS</td>
<td>-3.50</td>
<td>2.53</td>
<td>.177</td>
<td>2.40</td>
<td>2.68</td>
<td>.377</td>
</tr>
</tbody>
</table>

Note. DERS = Total score of emotion regulation difficulties on the DERS.
Hypothesis 3A and 3B

To test Hypothesis 3A, which proposed that males would report greater declines in symptoms of PTSD at each timepoint, a repeated-measures ANCOVA was conducted to determine if there was a statistically significant sex difference in PTSD scores across the full sample, while controlling for trauma exposure (Table 8). At the postwriting follow-up, results showed that controlling for trauma exposure, there was a nonsignificant main effect for time, \( F(1, 37) = .782, p = .383 \); a nonsignificant main effect for sex, \( F(1, 37) = .005, p = .942 \); and a nonsignificant interaction between sex and change in PTSD symptoms across the conditions, \( F(1, 37) = 0.00, p = .989 \). At the two-week follow-up, there was a significant main effect for time, \( F(1, 37) = .4.45, p = .042 \), but a nonsignificant main effect of sex, \( F(1, 37) = .162, p = .689 \), and a nonsignificant interaction between sex and change in PTSD symptoms, \( F(1, 37) = .728, p = .399 \) (Figure 1). In other words, from Timepoint 1 to Timepoint 3, the full sample of study participants experienced significant symptom decrease while adjusting for trauma exposure, but males and females did not differ in the rate of observed PTSD change, and both sexes seemed to benefit regardless of assigned condition.

Table 8

Descriptive Statistics of PCL-5 Scores by Sex and Timepoint

<table>
<thead>
<tr>
<th></th>
<th>Timepoint 1</th>
<th></th>
<th>Timepoint 2</th>
<th></th>
<th>Timepoint 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Females (n = 29)</td>
<td>37.90</td>
<td>11.80</td>
<td>31.38</td>
<td>11.27</td>
<td>22.10</td>
<td>12.10</td>
</tr>
<tr>
<td>Males (n = 9)</td>
<td>36.67</td>
<td>13.21</td>
<td>30.44</td>
<td>17.15</td>
<td>25.11</td>
<td>16.00</td>
</tr>
<tr>
<td>Total (n = 38)</td>
<td>37.61</td>
<td>12.00</td>
<td>31.16</td>
<td>12.65</td>
<td>22.82</td>
<td>13.00</td>
</tr>
</tbody>
</table>
Hypothesis 3B, proposing that males would display greater improvements in life satisfaction at both follow-up timepoints, was tested three times: once using scores at Timepoint 2 and twice using scores at Timepoint 3 (Table 9). Due to the finding that the conditions were not statistically equivalent at the two-week follow-up regarding life satisfaction, Hypothesis 3B was tested twice at the two-week follow up: once with repeated-measures ANOVA without condition as a covariate and once using repeated-measures ANCOVA with condition as a covariate. At Timepoint 2, there was a nonsignificant main effect for time, \( F(1, 37) = .049, p = .826 \); a nonsignificant main effect for sex, \( F(1, 37) = .281, p = .599 \), and a nonsignificant
interaction between sex and change in life satisfaction symptoms across the conditions, $F(1, 37) = 0.31, p = .581$.

Table 9
Descriptive Statistics of SWLS Scores by Sex and Timepoint

<table>
<thead>
<tr>
<th></th>
<th>Timepoint 1</th>
<th></th>
<th>Timepoint 2</th>
<th></th>
<th>Timepoint 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Females</td>
<td>19.41</td>
<td>6.18</td>
<td>18.90</td>
<td>7.12</td>
<td>18.97</td>
<td>7.13</td>
</tr>
<tr>
<td>($n = 29$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>20.33</td>
<td>5.32</td>
<td>20.56</td>
<td>7.28</td>
<td>22.44</td>
<td>7.45</td>
</tr>
<tr>
<td>($n = 9$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>19.63</td>
<td>5.93</td>
<td>19.29</td>
<td>7.10</td>
<td>19.79</td>
<td>7.26</td>
</tr>
<tr>
<td>($n = 38$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At the two-week follow-up, and without entering condition as a covariate, results showed that there was a nonsignificant main effect for time, $F(1, 37) = 1.57, p = .218$; a nonsignificant main effect for sex, $F(1, 37) = 0.812, p = .374$; and an interaction nearing significance between sex and life satisfaction, $F(1, 37) = 3.71, p = .061$, partial $\eta^2 = 0.042$ (Figure 2). In other words, without controlling for condition, and albeit nonsignificant, males displayed a greater increase in life satisfaction compared to females over the two-week period. On the other hand, when condition was entered as a covariate, results showed that at the two-week follow-up, there was a nonsignificant main effect for time, $F(1, 37) = 2.48, p = .125$; a nonsignificant main effect for sex, $F(1, 37) = 1.46, p = .235$; and a significant interaction between sex and life satisfaction, $F(1, 37) = 6.22, p < .05$, with a medium computed effect size, $\eta^2 = .18$ (Figure 3). Therefore, adjusting for condition assignment, males displayed a significantly greater increase in life satisfaction compared to females over the two-week period.
Figure 2. Change in life satisfaction from Timepoint 1 to 3 by sex, without condition as covariate.
Figure 3. Change in life satisfaction from Timepoint 1 to 3 by sex, with condition as covariate.
Hypothesis 4

To test Hypothesis 4, stating that participants in the positive condition would show higher increases in positive mood compared to the classic condition, a repeated-measures ANOVA was used. Results showed that there was a main effect for time that neared significance, $F(1, 37) = 3.82, p = .058$, with a small computed effect size, $\eta^2 = .10$; however, the direction of the change was not in the proposed direction, as there was a decrease in positive mood from Time 1 to Time 2 in the classic condition and across all participants. There was also a significant main effect of condition, $F(1, 37) = 4.63, p < .05$, medium computed effect size $\eta^2 = .13$, and a significant interaction between positive mood change and condition, $F(1, 37) = 3.71, p < .05$, medium computed effect size $\eta^2 = .13$. Of note, the positive condition did not show the proposed significant increase, and the classic condition showed a significant decrease in positive mood from pre- to postwriting (Table 10, Figure 4). In other words, compared to participants in the positive condition, participants in the classic condition displayed a significantly greater decline in positive mood from pre- to postwriting, and the figure shows a significant decline in positive affect postwriting. Participants in the positive condition displayed no significant change in positive mood ratings.

Table 10
Descriptive Statistics of Average PANAS Positive Mood Ratings Pre- and PostWriting

<table>
<thead>
<tr>
<th></th>
<th>Pre-writing</th>
<th>Post-writing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M, SD, n</td>
<td>M, SD, n</td>
</tr>
<tr>
<td>Classic</td>
<td>21.07, 5.63, 22</td>
<td>17.95, 6.07, 22</td>
</tr>
<tr>
<td>Positive</td>
<td>24.03, 7.18, 16</td>
<td>24.19, 9.00, 16</td>
</tr>
<tr>
<td>Total</td>
<td>22.32, 6.41, 38</td>
<td>20.58, 7.96, 38</td>
</tr>
</tbody>
</table>

*Note. PANAS = The Positive and Negative Affect Schedule*
Figure 4. Change in positive mood ratings from Timepoint 1 to 2, per condition.
CHAPTER FOUR
DISCUSSION

The aim of this study was to compare the short-term impact of two previously researched tasks, a positive writing task and a classic EW task, in undergraduate students with a history of trauma exposure and current elevated PTSS. This is the first study, to my knowledge, that compared both tasks in a sample of undergraduate students with elevated PTSD symptomology. It was anticipated that both tasks would be statistically equivalent in improving psychological well-being at a two-week follow-up. Further, emotion regulation difficulties were proposed to moderate the relationship between the EW tasks and outcomes. Additionally, sex differences across participants were tested, based on the hypothesis that the tasks would be more impactful for men. Finally, differences in positive mood before and after the writing tasks were examined across the conditions, with a greater increase in positive affect proposed to be observed in the positive writing task.

The sample consisted of 38 undergraduate students (76.32% women) enrolled in either an introductory or advanced psychology course. Prior to participation, participants endorsed exposure to at least one traumatic event and reported a score between 20 and 65 on the PCL-5. In the lab, participants identified an index event that is the most distressing, subsequently answered questions regarding the event history and experienced PTSD symptoms, and then completed the writing task on two days. PTSD symptomatology and life satisfaction were the outcome variables in the examined models. Covariates were examined and statistically controlled in
analyses when indicated. ANOVA, ANCOVA, and the PROCESS macro were used to test hypotheses.

PTSD Results

The results add to the existing literature that EW tasks of both the classic (Bragdon & Lombardo, 2012; Meston et al., 2013; Sayer et al., 2015) and positive valence (King & Miner, 2000; Stanton et al., 2002) lead to improvements in PTSD symptoms in samples with elevated PTSD symptomatology. Trauma history was the only variable correlated to PTSD symptomology at baseline and hence was adjusted for in models examining PTSD as an outcome. Results showed that adjusting for participants’ history of trauma exposure, participants in both conditions experienced significant decreases in total scores on the PCL-5 between baseline and the two-week follow-up (Hypothesis 1A), with a medium effect size observed. At the two-week follow-up, only 13.2% of the entire sample met the cutoff for probable PTSD diagnosis, compared to more than half at baseline. This is a meaningful decrease, comparable to results of studies applying EW tasks to psychiatric populations with elevated PTSD symptoms (Bragdon & Lombardo, 2012; Hoyt & Yeater, 2011; Morris et al., 2005), and shows a promising direction for both variations of EW. While the results from the classic condition are consistent with previous findings, the benefits from the positive condition show real promise and add to the literature; particularly, the positive task seems to be less burdensome and as impactful on PTSD symptomatology.

In addition, and consistent with previous findings that the classic EW task does not perform better than the positive valance task (King & Miner, 2000; Stanton et al., 2002), it was found that there were no significant differences in decreases in PCL-5 total scores between the
two conditions at the two-week follow-up, while adjusting for trauma history. In other words, the classic and positive conditions were statistically equivalent, and participants in both conditions benefited at comparable rates. To my knowledge, this is the first study to examine a positive variation of EW in a sample with elevated PTSS while comparing it to the classic EW task. These results add to the growing body of evidence supporting short-term psychological benefit resulting from EW tasks for trauma survivors who experience a Criterion A event from the DSM-5. Further, coupled with the finding about the decrease in positive mood in the classic EW task and the lack of such a decrease in the positive task (discussed more in detail below), the efficacy of the positive task is encouraging.

Sex Differences in PTSD

This study also examined sex differences regarding PTSD symptom change. Results did not support the proposed hypothesis and suggested that males and females did not differ in the observed decrease in PTSD symptoms, as both sexes seemed to benefit regardless of assigned condition. Considering the limited evidence suggesting that males may benefit more from EW compared to females (Smyth, 1998), the lack of significant sex differences in PTSD symptomatology may not be surprising. There is less evidence supporting sex differences in benefits of EW than opposing it (Booth et al., 1997; Donnelly & Murray, 1991; Kelley et al., 1997; Rivkin et al., 2006; Russ, 1992; Sheese et al., 2004; van Middendorp, 2004). Further, the literature on sex differences in trauma-focused treatments overall is quite limited (Blain et al., 2010) and does not provide consistent support for such a difference in treatment benefits; males and females have both been found to benefit equally from PE (Mouilso et al., 2016), CPT (Schulz et al., 2006), and other approaches (Blain et al., 2010).
Interestingly, in this study, there were no significant sex differences at baseline and the two-week follow-up regarding previous disclosure of the event; this may have played a role in the lack of significant sex differences. As proposed by some researchers (Frattaroli, 2006), possible sex differences could be explained by inhibition theory, suggesting that males might benefit more from EW tasks because they are more likely to inhibit and less likely to disclose traumas to their social networks compared to females. However, this did not appear to be the case among participants in this study. It is also noteworthy that although no sex differences in previous disclosure were detected, participants were only asked whether they had disclosed this event to someone prior to the first timepoint, and information on the extent of such disclosure was not collected. This may play an important role, as there is evidence that repeated disclosure of the traumatic event (Fontana & Rosenheck, 1994; Pennebaker et al., 2001; Pérez et al., 2017) might lead to improvements and hence the proposed differences between females and males in outcomes. However, this information was not collected in this study. Finally, it is important to keep in mind that the number of males in the study was lower than the number of females, and it is possible that results would be different with a larger sample of males.

Life Satisfaction Results

In contrast to the first set of results pertaining to PTSD symptoms, the results showed that participants in both conditions did not experience significant changes in life satisfaction scores between baseline and the two-week follow-up. At the two-week follow-up, just like at baseline, most participants fell in either the “slightly dissatisfied” or “slightly satisfied” range. Participants did not experience the hypothesized increase in life satisfaction over the course of two weeks. This could be attributed to multiple factors. Although life satisfaction as assessed by the SWLS
shows a relatively high level of temporal stability (e.g., .55 for four years; Pavot & Diener, 1993), researchers have used the SWLS in treatment studies to test for outcomes beyond psychological distress. Notably, different studies have shown that satisfaction does increase over the course of an intervention (Baker et al., 2019; Dvořáková et al., 2017; Friedman & Toussaint, 2006; Silvieria et al., 2020). However, most studies were tested with longer term intervention periods (e.g., two months, three months, 12 weeks, four months). One treatment study utilizing EW and a shorter follow-up time period (i.e., six weeks; Roepke et al., 2018) did not detect any significant changes in SWLS scores. Coupled with the current findings, the literature might suggest that a longer follow-up time period might be needed to detect changes in life satisfaction after an EW intervention or that a treatment with higher dose may be needed to motivate change in life satisfaction.

It is also possible that the current sample of undergraduate students had a unique conceptualization of life satisfaction that may explain the lack of significant change. The construct of life satisfaction as measured by the SWLS is meant to reflect a person’s subjective global judgment (Pavot & Diener, 2008), and this judgment tends to be based on frequently accessible information. Based on studies examining what sources of information are accessed when a respondent completes the SWLS, university students tend to judge life satisfaction on domains such as romantic and family relationships as well as academic performance (Schimmack et al., 2002). Such domains are not likely to improve significantly in a time frame of two weeks, even if PTSS improves. As such, a longer follow-up timepoint may have been needed to observe such changes. Further, the average life satisfaction scores detected at baseline and Timepoint 3 fell in the “slightly dissatisfied” range and were four points lower than the weighted average reported in the literature for university students, which fell in the “slightly
satisfied” range (Pavot & Diener, 2008). This might suggest that a sample with elevated PTSD symptoms likely experiences lower overall levels of life satisfaction than the average university student. In fact, there was a significant negative correlation between baseline PTSD symptoms and life satisfaction in this study. The literature also supports a link between trauma, PTSD symptoms, and poorer life satisfaction in individuals across the lifespan (Karatzias et al., 2013; Krause, 2004; Stålnacke, 2007), supporting the notion that higher PTSD symptoms and lower life satisfaction often co-occur. This suggests that PTSS might interfere with more than daily functioning, also with one’s subjective measurement of life quality. Thus, it may take a longer period of time for one’s subjective satisfaction to change following change in PTSD symptoms.

Although there was no main effect for time in this study, significant differences in changes in life satisfaction between the two conditions were detected at the two-week follow-up. Notably, the classic and positive valence conditions were not statistically equivalent, as participants in the positive valence condition benefited significantly more than those in the classic valence condition. These results suggest that the positive-valence task might be more successful at an immediate improvement in life satisfaction ratings (Diener et al., 1985).

**Sex Differences in Life Satisfaction**

The analyses regarding life satisfaction revealed sex differences in life satisfaction change over time. Specifically, when adjusting for condition, males displayed a significantly higher increase in life satisfaction at the two-week follow-up compared to females, with a medium effect size, lending support to one portion of the third hypothesis. This was the only observed sex difference in this study, and this novel finding adds to the existing literature on sex differences in EW. However, the change overall in life satisfaction remains nonsignificant for
both sexes, regardless of the observed sex difference. As previously stated, the number of males in the study was lower than the number of females, and it is possible that with more power the results would be significant. Further, results on previous disclosure discussed above are important to consider while examining the life satisfaction sex differences. It may be possible that although no differences in previous disclosure exist, the extent of such disclosure may be different between the sexes, but this was not assessed. Future research can help address this question by collecting more detailed information about the previous disclosure that had occurred, with whom the disclosure was made, and perhaps even the participant’s perceived experience of support from the disclosure. Coupled with the mood results discussed in more detail below and a longer follow-up time period, the positive-valence task may present a more attractive option, particularly for males. However, more extensive research is needed to support this hypothesis.

Emotion Regulation Results

The purpose of the proposed moderation model was to identify whether emotion regulation difficulties moderated the relationship between the tasks and symptom changes. The model tested with the PROCESS macro yielded nonsignificant results. This result adds to the conflicting and inconsistent literature regarding the role emotion regulation plays in EW tasks (Frattaroli, 2006; Mattina, 2011). The literature supports a positive link between severity of PTSS and emotion regulation difficulties (Ehring & Quack, 2010; Foa & Rothbaum, 1998; Gratz & Tull, 2010; Tull et al., 2007; Weiss et al., 2012); this was unsurprisingly supported in this sample, as there was a significant positive correlation between total DERS scores and PTSS at baseline and at the two-week follow-up. This suggests that participants with a higher degree of emotion regulation difficulties at baseline had higher distress at baseline and at the two-week
follow-up. Perhaps the impact of the difficulties in emotion regulation on PTSD symptoms was so strong that it trumped the relatively low dose of intervention.

Relatedly, there is evidence that individuals differ in the degree of emotion regulation difficulties based on the type of traumatic event experienced (Cloitre et al., 1997; Scoboria et al., 2008). For instance, one investigation (Ehring & Quack, 2010) concluded that, compared to noninterpersonal and late-onset trauma survivors, early onset interpersonal trauma survivors disclosed significantly higher emotion regulation difficulties as reported on both the DERS and Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). This corroborates other findings suggesting that interpersonal childhood traumas are often predictive of worse emotion regulation skills (Cloitre et al., 1997; van der Kolk, 2005). This finding is of interest to this study, considering the average age of our participants (i.e., 19 years old) and the average time elapsed since the index trauma (i.e., approximately three years). Unfortunately, this study did not limit recruitment to only a specific trauma type, and thus it is not possible to examine differences in the role of emotion dysregulation on EW for individuals with specific trauma events. However, this can be addressed in future research investigating only a specific population of trauma survivors.

Further, it is possible that only specific subtypes of emotion regulation difficulties as measured by the DERS moderate the relationship between task and outcome (e.g., clarity, goals). For instance, Mattina (2011) examined subtypes of the DERS as moderators within the EW tasks and found that each of the goals, strategies, and clarity subscales of the DERS interacted with study condition in predicting PTSD scores at follow-up. Specifically, participants with improved goal setting, more access to emotion regulation strategies, and higher emotional clarity benefitted significantly more at follow-up than those with less developed skills in these domains. On the
other hand, the impulse, awareness, and nonacceptance subscales did not show a main or interaction effect. These results suggest that it may be specific types of difficulties in emotion regulation that play a role in who benefits the most from EW tasks.

Based on results from other investigations, it would have been interesting to examine the subscales for goals, strategies, and clarity as possible moderators in this study. Skills of emotion regulation in those subscales help individuals set priorities, identify and clarify needs, and therefore assist in creating steps to prepare one for action (Elliot et al., 2004). Hence, during an expressive writing task, an individual may benefit greatly from having higher developed skills in those subtypes, particularly in the positive writing task. For instance, an individual scoring low on the strategies subscale generally believes they can use a set of strategies to improve their mood (Gratz & Roemer, 2004), and during a task that often brings up uncomfortable and negative memories, thoughts, and feelings, this skillset could possibly lead to higher active participation and hence higher psychological improvements. Similarly, an individual with a lower score on the goals subscale indicates they believe they are more likely to complete work while they are feeling upset (Gratz & Roemer, 2004). Such an individual may be more likely able to complete the EW task successfully, even if they feel upset or experience more negative affect, than a person who might be higher on this scale.

It is also noteworthy to state that the current sample’s average score on emotion regulation difficulties was 30 to 40 points higher than general means reported in the DERS literature, but comparable to norms reported for survivors of trauma with PTSD symptomatology (i.e., an eight-point difference; Weiss et al., 2012). In addition, the range and variance for the DERS detected in this sample was reduced compared to other studies of general populations (i.e., current SD was approximately seven points lower; Mattina, 2011; Weiss et al., 2012). In other
words, the sample was less variable in its emotion regulation difficulties compared to general samples, and the average participant was more likely to have ER difficulties. This is important because within the proposed moderating analysis, we were interested in testing whether lower compared to higher levels of ER difficulties make a difference in the impact of the writing tasks on psychopathology. Due to the limited range and variance of ER difficulties in the sample, and as there were fewer participants with lower DERS total scores than higher total scores, it may not be possible to test whether the intervention was more effective for those at lower levels of difficulties in ER compared to those with higher levels. Thus, perhaps the degree of emotion dysregulation in the current sample did not allow for such a moderating effect to be detected.

Mood Ratings Results

The final hypothesis in this project aimed to replicate previous findings that indicate positive writing tasks can lead to a higher increase in positive mood postwriting compared to classic conditions (King, 2001; King & Miner, 2000; Toepfer et al., 2016). After averaging the two prewriting and the two postwriting ratings, results showed that the prewriting and postwriting average mood ratings differed over time, with a medium effect size observed, and this difference neared significance. It is noteworthy that the observed change was a decrease in positive mood in the classic condition, not the proposed increase in positive mood in the positive condition, which showed no significant change in positive affect ratings. The decrease in positive mood across the classic EW task has been found repeatedly in the literature (Burton & King, 2004; Frattaroli, 2006; Frisina et al., 2004; Smyth et al., 2008) and is one reason researchers have investigated tasks that are less emotionally burdensome and avoid short-term drops in positive mood (Frattaroli, 2006), such as the positive writing task examined in this study. Although there
was no increase in positive mood in the current positive writing condition following the task, those participants did not experience a decrease in positive mood postwriting, whereas participants in the classic condition did. The overall absence of increase in positive mood makes the improvement in PTSD symptoms all the more impressive. Results also add to the growing body of support for using positive writing tasks in addition to, if not instead of, classic EW tasks. This finding might be particularly important for individuals with mood disorders, who might struggle due to a decrease in positive affect. It is also unknown how long this change in mood might last, as this was not tracked at the follow-up timepoint.

Limitations

This study has several limitations worth noting. First, it is important to consider the relatively small sample size, the unequal sex distribution across the conditions, and the low number of male participants. Generally, the EW literature has higher numbers of female than male participants, which could be attributed to the use of convenience samples such as undergraduate psychology students (Frattaroli, 2006). Although a goal of this study was to help address this gap, this was not met due to the lower numbers of males meeting the inclusionary criteria who were enrolled in the psychology courses compared to females. Specifically, in the introductory psychology course, there were 99 males and 173 females enrolled who met the inclusionary criteria for this study. Similarly, in the advanced psychology courses, there were 31 males and 82 females enrolled who met the inclusionary criteria. Collecting equal numbers of males and females that are distributed equally among the study conditions can help answer questions such as the one proposed above (e.g., is the positive condition more successful in improving males’ life satisfaction compared to females’?). However, it is important to highlight
the well-established sex difference in PTSD prevalence across the lifespan (APA, 2013) and the robust finding that PTSD frequency in women is double that detected in men (Haskell et al., 2010; Tolin & Foa, 2008). This represents the reality and a limitation of the field of trauma research as a whole. The established sex difference in PTSD prevalence makes it more difficult to recruit equivalent numbers of male and female EW participants, especially with the continued use of convenience samples (e.g., undergraduate students) with naturally lower numbers of males (Dickinson et al., 2012). One possibility of addressing this problem is to recruit samples shown not to have significant sex differences in trauma exposure and PTSD symptomatology, such as recruiting survivors of a certain type of traumatic event. For instance, Tolin and Foa (2008) reviewed 25 years of research to examine sex differences in trauma exposure/events and PTSD rates and found that nonsexual child abuse/neglect occurs just as frequently among both sexes and with no accompanying difference in PTSD rates. Thus, recruiting such a sample may prove to be a worthwhile research direction that could provide more information on sex differences in EW tasks. It’s important to state that to my knowledge, no studies have directly compared types of traumatic events while using EW tasks, so it is not possible to state whether recruiting survivors of a specific type of traumatic event might lead to higher or lower improvements due to EW.

Although this study had a longitudinal design, the follow-up was short term (i.e., two weeks), and a longer follow-up is necessary to examine how the effects might change over time. Another issue regarding the follow-up timepoint is the unique circumstances of the COVID-19 global pandemic. Twelve participants (31.58%) in this study completed the two-week follow-up in March 2020, a month during which the United States and the state of Illinois faced a significant increase in the number of confirmed cases and stressors related to COVID-19. This
pandemic has led to significant economic outcomes, and newly published studies have shown the adverse psychological impacts of the outbreak (Wang et al., 2020); thus, it is possible that some participants’ psychological well-being and life satisfaction were impacted while completing the follow-up.

Another consideration is the generalizability of the study sample. The current sample was composed of young adult undergraduate students, and this sample seems to be generalizable to other undergraduate samples in terms of the reported traumatic experiences and the most commonly endorsed trauma. However, an undergraduate sample does not easily generalize to other populations of trauma survivors. Another notable limitation is that a minority of the sample did not meet the diagnostic cutoff for PTSD (i.e., score of 33; Weathers et al., 2013). Although all participants reported distress at baseline, it might be more beneficial to test such tasks in a sample of participants all of which meet the diagnostic cutoff for PTSD. Further, a little less than half of our sample did not pass the manipulation check. There were no significant differences in regard to group membership between those who passed and those who did not pass. It is possible that the question used for the manipulation check was not well defined and even confusing for participants who were indeed paying attention, particularly with participants in the positive condition who answered “Not sure” instead of “Agree” on one of the days. As such, this question was not successful at detecting who was or was not paying attention during the tasks and could have been more successful without the answer choice “Not sure” or by making the response into a scale instead of answer choices. An alternative to asking participants about the task instructions to measure attention levels is analyzing the number of emotion words used between the conditions, which has been used in past research (Brown & Heimberg, 2001; Ullrich & Lutgendorf, 2002). This can be done by using a text analysis program such as the Linguistic
Inquiry Word Count (LIWC) to compare the number of negative and positive words used across the conditions.

Finally, it is important to consider the information participants received during the informed consent process at baseline. Compared to recruitment strategies by the researchers who developed WET (Sloan et al., 2012), in which participants were told they would write about stories from their lives (Epstein et al., 2005; Sloan & Epstein, 2005; Sloan et al., 2007), this study informed participants that the aim of the study was to examine the impact that writing has on undergraduate students’ mental health. It is possible that this wording promoted an increased expectancy for participants in both conditions that completion of the study could lead to improvements in their psychological well-being. There is support for this claim from the psychotherapy literature (Meyer et al., 2002) as well as the EW literature (Langens & Schuler, 2007), which suggests that greater expectancies lead to higher improvements in psychological outcomes.

Future Research

Although the study compared two different conditions, it did not include a control condition; adding a control group would provide more compelling support for the benefit of the classic and positive writing tasks and evidence that the changes observed are not simply an effect of natural recovery over time. Further, comparing classic and positive EW tasks in non-university student samples is important to expand the literature and examine the efficacy of the tasks in other populations. Relatedly, including a higher percentage of male participants is imperative to gain a better understanding of sex differences in outcomes. It might also be of
interest to include specific index traumatic events to see if such tasks are more impactful for certain trauma events than others (e.g., complex trauma histories).

This study did not observe emotion regulation difficulties serve as a moderator for the writing tasks. Thus, future research is needed to identify for whom this task might be most beneficial, the processes of change behind the observed effects, and how such changes can be explained, all of which represent large gaps in the literature (Frattaroli, 2006). In addition, this study did not measure emotion regulation difficulties after writing and at the two-week follow-up; doing so will allow for examination of whether the tasks have an effect on emotion regulation difficulties themselves, as was observed in at least one study (Mattina, 2011). Given the high temporal stability of the DERS (Gratz & Roemer, 2004), it is possible that a short-term intervention may not lead to detectable changes in emotion regulation scores on the DERS. Another choice of measure to detect changes in ER is the ERQ (Gross & John, 2003). Different studies have successfully detected significant changes in the ERQ from pre- to posttreatment of PTSD symptoms (Jerud et al., 2014; Reber et al., 2013). Another possible measure is the negative mood regulation (NMR; Catanzaro & Mearns, 1990), which has also been used to measure changes in ER after an intervention (Jerud et al., 2014). Further, research has not been able to establish the relationship between trait and state conceptualizations of ER (Maxwell, Lynn, & Strauss, 2019).

The construct of ER has been conceptualized as a trait (i.e., stable, cross-situational) or state condition (i.e., situation specific, goal-directed process). Within trait conceptualizations of ER, researchers argue individuals generally regulate and manage their emotions in similar ways across situations (Gratz & Roemer, 2004). This is in comparison to the state conceptualizations of ER, which suggest that people have dynamic abilities to respond to real-moment emotional
experiences varying between situations and goals (Thompson, 1994). In the current project, the concept of ER was conceptualized as a state phenomenon; however, there is mixed evidence whether trait ER measures (e.g., DERS) correlate with state models of emotion regulation (Maxwell et al., 2019). Thus, this represents a limitation that is difficult to address without validated measures of state emotion regulation.

Implications

EW tasks continue to show significant effects on PTSD symptomology, and the evidence in support of the positive writing task is promising. There was evidence that the classic EW condition led to drops in positive mood that did not occur in the positive condition; this is important to consider when selecting writing tasks for certain populations (e.g., severe mood disorders, high suicidality risk), as it may be more helpful for such populations to complete a task that shows improved psychological benefits yet does not lead to a decrease in positive mood. To some extent, there was an observed sex difference in regard to improvements in life satisfaction, and males seemed to experience higher life satisfaction as a result of either disclosure task.

Regarding interventions with trauma survivors, the current set of findings suggest that it would likely be beneficial to not only write about the details of the traumatic events but also about how the individual grew from the adverse event and what they learned from their experiences. Many researchers argue that recalling details of traumatic events may be an unnecessary burden for some, as benefits can be reached without such burdens (King & Miner, 2000). Coupled with findings that classic EW tasks lead to a decrease in positive mood, this represents a compelling argument for the continued investigation of positive writing tasks.
REFERENCES


APPENDIX A

MEASURES AND QUESTIONNAIRES
Life Events Checklist for DSM-5 (LEC-5; Weathers et al., 2013)

Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to the right to indicate that: (a) it happened to you personally; (b) you witnessed it happen to someone else; (c) you learned about it happening to a close family member or close friend; (d) you were exposed to it as part of your job (for example, paramedic, police, military, or other first responder); or (e) you’re not sure if it fits. Be sure to consider your entire life (growing up as well as adulthood) as you go through the list of events.

<table>
<thead>
<tr>
<th>Event</th>
<th>Happened to me</th>
<th>Witnessed it</th>
<th>Learned about it</th>
<th>Part of my job</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Natural disaster (for example, flood, hurricane, tornado, earthquake)</td>
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<td>2. Fire or explosion</td>
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<td>3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)</td>
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<td>4. Serious accident at work, home, or during recreational activity</td>
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<td>5. Exposure to toxic substance (for example, dangerous chemicals, radiation)</td>
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<td>6. Physical assault (for example, attacked, hit, slapped, kicked, beaten up)</td>
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<td>7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)</td>
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<td>8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)</td>
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<td>9. Other unwanted or uncomfortable sexual experience</td>
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<td>10. Combat or exposure to war-zone (in the military or as a civilian)</td>
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<td>11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)</td>
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<td>12. Life-threatening illness or injury</td>
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<td>13. Severe human suffering</td>
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<tr>
<td>14. Sudden violent death (for example, homicide, suicide)</td>
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<tr>
<td>15. Sudden accidental death</td>
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<td>16. Serious injury, harm, or death you caused to someone else</td>
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<tr>
<td>17. Any other very stressful event or experience</td>
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</tbody>
</table>
PTSD Checklist for DSM-5 (PCL-5; Blevins et al., 2015)

Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then circle one of the numbers to indicate how much you have been bothered by that problem in the past month.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little bit</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Extremely</td>
</tr>
</tbody>
</table>

In the past month, how much were you bothered by:

1. Repeated, disturbing, and unwanted memories of the stressful experience
2. Repeated, disturbing dreams of the stressful experience
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)
4. Feeling very upset when something reminded you of the stressful experience
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)
6. Avoiding memories, thoughts, or feelings related to the stressful experience
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)
8. Trouble remembering important parts of the stressful experience
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)
10. Blaming yourself or someone else for the stressful experience or what happened after it
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame
12. Loss of interest in activities that you used to enjoy
13. Feeling distant or cut off from other people
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)
15. Irritable behavior, angry outbursts, or acting aggressively
16. Taking too many risks or doing things that could cause you harm
17. Being “superalert” or watchful or on guard
<table>
<thead>
<tr>
<th></th>
<th>Feeling jumpy or easily startled</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
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<tr>
<td></td>
<td>Having difficulty concentrating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trouble falling or staying asleep</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
<td></td>
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</tbody>
</table>
Difficulties in Emotion Regulation (DERS; Gratz & Roemer, 2004)

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost never</td>
<td>Sometimes</td>
<td>About half the time</td>
<td>Most of the time</td>
<td>Almost always</td>
</tr>
</tbody>
</table>

1. I am clear about my feelings.  
2. I pay attention to how I feel.  
3. I experience my emotions as overwhelming and out of control.  
4. I have no idea how I am feeling.  
5. I have difficulty making sense out of my feelings  
6. I am attentive to my feelings.  
7. I know exactly how I am feeling.  
8. I care about what I am feeling.  
9. I am confused about how I feel.  
10. When I’m upset, I acknowledge my emotions.  
11. When I’m upset, I become angry with myself for feeling that way.  
12. When I’m upset, I become embarrassed for feeling that way.  
13. When I’m upset, I have difficulty getting work done.  
14. When I’m upset, I become out of control.  
15. When I’m upset, I believe that I will remain that way for a long time.  
16. When I’m upset, I believe that I’ll end up feeling very depressed.  
17. When I’m upset, I believe that my feelings are valid and important.  
18. When I’m upset, I have difficulty focusing on other things.  
19. When I’m upset, I feel out of control.  
20. When I’m upset, I can still get things done.  
21. When I’m upset, I feel ashamed with myself for feeling that way.  
22. When I’m upset, I know that I can find a way to eventually feel better.  
23. When I’m upset, I feel like I am weak.  
24. When I’m upset, I feel like I can remain in control of my behaviors.  
25. When I’m upset, I feel guilty for feeling that way.
<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>26. When I’m upset, I have difficulty concentrating.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. When I’m upset, I have difficulty controlling my behaviors.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. When I’m upset, I believe that there is nothing I can do to make myself feel better.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. When I’m upset, I become irritated with myself for feeling that way.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>30. When I’m upset, I start to feel very bad about myself.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. When I’m upset, I believe that wallowing in it is all I can do.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. When I’m upset, I lose control over my behaviors.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>33. When I’m upset, I have difficulty thinking about anything else.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. When I’m upset, I take time to figure out what I’m really feeling.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. When I’m upset, it takes me a long time to feel better.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36. When I’m upset, my emotions feel overwhelming.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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</tbody>
</table>
Satisfaction with Life Scale (SWLS; Diener et al., 1985)

Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

The 7-point scale is as follows:

<table>
<thead>
<tr>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Slightly disagree</td>
<td>Neither agree nor disagree</td>
<td>Slightly agree</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

1- ________ In most ways my life is close to my ideal.
2- ________ The conditions of my life are excellent.
3- ________ I am satisfied with my life
4- ________ So far I have gotten the important things I want in life.
5- ________ If I could live my life over, I would change almost nothing.
The Positive and Negative Affect Schedule
(PANAS; Watson, Clark, & Tellegen, 2003)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, at the present moment. Use the following scale to record your answers.

1 very slightly or not at all
2 a little
3 moderately
4 quite a bit
5 extremely

___ Interested
___ Distressed
___ Excited
___ Upset
___ Strong
___ Guilty
___ Scared
___ Hostile
___ Enthusiastic
___ Proud

___ Irritable
___ Alert
___ Ashamed
___ Inspired
___ Nervous
___ Determined
___ Attentive
___ Jittery
___ Active
___ Afraid
Demographics Questionnaire

1. How old are you? ____________________

2. What is your sex?
   a. Male
   b. Female

3. What is your race?
   a. White
   b. African American
   c. Hispanic
   d. Asian
   e. Native Hawaiian or Other Pacific Islander (NHPI)
   f. American Indian or Alaska Native (AIAN)
   g. Other/Multiracial
   h. Prefer not to respond

4. What year in school are you?
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior
   e. At-large
   f. Prefer not to respond

5. What is your current marital status?
   a. Single
   b. Dating/Cohabitating
   c. Married
   d. Divorced
   e. Widowed
   f. Prefer not to respond

6. Are you currently receiving psychotherapy, medication) for emotional/psychological problems (e.g., depression, anxiety)?
   a. Yes
   b. No

7. Are you currently receiving medication for emotional/psychological problems (e.g., depression, anxiety)?
   a. Yes
   b. No

8. Have you previously disclosed to anyone the traumatic event you just discussed with the researcher?
   a. Yes
   b. No
The purpose of this questionnaire is to identify important life experiences that can affect a person’s emotional well-being or later quality of life. The events listed below are far more common than many people realize. Please read each question carefully and check the response that best describes your experience.

1. Have you ever experienced a natural disaster (flood, hurricane, earthquake)?
   [ ] Never  [ ] Once  [ ] Twice  [ ] 3 Times  [ ] 4 Times  [ ] 5 Times  [ ] More than 5 Times  [ ] Prefer not to Respond

   If this happened:
   1a. Did you experience intense fear, helplessness, or horror when it happened?
      [ ] Yes  [ ] No  [ ] Prefer not to respond
   1b. Were you seriously injured?
      [ ] Yes  [ ] No  [ ] Prefer not to respond
   1c. Was someone you cared about or were close to seriously injured or killed?
      [ ] Yes  [ ] No  [ ] Prefer not to respond
   1d. Did you think you or a loved one was in danger of being killed by the disaster?
      [ ] Yes  [ ] No  [ ] Prefer not to respond

2. Were you involved in a motor vehicle accident for which you received medical attention or that badly injured or killed someone?
   [ ] Never  [ ] Once  [ ] Twice  [ ] 3 Times  [ ] 4 Times  [ ] 5 Times  [ ] More than 5 Times  [ ] Prefer not to Respond

   If this happened:
   2a. Did you experience intense fear, helplessness, or horror when it happened?
      [ ] Yes  [ ] No  [ ] Prefer not to respond
   2b. Were you seriously injured?
      [ ] Yes  [ ] No  [ ] Prefer not to respond

3. Have you been involved in any other kind of accident in which you or someone else was badly hurt? (e.g., a plane crash; a drowning or near drowning; an electrical or machinery accident; an explosion; home fire; chemical leak; overexposure to radiation or toxic chemicals)
   [ ] Never  [ ] Once  [ ] Twice  [ ] 3 Times  [ ] 4 Times  [ ] 5 Times  [ ] More than 5 Times  [ ] Prefer not to Respond
If this happened:
3a. Did you experience intense fear, helplessness, or horror when it happened?
   [ ] Yes    [ ] No    [ ] Prefer not to respond

3b. Were you seriously injured?
   [ ] Yes    [ ] No    [ ] Prefer not to respond

4. Have you lived, worked, or had military service in a war zone?
   [ ] Yes    [ ] No    [ ] Prefer not to respond

If yes:
4a. Were you ever exposed to warfare or combat (e.g., in the vicinity of a rocket attack or people being fired upon; seeing someone get wounded or killed)?
   [ ] Never    [ ] Once    [ ] Twice    [ ] 3 Times    [ ] 4 Times
   [ ] 5 Times    [ ] More than 5 Times    [ ] Prefer not to Respond

If this happened:
4b. Did you experience intense fear, helplessness, or horror when it happened?
   [ ] Yes    [ ] No    [ ] Prefer not to respond

4c. Were you seriously injured?
   [ ] Yes    [ ] No    [ ] Prefer not to respond

5. Have you experienced the sudden violent death of a close friend or loved one [e.g., homicide, suicide]?  
   [ ] Never    [ ] Once    [ ] Twice    [ ] 3 Times    [ ] 4 Times
   [ ] 5 Times    [ ] More than 5 Times    [ ] Prefer not to Respond

5a. Due to accident?
   [ ] Yes    [ ] No    [ ] Prefer not to respond
5b. Due to illness?
   [ ] Yes    [ ] No    [ ] Prefer not to respond
5c. Due to suicide?
   [ ] Yes    [ ] No    [ ] Prefer not to respond
5d. Due to murder?
   [ ] Yes    [ ] No    [ ] Prefer not to respond

6. Has a loved one ever survived a life threatening or permanently disabling accident, assault, or illness? (e.g., spinal cord injury, rape, cancer, life threatening virus, serious heart condition)
   [ ] Never    [ ] Once    [ ] Twice    [ ] 3 Times    [ ] 4 Times
   [ ] 5 Times    [ ] More than 5 Times    [ ] Prefer not to Respond

If this happened:
6a. Did you experience intense fear, helplessness, or horror when it happened?
   [ ] Yes    [ ] No    [ ] Prefer not to respond
7. Have you ever had a life-threatening illness?
   [ ] Never  [ ] Once  [ ] Twice  [ ] 3 Times  [ ] 4 Times
   [ ] 5 Times  [ ] More than 5 Times  [ ] Prefer not to Respond

*If this happened:*
   7a. Did you experience intense fear, helplessness, or horror when it happened?
      [ ] Yes  [ ] No  [ ] Prefer not to respond

8. Have you been robbed or been present during a robbery in which the robber(s) used or displayed a weapon?
   [ ] Never  [ ] Once  [ ] Twice  [ ] 3 Times  [ ] 4 Times
   [ ] 5 Times  [ ] More than 5 Times  [ ] Prefer not to Respond

*If this happened:*
   8a. Did you experience intense fear, helplessness, or horror when it happened?
      [ ] Yes  [ ] No  [ ] Prefer not to respond

8b. Were you seriously injured?
   [ ] Yes  [ ] No  [ ] Prefer not to respond

9. Have you ever been hit or beaten up and badly hurt by a stranger or someone you didn’t know very well?
   [ ] Never  [ ] Once  [ ] Twice  [ ] 3 Times  [ ] 4 Times
   [ ] 5 Times  [ ] More than 5 Times  [ ] Prefer not to Respond

*If this happened:*
   9a. Did you experience intense fear, helplessness, or horror when it happened?
      [ ] Yes  [ ] No  [ ] Prefer not to respond

9b. Were you seriously injured?
   [ ] Yes  [ ] No  [ ] Prefer not to respond

10. Have you seen a stranger (or someone you didn’t know very well) attack or beat up someone and seriously injure or kill him or her?
    [ ] Never  [ ] Once  [ ] Twice  [ ] 3 Times  [ ] 4 Times
    [ ] 5 Times  [ ] More than 5 Times  [ ] Prefer not to Respond

*If this happened:*
   10a. Did you experience intense fear, helplessness, or horror when it happened?
      [ ] Yes  [ ] No  [ ] Prefer not to respond
11. Has anyone threatened to kill you or cause you serious physical harm?

[ ] Never  [ ] Once  [ ] Twice  [ ] 3 Times  [ ] 4 Times
[ ] 5 Times  [ ] More than 5 Times  [ ] Prefer not to Respond

If this happened:

11a. A stranger?  [ ] Yes  [ ] No  [ ] Prefer not to respond
11b. A friend or acquaintance? [ ] Yes  [ ] No  [ ] Prefer not to respond
11c. A relative?  [ ] Yes  [ ] No  [ ] Prefer not to respond
11d. An intimate partner?  [ ] Yes  [ ] No  [ ] Prefer not to respond

11e. Did you experience intense fear, helplessness, or horror when it happened?

[ ] Yes  [ ] No  [ ] Prefer not to respond

12. While growing up: Were you physically punished in a way that resulted in bruises, burns, cuts, or broken bones?

[ ] Never  [ ] Once  [ ] Twice  [ ] 3 Times  [ ] 4 Times
[ ] 5 Times  [ ] More than 5 Times  [ ] Prefer not to Respond

If this happened:

12a. Did you experience intense fear, helplessness, or horror when it happened?

[ ] Yes  [ ] No  [ ] Prefer not to respond

13. While growing up: Did you see or hear family violence? (such as your father hitting your mother, or any family member beating up or inflicting bruises, burns, or cuts on another family)

[ ] Never  [ ] Once  [ ] Twice  [ ] 3 Times  [ ] 4 Times
[ ] 5 Times  [ ] More than 5 Times  [ ] Prefer not to Respond

If this happened:

13a. Did you experience intense fear, helplessness, or horror when it happened?

[ ] Yes  [ ] No  [ ] Prefer not to respond

14. Have you ever been slapped, punched, kicked, beaten up, or otherwise physically hurt by your spouse (or former spouse), a boyfriend or girlfriend, or some other intimate partner?

[ ] Never  [ ] Once  [ ] Twice  [ ] 3 Times  [ ] 4 Times
[ ] 5 Times  [ ] More than 5 Times  [ ] Prefer not to Respond

If this happened:

14a. Did you experience intense fear, helplessness, or horror when it happened?

[ ] Yes  [ ] No  [ ] Prefer not to respond

14b. Were you seriously injured?

[ ] Yes  [ ] No  [ ] Prefer not to respond

14c. Has more than one intimate partner physically hurt you?

[ ] Yes  [ ] No  [ ] Prefer not to respond

14d. If yes, how many hurt you? ________________  [ ] Prefer not to respond
15. **Before your 13th birthday:** Did anyone who was at least 5 years older than you touch or fondle your body in a sexual way or make you touch or fondle his or her body in a sexual way?

[ ] Never   [ ] Once   [ ] Twice   [ ] 3 Times   [ ] 4 Times

[ ] 5 Times   [ ] More than 5 Times   [ ] Prefer not to Respond

15a. A stranger?   [ ] Yes   [ ] No   [ ] Prefer not to respond
15b. A friend or acquaintance? [ ] Yes   [ ] No   [ ] Prefer not to respond
15c. A parent or caregiver? [ ] Yes   [ ] No   [ ] Prefer not to respond
15d. A relative? [ ] Yes   [ ] No   [ ] Prefer not to respond

15e. Were there threats or force used?

[ ] Yes   [ ] No   [ ] Prefer not to respond
15f. Were you seriously injured?

[ ] Yes   [ ] No   [ ] Prefer not to respond
15g. Were there oral, anal, or vaginal penetration?

[ ] Yes   [ ] No   [ ] Prefer not to respond

*If this happened:*

15h. Did you experience intense fear, helplessness, or horror when it happened?

[ ] Yes   [ ] No   [ ] Prefer not to respond

16. **Before your 13th birthday:** Did anyone close to your age touch sexual parts of your body or make you touch sexual parts of their body against your will or without your consent?

[ ] Never   [ ] Once   [ ] Twice   [ ] 3 Times   [ ] 4 Times

[ ] 5 Times   [ ] More than 5 Times   [ ] Prefer not to Respond

16a. A stranger? [ ] Yes   [ ] No   [ ] Prefer not to respond
16b. A friend or acquaintance? [ ] Yes   [ ] No   [ ] Prefer not to respond
16c. A relative? [ ] Yes   [ ] No   [ ] Prefer not to respond

16d. Were there threats or force used?

[ ] Yes   [ ] No   [ ] Prefer not to respond
16e. Were you seriously injured?

[ ] Yes   [ ] No   [ ] Prefer not to respond
16f. Was there oral, anal, or vaginal penetration?

[ ] Yes   [ ] No   [ ] Prefer not to respond

*If this happened:*

16g. Did you experience intense fear, helplessness or horror when it happened?

[ ] Yes   [ ] No   [ ] Prefer not to respond
17. **After your 13th birthday and before your 18th birthday**: Did anyone touch sexual parts of your body or make you touch sexual parts of his or her body against your will or without your consent?

- [ ] Never  
- [ ] Once  
- [ ] Twice  
- [ ] 3 Times  
- [ ] 4 Times  
- [ ] 5 Times  
- [ ] More than 5 Times  
- [ ] Prefer not to Respond

17a. A stranger?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

17b. A friend or acquaintance?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

17c. A relative?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

17d. An intimate partner?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

17e. Were there threats or force used?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

17f. Were you seriously injured?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

17g. Was there oral, anal, or vaginal penetration?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

**If this happened:**

17h. Did you experience intense fear, helplessness or horror when it happened?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

18. **After your 18th birthday**: Did anyone touch sexual parts of your body or make you touch sexual parts of his or her body against your will or without your consent?

- [ ] Never  
- [ ] Once  
- [ ] Twice  
- [ ] 3 Times  
- [ ] 4 Times  
- [ ] 5 Times  
- [ ] More than 5 Times  
- [ ] Prefer not to Respond

18a. A stranger?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

18b. A friend or acquaintance?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

18c. A relative?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

18d. An intimate partner?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

18e. Were there threats or force used?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

18f. Were you seriously injured?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

18g. Was there oral, anal, or vaginal penetration?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond

**If this happened:**

18h. Did you experience intense fear, helplessness or horror when it happened?  
- [ ] Yes  
- [ ] No  
- [ ] Prefer not to respond
19. Were you ever subject to uninvited or unwanted sexual attention? (other than sexual contact covered by Items 15, 16, 17, and 18; examples: touching, cornering, pressure for sexual favors, verbal remarks)

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<th></th>
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<th>Prefer not to Respond</th>
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<td>Item 19</td>
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19a. A **stranger**? [ ] Yes [ ] No [ ] Prefer not to respond
19b. A friend or acquaintance? [ ] Yes [ ] No [ ] Prefer not to respond
19c. A relative? [ ] Yes [ ] No [ ] Prefer not to respond
19d. A supervisor or coworker? [ ] Yes [ ] No [ ] Prefer not to respond

If this happened:

19e. Did you experience intense fear, helplessness or horror when it happened? [ ] Yes [ ] No [ ] Prefer not to respond

20. Has anyone stalked you (in other words, followed you or kept track of your activities), causing you to feel intimidated or concerned for your safety?

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<th>Prefer not to Respond</th>
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<td>Item 20</td>
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20a. A stranger? [ ] Yes [ ] No [ ] Prefer not to respond
20b. A friend or acquaintance? [ ] Yes [ ] No [ ] Prefer not to respond
20c. A relative? [ ] Yes [ ] No [ ] Prefer not to respond
20d. An intimate partner? [ ] Yes [ ] No [ ] Prefer not to respond

If this happened:

20e. Did you experience intense fear, helplessness or horror when it happened? [ ] Yes [ ] No [ ] Prefer not to respond

21. Have you or an intimate partner ever had a miscarriage?

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<td>Item 21</td>
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</table>

If this happened:

21a. Did you experience intense fear, helplessness or horror when it happened? [ ] Yes [ ] No [ ] Prefer not to respond
21b. Did it (ever) happen after you were physically injured? [ ] Yes [ ] No [ ] Prefer not to respond

22. Have you or an intimate partner ever had an abortion?

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<th></th>
<th>Never</th>
<th>Once</th>
<th>Twice</th>
<th>3 Times</th>
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<th>More than 5 Times</th>
<th>Prefer not to Respond</th>
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<td>Item 22</td>
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</table>

If this happened:

22a. Did you experience intense fear, helplessness or horror when it happened? [ ] Yes [ ] No [ ] Prefer not to respond
23. Have you experienced (or seen) any other events that were life threatening, caused serious injury, or were highly disturbing or distressing? (examples: lost in the wilderness, a serious animal bite, violent death of a pet, being kidnapped or held hostage, seeing a mutilated body or body parts)

- [ ] Never
- [ ] Once
- [ ] Twice
- [ ] 3 Times
- [ ] 4 Times
- [ ] 5 Times
- [ ] More than 5 Times
- [ ] Prefer not to Respond

Please describe: ____________________________________________

If this happened:

23a. Did you experience intense fear, helplessness or horror when it happened?

- [ ] Yes
- [ ] No
- [ ] Prefer not to respond

23b. Were you seriously injured?

- [ ] Yes
- [ ] No
- [ ] Prefer not to respond

24. The events listed below correspond to items 1 to 23 on this questionnaire. If any of these events happened to you, select the one event that causes you the most distress. Make sure you click only one number.

- [ ] Natural disaster
- [ ] Motor vehicle accident
- [ ] “Other” kind of accident
- [ ] Warfare or combat
- [ ] Sudden death of a close friend
- [ ] Life-threatening or disabling event experienced by a loved one
- [ ] Life-threatening illness
- [ ] Robbery/weapon used
- [ ] Assaulted by an acquaintance
- [ ] Witnessed severe assault of an acquaintance or a stranger
- [ ] Threatened with death or serious harm

- [ ] Growing up: was physically punished
- [ ] Growing up: witnessed family violence
- [ ] Physically hurt by intimate partner
- [ ] Before 13: unwanted sexual contact with someone at least 5 years older
- [ ] Before 13: unwanted sexual contact
- [ ] As a teen: unwanted sexual contact
- [ ] As an adult: unwanted sexual contact
- [ ] Sexual harassment
- [ ] Stalked
- [ ] Miscarriage
- [ ] Abortion
- [ ] Some “other” traumatic event
- [ ] None of these events happened to me

24a. When did this event first occur? (your age or date) ____________________________

24b. When did this event last occur? (try to be precise; e.g., year, month, day) _________

24c. How much distress (anxiety, worry, sadness, frustration, or grief) does this cause you? (check the best answer)

- [ ] None happened to me
- [ ] No distress
- [ ] Slight distress
- [ ] Considerable distress
- [ ] Moderate distress
- [ ] Extreme distress
Demographics Questionnaire at Two-Week Follow-up

1. How old are you? ________________

2. What is your sex?
   a. Male  
   b. Female

3. What is your race?
   a. White  
   b. African American  
   c. Hispanic  
   d. Asian  
   e. Native Hawaiian or Other Pacific Islander (NHPI)  
   f. American Indian or Alaska Native (AIAN)  
   g. Other/Multiracial  
   h. Prefer not to respond

4. Are you currently receiving psychotherapy, medication) for emotional/psychological problems (e.g., depression, anxiety)?
   a. Yes  
   b. No

5. Are you currently receiving medication for emotional/psychological problems (e.g., depression, anxiety)?
   a. Yes  
   b. No

6. Have you disclosed to anyone the event you wrote about since you attended the last writing session?
   a. Yes  
   b. No

7. Did you experience a stressful or traumatic experience in the last two weeks?
   a. Yes  
   b. No

8. If yes, please briefly describe what happened, if you feel comfortable doing so.
   __________________________________________________________________________
   __________________________________________________________________________
APPENDIX B

RECRUITMENT AND REMINDER EMAILS
Recruitment Email

Dear XX,

Your participation in the mass testing makes you eligible to participate in the “Writing and Well-being” study. This experiment looks at the benefits of writing about different experiences college students may have. For this study, you will be asked to come to the lab for two consecutive days to complete simple questionnaires and the brief writing sessions. You will also be asked to complete a very short online survey two weeks after coming in the lab. You will receive a total of 6 SONA credits for participating in addition to be entered into a drawing for one of five $10 cash prizes! If you are interested in participating, please reply to this email at your earliest convenience and I will provide you with the key to sign up for the first session on SONA.

Thank you for your interest and I hope to see you in the study!

Zena Dadouch

Email: zdadouch1@niu.edu

Phone: 815-753-0372
Hello XX,

Thank you again for participating in the “Writing and Well-being” study two weeks ago! It is extremely important that you complete this questionnaire today, as explained to you in the lab two weeks ago. Also, remember that after completing this survey, you will earn the final 2 SONA credits and can enter yourself in a drawing for one of five $10 cash awards! You can either complete it online, or to come in to the lab to receive an in-person experimental credit. Please let me know if you have any problems with completing the questionnaires if you choose to complete it online. If you choose to come in to the lab, please sign up for one of the time slots on SONA. Feel free to call or email me if you have any questions. Please leave a message if no one answers the phone and someone will be in contact with you as soon as possible.

Thank you again for participating in our study!

Zena Dadouch

Email: zdadouch1@niu.edu

Phone: 815-753-0372
APPENDIX C

INFORMED CONSENTS AND DEBRIEFING FORMS
Informed Consent - Laboratory Session

I agree to participate in the research project entitled “Writing and Well-being” conducted by Zena Dadouch, a graduate student at Northern Illinois University. I have been informed that the purpose of this study is to understand how writing impacts psychological well-being and life satisfaction.

I understand that if I agree to participate in this study, I will be asked to complete various activities over the course of two weeks. I will be asked to answer questions that will assess my current mental health, life satisfaction, mood, exposure to stressful life events, and coping strategies. I will also be asked to write about stressful life experiences. My participation in this study will contribute to our understanding of adaptive coping methods for stress and will assist in the development of interventions. The first and second sessions will last approximately 45-60 minutes, and the subsequent online session will last 20-30 minutes. Two weeks following the laboratory session, I will be emailed a link to an online survey. Upon completion the two laboratory sessions, I will be awarded 4 credit points toward partial course credit in Introduction to Psychology (PSCY 102). After completing the online timepoint, I am informed that I will receive 2 experimental points. I understand that I will also receive one draw in a drawing for five $10 awards.

I understand that any information gathered during this research study is intended to be used for research purposes only and I understand that the researcher, for the purposes of this research, does not have authority to address, or a duty to report, sexual violence, misconduct or harassment. If I wish to report an instance of sexual violence, misconduct or harassment, I understand that I need to contact the University’s Title IX Coordinator, Karen L. Baker, at 815-753-6017 or kbaker@niu.edu, or visit the University’s Title IX website at http://www.niu.edu/sexualmisconduct/help/report.shtml for other reporting options.

I understand that all information gathered during this experiment will be kept in the strictest confidence and will not be available to anyone other than the experimenters conducting the study. I am aware that all information gathered will be kept in password-protected, encrypted electronic files that will be stored on computers locked in a secure location. I also understand that consent forms and writing packets will be kept in a locked filing cabinet in a secure location.

I understand that potential risks for participating include experiencing distressing thoughts and feelings in response to study materials related to trauma history and/or mental health. I know that I can speak with an advanced clinical psychology graduate student trained to manage emergency situations should I need immediate assistance. I know that I can also contact the 24-hour Crisis Line at (815) 758-6655 at any time if I become distressed. I understand that I will receive an additional list of numbers to local counseling resources should I need to further process any upsetting feelings or thoughts that arise from participating in this study.

I also understand that my participation is voluntary and I may withdraw at any time without penalty or prejudice. I know that if I have any additional questions concerning this study, I may contact Zena Dadouch (zdadouch1@niu.edu), Department of Psychology, Northern Illinois
University, at 815-753-0372, or Dr. Michelle Lilly (mlilly1@niu.edu), Department of Psychology, Northern Illinois University, at 815-753-0372.

I realize that my consent to participate in this project does not constitute a waiver of any legal actions or redress I might have as a result of my participation. If I wish to have further information regarding my rights as a research subject, I may contact the Office of Research and Compliance (ORC) at Northern Illinois University at (815) 753-8588 or visit their website at www.orci.niu.edu/orci/. I acknowledge that I have received a copy of this consent form.

Participant’s name – PRINTED
Witness’ name – PRINTED

Participant’s signature and date
Witness’ signature and date
Partial Debriefing Form - Laboratory Sessions

Thank you for your participation in the session today. As you may recall, this experiment consists of two in-person sessions followed by an online follow-up survey administered two weeks later.

In order to test our research questions, we need to compare people at multiple points in time. Investigations that survey the same people at different timepoints are more difficult to complete than single timepoint studies, but they allow us to better address the types of questions that can be used to develop treatments that enhance people’s well-being and daily functioning.

There is a chance that the material you dealt with today may have elicited some distressing thoughts, feelings, or memories for you. Talking with others or with a professional can be helpful in handling with these upsetting feelings. Please refer to the attached list of local counseling agencies and community services if you need additional resources. If you need immediate assistance, please call the 24-hour Crisis Line (815) 758-6655. The experimenter, Zena Dadouch, is also available during standard business hours to address any of your concerns.

If you have any questions concerning the experiment or would like to speak with the experimenters about the topics addressed in the present study, please contact Zena Dadouch (zdadouch1@niu.edu), Department of Psychology, Northern Illinois University, at 815-753-0372, or Dr. Michelle Lilly (mlilly1@niu.edu), Department of Psychology, Northern Illinois University, at 815-753-0372.

Thank you for participating in the present study. The information you provided, once combined with information from other participants, will provide a better understanding of the impact of writing on psychological and physical functioning.

A list of agencies in the area that offer individual and group counseling for students and community members is attached.
Informed Consent - Follow-up Assessment

I agree to participate in the research project entitled “Writing and Well-being” conducted by Zena Dadouch, a graduate student at Northern Illinois University. I have been informed that the purpose of this study is to understand how writing impacts psychological well-being and life satisfaction.

I understand that if I agree to participate in this study, I will be asked to complete several questionnaires concerning my current mental health, life satisfaction, exposure to stressful life events, coping strategies, and reactions to research participation. My participation in this study will contribute to understanding of adaptive coping methods for stress and will assist in the development of different interventions. This study will last approximately 30 minutes. Upon completion of this study, I am informed that after completing this study, I will receive the final 2 experimental points toward partial course credit in Introduction to Psychology (PSCY 102). I understand that I will also be enrolled in a drawing for one of five $10 awards for completing the survey.

I understand that any information gathered during this research study is intended to be used for research purposes only and I understand that the researcher, for the purposes of this research, does not have authority to address, or a duty to report, sexual violence, misconduct or harassment. If I wish to report an instance of sexual violence, misconduct or harassment, I understand that I need to contact the University’s Title IX Coordinator, Karen L. Baker, at 815-753-6017 or kbaker@niu.edu, or visit the University’s Title IX website at http://www.niu.edu/sexualmisconduct/help/report.shtml for other reporting options.

I understand that all information gathered during this experiment will be kept in the strictest confidence and will not be available to anyone other than the experimenters conducting the study. I am aware that all information gathered will be kept in password-protected, encrypted electronic files that will be stored on computers locked in a secure location. However, my confidentiality will be maintained to the degree permitted by the technology used. Specifically, no guarantees can be made regarding the interception of data sent via the Internet by any third parties.

I understand that potential risks for participating include experiencing distressing thoughts and feelings in response to study materials related to trauma history and/or mental health. If I become distressed, I know that I can contact the 24-hour Crisis Line at (815) 758-6655 at any time. I understand that I will receive an additional list of numbers to local counseling resources should I need to further process any upsetting feelings or thoughts that arise from participating in this study.

I also understand that my participation is voluntary and I may withdraw at any time without penalty or prejudice. I know that if I have any additional questions concerning this study, I may contact Zena Dadouch at at 815-753-0372, or Dr. Michelle Lilly (mlilly1@niu.edu), Department of Psychology, Northern Illinois University, at 815-753-0372.
I realize that my consent to participate in this project does not constitute a waiver of any legal actions or redress I might have as a result of my participation. If I wish to have further information regarding my rights as a research subject, I may contact the Office of Research and Compliance (ORC) at Northern Illinois University at (815) 753-8588 or visit their website at www.orci.niu.edu/orci.

By clicking on the appropriate buttons below, I am stating that I have read the consent form in its entirety and understand the purpose and conditions of the study.

[ ] I agree to participate in the present study

[ ] I do not wish to participate in the present study
Debriefing Form - Follow-up Survey

Thank you for participating in the present study. The information you provided, once combined with information from other participants, will provide a better understanding of the impact of writing on psychological well-being and life satisfaction.

It is possible that the material you dealt with today may have elicited some distressing thoughts, feelings, or memories for you. Talking with others or with a professional can be helpful in handling with these upsetting feelings. Please refer to the attached list of local counseling agencies and community services if you need additional resources. If you need immediate assistance, please call the 24-hour Crisis Line (815) 758-6655. The experimenter, Zena Dadouch, is also available during standard business hours to address any concerns.

If you have any questions concerning the experiment or would like to speak with the experimenters about the topics addressed in the present study, please contact Zena Dadouch (zdadouch1@niu.edu), Department of Psychology, Northern Illinois University, at 815-753-0372, or Dr. Michelle Lilly (mlilly1@niu.edu), Department of Psychology, Northern Illinois University, at 815-753-0372.

Thank you again for your participation in our study!

The list below includes information on agencies in the area that offer individual and group counseling for students and community members:
Mental Health Resources (provided in-person during each lab visit with the partial debriefing forms and online with the final debriefing form)

Campus Services

Counseling & Consultation Services, NIU (STUDENTS ONLY) (The Counseling and Student Development Center - CSDC)

- Phone: 815/753-1206
- Address: Campus Life Building-200
- Fees: None for counseling. Modest testing fees.
- Hours: 8:00 a.m. – 4:30 p.m. Monday-Friday
- Open whenever NIU is open, including breaks.
- After Hours: Assistance after hours available by calling—815/753-1212
- Description of Services: This service provides students with short-term, individual and group counseling for a broad range of personal concerns. Career counseling services include interest assessment, workshops, and use of computerized career counseling programs. Educational counseling services include assistance with test anxiety and study skills. Assessments of drug and alcohol abuse are also provided. First appointment scheduled with 3-7 days. (Handicapped Accessible).

Community Counseling Training Center, NIU (formerly The Counseling Laboratory)

- Phone: 815/753-9312
- Address: 416 Graham Hall
- Fees: None for students, faculty, or staff.
- Hours: Call for available counseling hours.
- Description of Services: A wide range of services are offered by the counselors including both personal and vocational counseling. In general, the approach used is one that promotes growth and focuses on increasing emotional well-being and self-awareness. All counselors are doctoral or masters level students who are being supervised by members of the counseling faculty. First appointments scheduled within 3-5 days.

The Couple and Family Therapy Clinic of NIU, NIU (formerly The Family Therapy Clinic)

- Phone: 815-753-1684
- Address: Wirtz Hall 146
- Fees: The cost of services are determined by a sliding fee scale. No client is turned away due to the inability to pay. This gives clients of all income levels access to our high-quality care.
- Hours: Monday, Tuesday – 12 noon – 9:00 pm; Wednesday, Thursday - 9:00 am - 9:00pm; Friday - 9:00 am - 5:00 pm
- Website: http://www.chhs.niu.edu/familytherapyclinic/contact/index.shtml
- Description of Services: The Couple and Family Therapy Clinic at NIU is a training and research facility that is an integral component of the specialization in Marriage and Family Therapy Program (SMFT). They provide clinical services to individuals, couples, and families with a unique perspective of addressing the issues in a larger systemic context. They follow rigorous training standards as set forth by our accrediting organization, being accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE).

Psychological Services Center, NIU

- Phone: 815/753-0591
- Address: Normal Rd and Lincoln Hwy.
• Fees: $5 per session for therapy for students; fee for assessments for students. Faculty, staff, and community members charged on a sliding scale.
• Hours: Monday – 12:00 p.m. – 8:00 p.m. Tuesday – 11:00 a.m. – 7:00 p.m. Wednesday-Friday-9:00 a.m. to 5:00 p.m.
• Open whenever NIU is open, including breaks.
• Description of Services: Individual, couples, family, and group psychotherapy, intellectual, personality, and academic assessments. Clients are generally seen by advanced level graduate student staff under faculty supervision. Services are tailored to meet a client's specific needs. First appointment scheduled within 7 days. (Handicapped accessible.)

Community Resources

KishHealth System Behavioral Health Services (formerly Ben Gordon Center)

• Phone: 815/756-4875
• Address: 12 Health Services Dr., DeKalb, IL 60115
• Fees: Sliding fee scales based on income. Insurance accepted.
• Hours: Monday-Thursday- 8:00 a.m. – 8:30 p.m. Friday-8:00 a.m.-5:00 p.m.
• After Hours: 815/758-6655 Crisis Line
• Description of Services: Comprehensive counseling services to all residents of DeKalb County. Services to all persons affected by mental health problems, substance abuse, and family/child welfare concerns. 24-hour sexual assault/abuse services can be accessed through the Crisis Line. First appointment scheduled within 30 days. (Handicapped accessible and on Campus Bus Route).

Braden Counseling Center

• Phone: 815/787-9000
• Address: 2580 DeKalb Ave., Suite C., Sycamore, IL 60178
• 951 S. 7th St., Suite G., Rochelle, IL 60168
• Fees: Sliding fee scales based on income. Insurance accepted.
• Description of Services: Free initial consultation. Specializes in counseling individuals, couples and families in various stages of life. Has flexible scheduling with Sycamore and Rochelle locations. Also offers a variety of evaluations, including same-day DUI evaluations, and legal and forensic work for attorneys.

Village Counseling

• Phone: 815/756-9907
• Address: 1211 Sycamore Rd., DeKalb, IL 60115
• Fees: Sliding fee scales based on income. Insurance accepted.
• Hours: Monday-9:00 a.m.-10:00 p.m., Wednesday/Thursday-9:00 a.m.-9:00 p.m., Friday-10:00 a.m.-10:00 p.m.
• Description of Services: Provides relationship-centered counseling, including life counseling for individuals, couples, families, adolescents, and children, as well as marriage and family counseling.

Family Service Agency, Center for Counseling

• Phone: 815/758-8616
• Address: 14 Health Services Dr.-DeKalb
• Fees: $75.00 per visit. Insurance accepted, including NIU Student Insurance. Payment plans and scholarship funds available.
• Hours: Monday-Wednesday-9:00 a.m. – 8:00 p.m., Thursday – Friday – 8:00 a.m. – 4:00 p.m. Additional hours available by appointment.
• Description of Services: Individual, couple, group counseling for children, adults, senior citizens, and families. First appointment scheduled within 1-7 days. (Handicapped accessible and on Campus Bus Route).

Living Rite, The Center for Behavioral Medicine.

• Phone: 815-758-8400
• Address: 1958 Aberdeen Court, Suite 2, Sycamore, IL 60178
• Fees: Based on insurance. Self-pay options are available.
• Description of Services: Individual and Group Therapy. Therapy to deal with chronic pain.

Safe Passage, Inc.

• Phone: 815-756-7930
• Hotline/Crisis: 815-756-5228
• Address: P.O. Box 621, DeKalb, IL 60115
• Description of Services: A wide variety of services are offered to victims and perpetrators of domestic and sexual violence including crisis intervention and medical advocacy for victims of domestic and sexual violence, short- and long-term housing for victims and their children, counseling, legal advocacy, children's services, community education, a batterer's intervention program, and a Latina outreach program.

Nationwide Resources

• People Against Rape (PAR; 1-800-877-7252)
• Rape, Abuse, Incest National Network (RAINN; 1-800-656-4673; http://www.rainn.org/)
• Suicide Prevention Hotline (1-800-273-8255, http://www.suicidepreventionlifeline.org/)
• National Alliance on Mental Illness (NAMI; 1-800-950-6264; http://www.nami.org/)