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Clinical Psychological Science published online 13 May 2013
DOI: 10.1177/2167702613486630

Brief Empirical Report

Clinical Psychological Science
XX(X) 1–8

DOI: 10.1177/2167702613486630
cpx.sagepub.com

Cognitive Emotion Regulation and Written Exposure Therapy for Posttraumatic Stress Disorder

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Abstract
We examined the extent to which cognitive emotion-regulation (ER) strategies moderated posttraumatic stress disorder (PTSD) treatment outcome among 40 motor vehicle accident survivors. Participants were randomly assigned to either a brief written exposure therapy (WET) condition or a waitlist condition and were assessed pre- and posttreatment and at a 3-month follow-up. Positive-reappraisal and putting-into-perspective strategies at baseline interacted with condition to predict symptom change over time. Both strategies predicted greater reductions in PTSD in the waitlist group, suggesting facilitation of natural recovery. However, positive reappraisal was associated with smaller reductions in PTSD in the WET group, suggesting that this strategy may interfere with treatment. Treatment also reduced use of the maladaptive ER strategy of rumination. These results provide evidence that putting-into-perspective and positive-reappraisal strategies are beneficial in the absence of treatment and that certain types of ER strategies may reduce response to WET, highlighting the importance of future research examining ER during treatment.

Keywords
PTSD, trauma, emotion regulation, cognitive coping, exposure

Received 8/2/12; Revision accepted 3/11/13

Exposure-based treatments for posttraumatic stress disorder (PTSD), such as prolonged exposure (Foa & Rothbaum, 1998), have been the focus of numerous randomized controlled trials and consistently have produced better outcomes than comparison treatment conditions (e.g., Bisson & Andrew, 2007; Institute of Medicine, 2008). A central component of exposure-based treatments for PTSD is clients' use of imaginal exposure to confront their trauma memory (e.g., Foa & Rothbaum, 1998). In addition to imaginal exposure, in vivo exposures commonly are employed to address avoidance of people, places, and situations that serve as reminders of the trauma event (e.g., crowded places, driving on the highway, or Asian restaurants). Although such interventions are effective, up to 40% of individuals who receive exposure-based treatments continue to meet criteria for PTSD following treatment (Bisson & Andrew, 2007). A better understanding of what factors moderate treatment response can help predict which patients are likely to benefit from exposure-based treatments and can help inform how best to match patients to treatments with the greatest likelihood of success.

Potentially important moderators of response to exposure-based treatment are emotion-regulation (ER) skills. Consistent evidence has emerged that PTSD is marked by deficits in ER. Specifically, researchers have related increased PTSD symptoms to greater difficulty identifying and labeling one's emotions (Tull, Barrett, McMillan, & Roemer, 2007), greater reliance on the maladaptive strategy of suppressing or withholding one's emotional expression (Ehring & Quack, 2010; Marx & Sloan, 2002), and other ER difficulties (Ehring & Quack, 2010; Tull et al., 2007). Some researchers have argued that training in ER skills prior to exposure treatment is

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beneficial, particularly for patients with the most-pronounced ER deficits (Cloitre, Koenen, Cohen, & Han, 2002). This approach has been supported by the prior finding that patients who are overengaged, or who show high levels of distress during imaginal exposure that does not lessen over time, have poorer outcomes following exposure-based therapy (Jaycox, Foa, & Morral, 1998).

In addition, studies have shown that improvement in negative-mood regulation during skills training predicted better response to exposure treatment in childhood-abuse survivors (Cloitre et al., 2002). Skills training plus exposure also produced greater reduction in PTSD than exposure treatment without skills training (Cloitre et al., 2010). Despite a great deal of interest in the importance of ER skills to exposure-based treatment, to our knowledge no studies have examined the extent to which ER skills at the start of treatment predict treatment response.

ER is a multifaceted construct, and many different types of ER strategies have been identified. Some ER strategies are thought to be relatively adaptive and are negatively associated with depression and anxiety, whereas other ER strategies are considered maladaptive and are positively associated with symptoms (Aldao & Nolen-Hoeksema, 2010). Given theories that ER ability is necessary to tolerate exposure to trauma-related memories and stimuli, we predicted that higher levels of adaptive-strategy use and lower levels of maladaptive-strategy use at the start of treatment would predict greater response to exposure-based treatment for PTSD.

In this study, we focused on two maladaptive and two adaptive ER strategies that are relevant to cognitive behavioral theories of PTSD and that have been associated most consistently with PTSD symptoms in prior research. Four subscales of the shortened Cognitive Emotion Regulation Questionnaire (CERQ-short; Garnefski & Kraaij, 2006) were used to index these ER strategies.

Specifically, we examined self-blame, rumination, positive-reappraisal, and putting-into-perspective strategies. Use of self-blame refers to a tendency to blame oneself when considering the cause of stressful life events, whereas use of rumination refers to focusing perseveratively on thoughts and feelings about what has happened. Self-blame and rumination strategies are considered maladaptive and have been consistently associated with higher levels of self-reported symptoms of depression, anxiety, and PTSD (Ehring, Frank, & Ehlers, 2008; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999; Garnefski, Baan, & Kraaij, 2005; Garnefski & Kraaij, 2007). Positive-reappraisal and putting-into-perspective strategies, in contrast, are thought to be relatively adaptive (Garnefski et al., 2005). *Positive reappraisal* refers to creating a positive meaning for what happened, and *putting into perspective* refers to the tendency to minimize the importance of the situation, relative to other experiences (Garnefski, Kraaij, & Spinhoven, 2001). Positive-reappraisal and putting-into-perspective strategies are associated with self-reported posttraumatic growth (Garnefski, Kraaij, Schroevers, & Somsen, 2008). Positive reappraisal also is correlated negatively with self-reported symptoms of depression, anxiety, and PTSD (Garnefski et al., 2005; Garnefski & Kraaij, 2006, 2007).

In the current study, we examined the extent to which ER skills moderate outcomes for written exposure therapy (WET), a brief structured trauma-focused intervention for PTSD based on expressive writing (Pennebaker, 1997; Sloan, Marx, Bovin, Feinstein, & Gallagher, 2012). The WET protocol includes psychoeducation about PTSD, a rationale for written exposure, and repeated written exposures that involve writing detailed trauma narratives. In a recent randomized controlled trial, WET outperformed a waitlist control comparison and demonstrated large between-group effect sizes that were similar to effects of evidence-based PTSD treatments, such as cognitive processing therapy and prolonged exposure (Sloan et al., 2012). In contrast to treatment approaches that incorporate both in vivo and imaginal exposure (e.g., prolonged exposure), the WET protocol includes no in vivo exposure assignments. Therefore, conclusions about the moderating effects of ER from this trial can be tied specifically to exposure to trauma memories.

In addition to treatment-moderation effects, we examined whether WET affects use of the aforementioned ER strategies. Even without formal skills training, exposure-based treatment might decrease use of maladaptive strategies and increase use of adaptive strategies. In prior PTSD clinical trials, exposure-based treatments reduced self-blame (Foa & Rauch, 2004; Resick et al., 2008; Resick, Nishith, Weaver, Astin, & Feuer, 2002). Emerging evidence has suggested that expressive writing interventions, on which WET is based, reduce use of rumination in nonclinical samples (Gortner, Rude, & Pennebaker, 2006; van der Houwen, Schut, van den Bout, Stroebe, & Stroebe, 2010). To our knowledge, the effects of exposure-based treatment on use of positive-reappraisal and putting-into-perspective strategies have yet to be examined. Researchers have found evidence, however, that exposure-based treatments change negative beliefs in individuals with PTSD, even without formal cognitive restructuring interventions (Foa & Rauch, 2004; Resick et al., 2008). The mechanisms of these cognitive changes remain unclear, but one possibility is that exposure encourages spontaneous use of adaptive cognitive ER strategies. Writing detailed narratives of the traumatic event offers the opportunity to examine one's beliefs about the trauma and reappraise them, and such writing might encourage comparison between the traumatic event and other events in one's life. Therefore, we predicted that WET would increase use of the adaptive strategies of positive reappraisal and putting into perspective.

In the current study, we examined moderation of PTSD treatment response by ER strategies. We expected

that adaptive forms of ER would increase treatment response and that maladaptive ER strategies would decrease treatment response. We also predicted that WET would change strategy use over time; specifically, we predicted that WET would increase use of adaptive strategies and decrease use of maladaptive strategies.

Method

Participants

These data were collected as part of a larger study examining WET for PTSD (Sloan et al., 2012). We used flyers and public service announcements to recruit potential participants from the community. Participants were eligible if they were 18 years of age or older and had a primary diagnosis of PTSD related to a motor vehicle accident (MVA) that occurred at least 3 months prior to the initial assessment. Diagnoses were assigned according to the administration of the Clinician-Administered PTSD Scale (CAPS) and the Structured Clinical Interview for *DSM–IV* (SCID; see Measures section for more detail). Participants were excluded if they had been diagnosed with organic mental disorder, psychotic symptoms, current unstable bipolar disorder, or current substance dependence or if they had attempted suicide two or more times in the past year. If individuals were taking psychotropic medications, they were recruited to be on a stable dose for at least 2 months. Individuals currently receiving psychotherapy were excluded. Participants were paid for participation in assessment sessions.

A total of 67 participants were assessed for study eligibility, and 46 MVA survivors participated in the larger randomized controlled trial. Eighteen individuals did not meet study inclusion criteria, and 3 individuals declined to participate. Because the CERQ-short was added several weeks after the start of the study, data from this measure were available for 40 participants, who compose the sample in the present study (20 randomly assigned to the WET group and 20 randomly assigned to the waitlist group).

Participants' (26 female, 14 male) ages ranged from 18 to 65 (M = 41, SD = 13.9). Participants were racially and ethnically diverse, with 14 participants identifying themselves as Caucasian (35%), 14 as African American (35%), 4 as Hispanic (10%), 2 as Asian American (5%), and 6 as other or mixed racial background (15%). Although participants were recruited for a study of MVA-related PTSD, the majority of participants reported experiencing numerous other potentially traumatic events (PTEs; e.g., child sexual abuse, rape, or physical assault). The mean number of PTEs reported by the participants was 12.9 (SD = 13.3). Moreover, 75% (n = 30; 83% of those reporting additional PTEs) of participants reported experiencing an interpersonal trauma. The number of participants reporting interpersonal trauma history did not differ as a function of condition (WET, n = 16; waitlist, n = 14). This finding is consistent with samples recruited for other PTSD clinical trials in that participants diagnosed with PTSD have generally experienced multiple traumatic events in addition to the index event reported for the diagnosis of PTSD (e.g., Resick et al., 2002, 2008).

Measures

CERQ-short. The CERQ-short (Garnefski & Kraaij, 2006) is an 18-item self-report measure of conscious cognitive ER strategies. The measure has nine subscales consisting of two items each. The CERQ-short was developed from a longer measure, the CERQ, which has been validated in adolescent and adult samples (Garnefski et al., 2001; Garnefski & Kraaij, 2007). In a validation study, the CERQ-short was shown to have the same factor structure as the longer measure and good psychometric qualities (Garnefski & Kraaij, 2006). As previously stated, we used the four subscales of the CERQ-short that have been linked most consistently to PTSD in prior research. These subscales were Self-blame (e.g., "I think that basically the cause must lie within myself."), Rumination (e.g., "I often think about how I feel about what I have experienced."), Positive Reappraisal (e.g., "I think that I can become a stronger person as a result of what has happened."), and Putting Into Perspective (e.g., "I think that it hasn't been too bad compared to other things."). These four subscales demonstrated adequate internal consistency at baseline—Positive Reappraisal, α = .80; Putting Into Perspective, α = .78; Self-blame, α = .67; Rumination, α = .67. The CERQ-short can be used to measure general ER strategies, how one typically responds to stressful life events, or how one responds to a specific stressor. In this study, we assessed general cognitive ER tendencies.

CAPS. The CAPS (Weathers, Keane, & Davidson, 2001) is a semistructured interview that assesses the 17 core symptoms of PTSD defined by the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM–IV–TR*; American Psychiatric Association, 2000). Trained interviewers rate the frequency and intensity of each symptom on 5-point scales. The total score for the CAPS PTSD ratings (frequency + intensity) ranges from 0 to 136, with higher scores indicating greater severity. The CAPS yields both dichotomous (i.e., present or absent) and continuous (i.e., severity) scores for each symptom. PTSD diagnoses were assigned according to standard procedures such that a symptom was counted toward the PTSD diagnosis if it received a score of 1 or higher on the frequency rating and 2 or higher on the intensity rating. Participants were eligible to participate in this study if

they had at least 1 symptom from the reexperiencing cluster, 3 symptoms from the avoidance and numbing cluster, 2 symptoms from the hyperarousal cluster, and a total CAPS severity of at least 40 at baseline (Weathers et al., 2001). In this study, the interrater reliability for PTSD diagnoses was excellent, $\kappa = .94$ (Sloan et al., 2012). For all analyses, total CAPS severity score was the dependent variable.

SCID. The SCID is a well-validated, semi-structured interview used to assess *DSM–IV* Axis I disorders (Spitzer, Williams, Gibbon, & First, 1994). The mood disorders, substance-use disorders, and psychotic screen modules were used to establish whether participants met exclusion criteria for the study. Interrater reliability for SCID diagnoses was good in this study, κs of .82–.98 (Sloan et al., 2012).

Procedure

Participants completed an initial assessment to determine whether they met inclusion/exclusion criteria for the study. Eligible participants were randomly assigned to either waitlist condition or treatment condition and were assessed again after 6 weeks (posttreatment) and 18 weeks (3 months posttreatment). The treatment condition consisted of five weekly sessions and included psychoeducation, therapy rationale, and writing exercises during which participants were instructed to write about their deepest emotions and thoughts related to their MVA experience (see Sloan et al., 2012, for more information). All assessments were completed by masters- or doctoral-level clinicians who were unaware of condition assignment. The SCID was administered only at baseline; all other measures were administered at all three assessments.

Data analytic plan

We examined the moderating effects of ER strategies on treatment response at baseline using hierarchical linear models (HLMs; Raudenbush & Bryk, 2002), which are appropriate for data in which outcomes are nested within participants, and used HLM 6.0 software for all analyses (Raudenbush, Bryk, & Congdon, 2004). We examined treatment outcome of PTSD symptoms (CAPS total severity score). The HLMs included time (0, 6, or 18 weeks) entered as a Level 1 predictor and condition (waitlist or WET), ER strategy score at baseline, and their interaction entered as Level 2 predictors:

Level 1 Model

$$\Upsilon = \pi_0 + \pi_1*(\text{Time}) + e$$

Level 2 Model

$$\pi_0 = \beta_{00} + \beta_{01}*(\text{Condition}) + \beta_{02}*(\text{ER Strategy}) + \beta_{03}*(\text{Condition} \times \text{ER Strategy Interaction}) + R_0$$

$$\pi_1 = \beta_{10} + \beta_{11}*(\text{Condition}) + \beta_{12}*(\text{ER Strategy}) + \beta_{13}*(\text{Condition} \times \text{ER Strategy Interaction}) + R_1$$

Separate HLM analyses were conducted for each of the four ER strategies. The coefficient of interest was the interaction between treatment condition and ER strategy on change in PTSD symptoms over time (β_{13}). Partial correlation coefficients (*pr*s) were calculated to provide estimates of effect size. Following standard procedures, we centered each of the ER strategy scores on its mean for these analyses. All effects were calculated with robust standard errors.

We planned additional analyses to examine the effect of treatment on use of ER strategies. For these analyses, the outcome variables were CERQ-short scores (assessed at baseline, 6 weeks, and 18 weeks), the Level 1 predictor was time, and the Level 2 predictor was condition. Random effects models were used, and all effects were calculated with robust standard errors.

Results

Demographic variables (age, race, or gender) did not differ significantly by condition. There were no significant differences between WET and waitlist conditions in any of the ER strategies at baseline, Fs < 1.5, n.s.

Treatment effects

The effects of WET on reducing PTSD in this sample have been reported elsewhere (Sloan et al., 2012); therefore, we have not described these results in detail here. In brief, all models demonstrated statistically significant effects of treatment on change in PTSD symptoms over time (β_{11}), with parameter estimates ranging from −1.45 to −1.56, ts < −4.5, ps < .001.

Moderation of treatment effects

Significant interactions emerged between positive-reappraisal strategy and condition, $\beta = 0.38$, $t(36) = 4.24$, $p < .001$, $pr = .58$, and putting-into-perspective strategy and condition, $\beta = 0.34$, $t(36) = 2.85$, $p = .008$, $pr = .43$, on changes in PTSD symptoms over time. We conducted follow-up analyses separately in the waitlist and WET groups, examining the association between each ER strategy and change in PTSD symptoms over time. For putting into perspective, follow-up analyses found a significant

effect in the waitlist group, β = −0.25, $t(18) = -2.38$, $p = .03$, $pr = .49$, but not in the WET group, β = 0.09, $t(18) = 1.59$, $p = .13$, $pr = .35$. In the waitlist group, higher levels of putting-into-perspective use were associated with greater decreases in PTSD symptoms over time. A similar effect was found for positive reappraisal in the waitlist group, β = −0.24, $t(18) = -2.88$, $p = .01$, $pr = .56$, such that higher levels of positive-reappraisal use also were associated with greater decreases in PTSD symptoms. In the WET group, however, the effect of positive reappraisal on change in PTSD symptoms was in the opposite direction, β = 0.14, $t(18) = 4.2$, $p = .001$, $pr = .70$. Within the WET group, greater use of positive reappraisal was associated with smaller decreases in PTSD symptoms (see Fig. 1). No significant effects were found for rumination, β = 0.07, $t(36) = 0.44$, $p = .66$, $pr = .07$, or self-blame, β = −0.07, $t(36) = -0.39$, $p = .70$, $pr = .06$.

Effect of treatment on use of cognitive ER strategies

We also examined whether WET affected use of ER strategies over time. A significant effect of WET was found for rumination, β = −0.11, $t(38) = -3.04$, $p = .005$, $pr = .44$, such that WET was associated with decreased use of rumination over time (see Fig. 2). Follow-up analyses were conducted to examine change in use of rumination within the waitlist and WET groups separately. Within the waitlist group, there was no change in use of rumination over time, β = −0.004, $t(19) = -0.18$, $p = .86$, $pr = .04$. Within the WET group, there was a significant drop in use of rumination over time, β = −0.11, $t(19) = -3.84$, $p = .001$, $pr = .66$. Additional analyses were conducted to determine when the decrease in rumination occurred. Within the WET group, no difference was found from pretreatment to posttreatment, $t(19) = 0.75$, $p = .46$, $pr = .17$, but rumination use significantly decreased from posttreatment to 3-month follow-up, $t(19) = 2.60$, $p = .018$, $pr = .51$. No significant effects of WET were found for use of self-blame, positive reappraisal, or putting into perspective, βs < 0.02, *t*s < 0.3, n.s., *pr*s < .05.

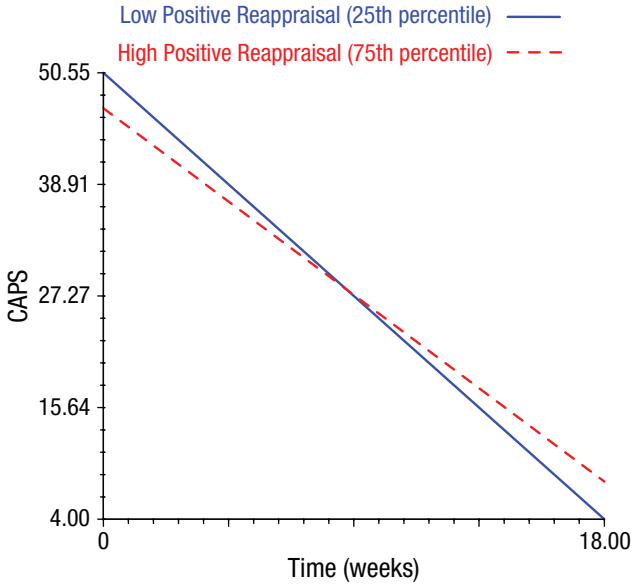

Fig. 1. Relationship between positive reappraisal at baseline and change in posttraumatic stress disorder symptoms over time in the written exposure therapy group. Clinician-Administered PTSD Scale (CAPS) total severity scores are presented.

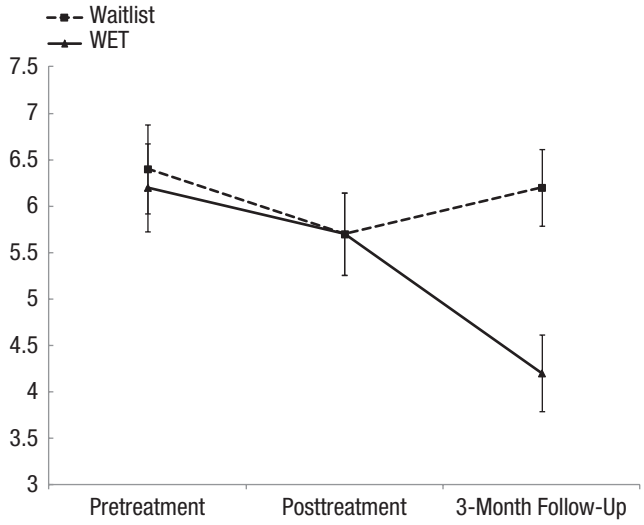

Fig. 2. Changes in use of rumination over time by waitlist condition and written exposure therapy (WET) condition. Rumination refers to the Rumination subscale score of the Cognitive Emotion Regulation Questionnaire–Short. Error bars reflect standard errors.

Discussion

In this study, we examined moderation of WET for PTSD by ER strategies at baseline and the effect of WET for PTSD on use of ER strategies over time. We found no evidence that greater ER ability at the start of PTSD treatment facilitated treatment response. Use of maladaptive ER strategies (rumination and self-blame) did not interact with condition. Both adaptive ER strategies (putting into perspective and positive reappraisal) moderated treatment outcome for PTSD symptoms, but the direction of these effects was consistent with predictions in the waitlist group only.

Both adaptive strategies predicted decreases in PTSD symptoms over time in the waitlist group. These findings indicate that positive reappraisal and putting into perspective may facilitate natural recovery from PTSD. These results offer additional support for the adaptive value of these ER strategies, which have been correlated with posttraumatic growth in prior work (Garnefski et al., 2008). These findings extend prior work by examining

these strategies longitudinally in a clinical sample of individuals meeting diagnostic criteria for PTSD. The findings also provide information on characteristics that might be important in predicting resilience following trauma exposure, with individuals who report engagement in these adaptive ER strategies more likely to show symptom decreases even without active treatment.

In the treatment group, however, putting-into-perspective use had no significant effect on PTSD symptom change. Positive-reappraisal use did have a significant effect in the treatment group, but the effect was not in the predicted direction. Instead of facilitating treatment response, higher levels of positive reappraisal were associated with smaller decreases in PTSD symptoms following treatment. Although speculative, one possible explanation is that the treatment examined in this study is exposure based rather than cognitive. Perhaps a tendency to positively reappraise interfered with WET by discouraging emotional engagement with the writing. Studies of prolonged exposure have indicated that emotional engagement with imaginal exposure predicts better treatment response (e.g., Jaycox et al., 1998). Strategies that allow one to lessen emotional reactions may be adaptive in general, by allowing one to manage PTSD symptoms effectively, but may interfere with exposure-based treatments, by encouraging one to disengage from the exercise. Future research on the use of ER strategies during exposure is warranted to examine this possibility. It also would be interesting to examine moderation of cognitive therapy by positive reappraisal in future work; perhaps a natural tendency to reappraise is a better fit with cognitive restructuring. It should be noted that although high reappraisers experienced smaller treatment effects relative to low reappraisers, both groups showed decreases in PTSD symptoms following treatment.

Our prediction that WET would increase use of adaptive ER strategies and decrease use of maladaptive strategies was supported partially. We found that WET decreased use of the maladaptive strategy of rumination but did not affect use of the other three ER strategies assessed. The finding that WET reduced rumination is consistent with prior work in nonclinical samples that found that expressive writing, the procedure on which WET was based, also reduced rumination (Gortner et al., 2006; van der Houwen et al., 2010).

Taken together, these findings suggest that writing about stressful or traumatic events interrupts rumination. The timing of the decrease in rumination suggested a delayed effect of treatment because differences were not seen posttreatment but emerged at the 3-month follow-up assessment. The timing of this effect indicates that the decrease in rumination follows symptom improvement because improvement in PTSD symptoms is present posttreatment (Sloan et al., 2012). Although the reason for this timing is unclear, one possibility is that reexperiencing the trauma triggers rumination such that a decrease in reexperiencing symptoms might lead to a subsequent decrease in rumination. The rumination findings help to address a common concern among therapy clients that they will not benefit from focusing on the traumatic event in therapy because they already think about it constantly (Ehlers & Clark, 2000). As described earlier, we found no evidence that rumination moderates treatment outcome, directly contradicting this prediction. We also found that WET reduces rumination, offering an additional benefit of treatment that is perhaps especially relevant for clients who raise the issue of rumination.

The finding that WET did not reduce self-blame was surprising given prior findings that other exposure-based treatments reduced self-blame (Foa & Rauch, 2004; Resick et al., 2002, 2008). This result could be due to the type of self-blame assessed in this study, which was the general tendency to use self-blame as an ER strategy. The effects of exposure treatment may be limited to trauma-related guilt, rather than a general tendency to engage in self-blame for stressful events. We also found no evidence in this study that WET increased use of adaptive ER strategies. Treatments that include instruction in ER, such as skills training in affective and interpersonal regulation (Cloitre et al., 2002), might be more likely to increase use of adaptive ER strategies.

It is important to note this study's limitations. We examined only one treatment; it is not clear whether similar effects would be seen for other PTSD treatments, such as prolonged exposure (Foa & Rothbaum, 1998) or cognitive processing therapy (Resick & Schnicke, 1993). Despite the relatively small sample size, we obtained significant findings for two of the four ER strategies examined. The moderation effects that were not significant (rumination and self-blame) were very small in magnitude (*pr*s < .1), reducing the likelihood that they were nonsignificant due to Type II error. Nonetheless, future research should include larger samples to ensure adequate power to investigate moderator effects. Finally, we relied on a self-report questionnaire as our measure of ER strategies, which required participants to reflect on how often they use different strategies. It would be informative to include multimethod assessment of ER strategies in future research.

We focused on four cognitive ER strategies that have the most empirical evidence for association with PTSD. However, there are likely other ER strategies that may be important to the development and maintenance of PTSD (e.g., emotional acceptance). Moreover, behavioral indicators of ER deficits, such as self-harm, aggression, and impulsive behaviors, would be important to assess in future work because these behaviors might be particularly problematic in the context of exposure therapy. It will be important for future research to explore how the use of other ER strategies affects the course of

PTSD symptoms and treatment of PTSD. Strengths of this study include the use of a well-validated, semi-structured clinical interview as our measure of PTSD symptoms and the examination of these ER strategies in a sample of individuals meeting full diagnostic criteria for PTSD.

This study extends the literature by examining the relationship between use of ER strategies and treatment response and by examining changes in use of ER strategies during the course of treatment. We offered additional evidence for the adaptive value of putting traumatic or stressful experiences into perspective and for positively reappraising such experiences because both strategies were associated with symptom reduction in the waitlist group. Although positive reappraisal is generally adaptive, positive reappraisal was negatively associated with treatment response, raising intriguing questions about clients' use of ER strategies during exposure-based treatments. We also found that WET reduced use of the maladaptive strategy of rumination, suggesting another possible benefit of this treatment in addition to symptom reduction.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

Funding

The data used in this study were collected as part of a larger clinical trial that was supported by National Institute of Mental Health Grant R34MH077658-02 awarded to Denise M. Sloan. Blair E. Wisco was supported by an award from the National Institute of Mental Health (T32MH019836). Brian P. Marx was supported by Grant W81XWH-08-2-0028 and Grant W81XWH-08-2-0100 from the U.S. Army Medical Research and Materiel Command. The content of this article is solely the responsibility of the authors and does not necessarily represent the official views of the Department of Veterans Affairs, National Center for Posttraumatic Stress Disorder, or National Institute of Mental Health.

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