



Published in final edited form as:

J Aggress Maltreat Trauma. 2008 October 1; 17(3): 279–295. doi:10.1080/10926770802403236.

A Preliminary Examination of Thought Suppression, Emotion Regulation, and Coping in a Trauma Exposed Sample

Ananda B. Amstadter and
Medical University of South Carolina

Laura L. Vernon
Florida Atlantic University

Abstract

Attempts to modulate negative emotional and cognitive symptoms of Posttraumatic Stress Disorder (PTSD) may be related to psychopathology. Trauma exposed undergraduates, 31 reporting severe PTSD symptoms (PTSD group) and 34 without PTSD symptoms (no-PTSD group), completed measures of PTSD, depression, anxiety, thought control, emotion regulation, and coping. The PTSD group had greater psychopathology and overall modulation strategy use than the no-PTSD group. Thought suppression, emotion suppression, and avoidant coping strategies were positively related to psychopathology, whereas emotion reappraisal and approach coping strategies were either not related or weakly negatively related. Hierarchical multiple regressions with psychopathologic variables as criteria and modulation strategies as predictors indicated significant models in all cases. Generally, thought suppression was the only significant independent predictor of psychopathology.

Keywords

trauma; Posttraumatic Stress Disorder; thought suppression; emotion regulation; coping; psychopathology

Individuals normally respond to unpleasant thoughts and emotions by attempting to control or modify them (Horowitz, 1976), particularly those related to traumatic events (e.g., Amir et al., 1997). Individual differences in use of several types of modulation strategies have been examined separately in traumatized populations: thought control, emotion regulation, and coping. Although such strategies have been distinguished theoretically, to our knowledge they have not been compared empirically. The present paper will refer to them broadly as modulation strategies. When examined alone, various forms of regulation and coping appear to be associated with psychopathology symptoms. As two of the defining symptoms of Posttraumatic Stress Disorder (PTSD) are directly related to modulation attempts (i.e., cognitive and emotional avoidance, reexperiencing the traumatic event in the form of intrusive thoughts), an improved understanding of their relationships with psychopathology is crucial

Address correspondence to Ananda B. Amstadter at the National Crime Victims Center of the Medical University of South Carolina, Dept. of Psychiatry and Behavioral Sciences, 165 Cannon Street, 3rd Floor, Charleston, SC 29425 (amstadt@musc.edu; 843.792-2945 phone; 843.792.3388 fax)..

Laura L. Vernon, Ph.D., is an Assistant Professor of Psychology at the Wilkes Honors College of Florida Atlantic University in Jupiter, FL.

Mailing Address for Each Author Dr. Amstadter's mailing address: Department of Psychiatry and Behavioral Sciences, National Crime Victims Research and Treatment Center, Medical University of South Carolina, P.O. Box 250852, 165 Cannon Street, Charleston, SC 29425.

Dr. Vernon's mailing address: Wilkes Honors College, FAU Jupiter, John D. MacArthur Campus, 5353 Parkside Drive, Jupiter, FL 33458

in trauma populations as it may provide key information for recovery. However, it is not clear whether such strategies would be independently related to PTSD, anxiety, and depression symptoms once the shared variance between them is removed. The present study sought to examine mental control (thought suppression), emotion regulation (emotion suppression, emotion reappraisal), and coping (approach, avoidance, emotion, problem) strategies in a trauma sample with and without PTSD.

Thought Control

Thought suppression is a thought control technique to try to keep unwanted thoughts at bay. In experimental paradigms, attempted thought suppression has often been paradoxically linked to an increase in unwanted thoughts both in normal samples (e.g., Clark, Ball, & Pope, 1991; McNally & Ricciardi, 1996) and in trauma exposed samples (e.g., Amstadter & Vernon, 2006).

Not surprisingly, the use of thought suppression appears to be related to psychopathology. Substantial relationships have been found between reported thought suppression use, as measured by the White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994), and depression (e.g., Conway, Howell, & Giannopoulos, 1991; Howell & Conway, 1992; Wenzlaff & Bates, 1998) and symptoms of anxiety in college samples (Muris, Merckelbach, & Horselenberg, 1996; Wegner & Zanakos). Thought suppression may be an especially valuable focus for trauma researchers, as it appears to increase unwanted thoughts, especially among individuals with PTSD (e.g., Amstadter & Vernon, 2006; Shipherd & Beck, 1999, 2005). Experimental data suggest that is not an individual's general suppression ability, but the content of thoughts suppressed that leads to problems with intrusive thoughts for those with PTSD (Amstadter & Vernon), underscoring the need to study this modulation strategy in trauma-exposed individuals with and without PTSD. Furthermore, thought suppression has been theorized to play a role in the development and maintenance of PTSD (Wenzlaff & Wegner, 2000). A number of correlational studies also suggest an association between traumatic exposure and use of thought suppression (e.g., Amir et al., 1997; Ehlers, Mayou, & Bryant, 1998; Tull, Gratz, Salters, & Roemer, 2004).

Emotion Regulation

Emotion regulation refers to a variety of methods to influence emotional experience and expression (Rottenberg & Gross, 2003). This study focuses on emotion reappraisal and emotion suppression, the two most often studied forms of emotion regulation. Reappraisal refers to changing one's thinking about a situation to alter its emotional impact (Gross & John, 2003). Emotion suppression refers to trying to ignore an emotion that has developed and to avoid its expression.

The findings of four studies suggest that emotion suppression may be important in a traumatized sample and for clinical samples in general. Those with mood and anxiety disorders report and appear to use suppression more often than a nonclinical group (Campbell-Sills, Barlow, Brown, & Hofmann, 2003) and use is related to higher negative emotion intensity (Lynch, Robins, Morse, & Krause, 2001) and anxiety (Levitt, Brown, Orsillo, & Barlow, 2004). Further, in a Vietnam veteran sample, those with PTSD utilized emotion suppression more often and with more effort than those without PTSD, and regularity of suppression use was related to PTSD symptom severity (Roemer, Litz, Orsillo, & Wagner, 2001). The present study will extend the literature by examining emotion suppression use in a trauma sample with varying types of trauma, as well as comparing it with thought suppression.

Clinical investigations of emotion reappraisal are in their infancy, but two studies speak to the adaptive nature of this technique. Kamphuis and Telch (2000) found that emotional reappraisal

prior to an exposure trial for claustrophobia increased the trial's efficacy, and subsequent negative emotion was less intense. Similarly, Feldner, Zvolensky, Eifert, and Spira (2003) found that individuals who naturally used reappraisal during a biological challenge fared better. However, reappraisal has not been examined in a traumatized population and the present study seeks to bridge this gap in the literature.

Coping Strategies

Studies of emotion and thought regulation are in their preliminary stages; however, links between coping styles and PTSD have received considerably more attention (Bonanno & Kaltman, 1999; Skinner, Edge, Altman, & Sherwood, 2003). Coping styles can be broadly categorized as approach or avoidance, and further differentiation is made between approach/avoidance of emotions versus problems (Tobin, Holroyd, Reynolds, & Wigal, 1989). Findings from trauma coping studies essentially suggest that avoidant coping is maladaptive and is associated with PTSD symptom severity (e.g., Bryant & Harvey, 1995; Burgess & Holmstrom, 1978). Conversely, approach coping has been associated with less psychological distress in college samples (e.g., Valentiner, Holahan, & Moos, 1994) and trauma samples (e.g., Frazier & Burnett, 1994). Previous coping findings have generally been specific to one type of negative event or trauma, such as bereavement or motor vehicle accidents. The present study adds to the literature by examining whether previously established relationships between coping and PTSD symptom level are replicated in a mixed trauma type sample, and extends the literature by elucidating the relationships between coping and modulation techniques.

The first goal of the present study was to examine the unique variance accounted for by various modulation techniques in the prediction of depression, anxiety, and PTSD symptoms. As thought suppression and its association with psychopathology is backed by both experimental and correlational evidence, it was expected that thought suppression would be independently associated with PTSD, anxiety, and depression symptoms above and beyond other modulation strategy use. The second goal was to examine the relationships among modulation strategies. The third goal was to replicate previous findings of greater psychopathology symptoms and modulation strategy use in trauma exposed individuals with PTSD than those without PTSD symptoms.

Method

Participant Selection

As part of a larger laboratory study of thought suppression (Amstadter & Vernon, 2006), undergraduate students in psychology classes received extra credit for completing a battery of self-report measures (detailed screening and selection criteria are presented in Amstadter & Vernon, 2006). Participants were selected based on responses to the Life Events Checklist (LEC) from the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995) and to the PTSD Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993; both measures are described below). The LEC assesses lifetime trauma and Diagnostic and Statistical Manual of Mental Disorders IV-TR (*DSM-IV-TR*; American Psychiatric Association [APA], 2000) Criterion A1 (objective aspects of the event, such as whether there was threat of injury or death) and Criterion A2 (a subjective response of intense fear, helplessness, or horror) regarding participant's worst trauma; all participants' worst traumas met these criteria. Using the method of extreme discordant phenotype (Nebert, 2000), only distinct phenotype variants were enrolled into the two groups. Participants were included in the PTSD group if they scored above 44 on the PCL (a cutoff score suggested by Blanchard, Jones-Alexander, Buckley, & Forneris, 1996) and included in the no-PTSD group if their PCL score was below 20.

Participants

Of the 369 participants who completed the screening measures of the larger study, 31 individuals were selected for the PTSD group (81.8% female) and 34 composed the no-PTSD group (62.2% female) in the current study. Participants had 2.79 years of college education on average, and ranged in age from 19 to 42 ($M = 20.0$, $SD = 3.0$). The majority of participants indicated they were Caucasian ($n = 58$, 87.9%), with African-American being the next largest racial/ethnic group represented ($n = 6$, 9.1%). Age, year in school, race, and gender were not significantly different between the PTSD and no-PTSD groups. Not surprisingly, the PTSD group reported significantly greater intrusive reexperiencing, $t(64) = -10.30$, avoidance and numbing, $t(64) = -8.69$, and hyperarousal, $t(64) = -10.68$, p 's $< .001$, than the no-PTSD group.

The five most commonly reported traumas on the LEC in both groups were sudden violent or unexpected death, sexual assault, physical assault, transportation accident, and serious illness or injury. The two groups did not differ significantly in types of trauma reported, Mann-Whitney $U = 560.00$, ns ; in the extent of threatened physical harm, $t(64) = -.29$, ns ; or in actual serious injury or death resulting from the trauma, $t(64) = -.17$, ns .

Measures

In addition to the screening measures, participants meeting study criteria completed the following six questionnaires. The first three of these are measures of modulation strategies and the latter three are measures of psychopathology symptoms. Descriptive statistics for all measures are found in Table 1.

Emotion Regulation Questionnaire—Individual differences in the extent of use of emotion suppression and emotion reappraisal were assessed using the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The ERQ consists of six items concerning emotion reappraisal (e.g., “I control my emotions by changing the way I think about the situation I am in.”) and five items concerning emotion suppression (e.g., “I control my emotions by not expressing them.”). For each item, participants indicate the extent to which they agree with the statement on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). In line with previous findings (Gross & John), Cronbach's alphas in the present study were as follows: Reappraisal, $\alpha = .81$, and Suppression, $\alpha = .75$.

White Bear Suppression Inventory—The tendency to employ thought suppression was assessed with the WBSI (Wegner & Zanakos, 1994). This self-report measure consists of 15 items (e.g., “I have thoughts I try to avoid.”) that participants endorse on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Similar to previous internal consistency findings (Muris et al., 1996), Cronbach's alpha for the WBSI in the present study was $\alpha = .88$.

Coping style—The Coping Strategies Inventory (CSI; Tobin et al., 1989) is a 72-item measure, using a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*very much*) to assess coping in response to a specific event. The CSI assesses problem-focused, emotion-focused, approach, and avoidance coping. Internal consistency in the current study was in line with previous findings (Tobin et al.): Problem Approach, $\alpha = .87$, Emotion Approach, $\alpha = .89$, Problem Avoidance, $\alpha = .84$, and Emotion Avoidance, $\alpha = .94$.

Mood and Anxiety Symptom Questionnaire—Depression and anxiety symptoms were assessed using the Mood and Anxiety Symptom Questionnaire (MASQ; Watson & Clark, 1991), which contains 90 common symptoms of general distress, anxiety-specific symptoms of hyperarousal, and depression-specific symptoms of low positive affect and loss of interest. Participants rate symptom severity during the past month on a scale from 1 (*not at all*) to 5 (*extremely*), yielding continuous subscale scores. The MASQ typically shows high internal

consistency (Clark & Watson, 1991) as it did the present study, with subscale reliabilities ranging from $\alpha = .80$ to $.91$, ($M = .86$; $SD = .04$).

Trauma history and Posttraumatic Stress Disorder symptoms—The LEC (Blake et al., 1995) includes a list of 17 potentially traumatic events (e.g., sexual assault, physical assault, transportation accident). Participants indicate whether they have experienced each event, witnessed it happening to someone else, or learned about it happening to someone close to them. Participants are then instructed to answer questions addressing *DSM-IV-TR* (APA, 2000) Criteria A1 and A2 regarding the event they consider the worst.

The PCL (Weathers et al., 1993) is a 17-item questionnaire, with each item corresponding to a *DSM-IV-TR* (APA, 2000) symptom of PTSD. For the worst trauma indicated on the LEC, participants indicate the degree to which they have been troubled by each symptom in the past month, from 1 (*not at all*) to 5 (*extremely*). Test-retest reliability for this measure is high, $.96$ (Blanchard et al., 1996; Weathers et al.). High diagnostic agreement has been demonstrated between the PCL and the Structured Clinical Interview for the *DSM-III-R* (SCID), pairwise kappa = $.64$ (Weathers et al.). Additionally, results from the PCL and the CAPS are highly correlated, $r = .93$, $p < .001$ (Blanchard et al.).

Results

As the groups were selected via the extreme discordant method based on PTSD diagnostic status, a non-normal distribution was created. To ascertain if analyses based on correlational matrixes could be conducted in the combined sample, Fisher's Z tests were conducted for all possible bivariate correlations. Since these scores did not differ between groups at a rate higher than would be predicted by chance ($.05$), this indicated that the relationships between variables do not differ between PTSD symptom groups, and therefore supports the combination of the groups for purposes of analyses based on the correlation matrix. Correlations can be found in Table 2.

Since many of the modulation strategies were strongly associated with one another, it could be the case that their relationships with psychopathology are being driven by one or a few strategies in particular. To examine the independence of relationships between self-reported use of modulation strategies and measures of depression and anxiety symptoms, and to determine whether generally adaptive strategies add anything above and beyond the maladaptive strategies, five hierarchical multiple regressions were conducted. Modulation strategies typically found to be maladaptive (i.e., thought suppression, emotion suppression, avoidant coping) were entered in the first step, and the strategies generally found to be adaptive were entered in the second step. Each anxiety and depression measure was a dependent variable. As shown in Table 3, the restricted model was significant in all cases.¹ In nearly all cases (except anhedonic depression and anxiety), thought suppression was the only independent significant predictor of psychopathology. In the case of anxiety, avoidant coping was marginally significant, $p = .05$. For all psychopathology scales with the exception of anhedonic depression, there was not a significant change in predictive value by adding the adaptive modulation strategies. In other words, after considering maladaptive strategies, specifically thought suppression, the addition of the adaptive strategies examined in this study did not yield incremental gains.²

¹Step two regression coefficients were not reported in Table 3 because a significant change between the full and restricted model was only found for the depression subscale.

²A set of exploratory hierarchical multiple regressions identical to the reported regressions, but controlling for PTSD, was also conducted and the results remained the same.

Since PTSD scores were not continuous, a binary logistic regression was conducted, also in block fashion with the maladaptive strategies entered first and adaptive strategies entered second, to examine if modulation strategies were differentially related to PTSD symptom group. Both sets of modulation strategies were significantly related to PTSD group, overall model $\chi^2(7, N = 57) = 31.18, p < .001$. Interestingly, emotion avoidance, emotion approach, and reappraisal were positively associated with PTSD group, $Bs = 11, .09, .12, Exp(B)s = 1.11, 1.09, 1.13$, respectively, $p's < .05$, whereas problem approach was negatively associated, $B = -.09, Exp(B) = .91, p < .05$.

As the groups were selected via the extreme discordant method based on PTSD diagnostic status, a 2 (Group: PTSD, no-PTSD) X 13 (psychopathology, emotion regulation strategies, thought suppression, coping strategies) ANOVA was conducted to examine how the groups differed. As shown by the ANOVA results in Table 1, not surprisingly, the groups differed significantly on many psychopathology and modulation variables, with the PTSD participants reporting greater mixed anxiety and depression, anxiety, anxious arousal, and depression (and our group selection variable, PTSD symptom level) than the no-PTSD participants. Predictably, the groups also differed significantly on thought suppression, emotion approach coping, and both emotion and problem avoidance coping, with the PTSD group reporting higher levels than the no-PTSD group. There was a trend for the no-PTSD group to utilize more problem approach coping than the PTSD group, $p = .11$. The only other two variables on which the PTSD group did not score significantly higher than the no-PTSD group were the two emotion regulation variables, emotion suppression and emotion reappraisal.

Discussion

The present study examined relationships among three categories of modulation attempts: thought control, emotion regulation, and coping. This study, to our knowledge, is the first to include all three categories in the same trauma sample, and therefore affords two important extensions to the literature. First, our results revealed that thought suppression was generally the only significant independent contributor to scores of PTSD, anxiety, and depression symptoms after controlling for shared variance with other modulation strategies previously shown to be associated with mental health diagnoses. A growing body of experimental (e.g., Amstadter & Vernon, 2006), correlational (e.g., Amir et al., 1997), and theoretical (e.g., Wenzlaff & Wegner, 2000) work has suggested that thought suppression is a key contributor to psychopathology. The present study is not only consistent with these lines of evidence, but extends them by showing that thought suppression was associated with psychopathology above and beyond the effects of the reported use of other modulation strategies such as emotion regulation and coping. Second, we were able to examine previously theorized interrelationships among modulation strategies and empirically demonstrate them for the first time. Additionally, our finding that the PTSD group generally reported greater psychopathology symptoms and modulation strategy use than the no-PTSD group replicates past work (e.g., Bryant & Harvey, 1995). However, it should be noted that the present study was not directly observing these modulation strategies, but rather assessing the participants' views on their uses of these strategies.

The primary contribution of the present study is that it is the first to compare the influence of a wide variety of modulation strategies on psychopathology symptoms in a trauma sample. Consistent with previous theoretical and empirical work suggesting that use of thought suppression, emotion suppression, and avoidant coping may be problematic in the aftermath of trauma (e.g., Amir et al., 1997; Amstadter & Vernon, 2006; Bryant & Harvey, 1995; Wenzlaff & Wegner, 2000), as predicted we found that use of these strategies was positively related to PTSD, anxiety, and depression symptom scores. More importantly, after controlling for variance shared among modulation strategies, across the board we found that thought

suppression independently contributed to PTSD, anxiety, and depression symptom scores. However, our cross-sectional data did not allow us to sort out whether more psychopathology symptoms led to more modulation attempts or vice versa. Given our previous experimental findings regarding thought suppression among individuals with PTSD (Amstadter & Vernon) and Wenzlaff and Wegner's persuasive theory of a vicious cycle of suppression attempts and intrusions, we predict that future longitudinal research will find that causal influence works in both directions.

In our sample, maladaptive modulation strategies were generally strongly related to psychopathologic symptom level, whereas adaptive strategies did not appear to contribute above and beyond the maladaptive strategies. The addition of adaptive modulation strategies did not provide an incremental boost in the predictive power of the regression equation in our sample, except in the case of anhedonic depression. Since all participants in this sample have had a traumatic experience, one possible explanation for our findings is that techniques shown to be adaptive for general life stress were not sufficiently powerful for coping with such an intense event. This study's second important contribution to the literature lies in its examination of the interrelations among various modulation strategies among trauma survivors. As predicted, we found that thought suppression, emotion avoidant coping, and problem avoidant coping were related to each other, suggesting that they generally reflect avoidance, a construct that has been linked to psychopathology theoretically (e.g., Wenzlaff & Wegner, 2000), experimentally (e.g., Amstadter & Vernon, 2006; Shipherd & Beck, 1999, 2005), and clinically (e.g., Linehan, 1993). Our results empirically demonstrate relationships between the reported use of strategies previously theorized to be similar (e.g., Bonanno & Kaltman, 1999). Surprisingly, whereas reported use of emotion suppression was related to that of emotion avoidant coping, it was not related to thought suppression use.

This is also the first study to examine the frequently overlooked adaptive strategies of reappraisal and approach coping together in a mixed trauma sample. Although we had expected reappraisal and approach coping to be negatively related to psychopathology symptom levels, we found that this was not generally the case, with two specific exceptions. First, as predicted, problem approach coping was negatively related to anhedonia, suggesting that those that confront difficulties may experience greater enjoyment of their activities. Second, contrary to predictions and previous research findings (e.g., Frazier & Burnett, 1994), emotion approach coping was positively related to PTSD in our sample. It would be useful for future research to tease apart which aspects of emotion approach coping could be maladaptive (e.g., excessive emotional expression of anger), particularly following intense events such as trauma.

The PTSD group generally reported experiencing more anxiety, anxious arousal, depression, and mixed anxiety and depression symptoms than the no-PTSD group, consistent with previous findings of relationships among emotional disorder symptoms (e.g., Barlow, Allen, & Choate, 2004). Similar to other studies that examined a single type of modulation strategy and found its use to be greater in a clinical group (e.g., Campbell-Sills et al., 2003; Roemer et al., 2001), our PTSD group reported more frequent use of a range of strategies relative to the no-PTSD group. Although the levels of psychopathology and modulation variables differed between groups, results of the Fischer's Z tests indicated that the PTSD and no-PTSD groups did not differ in the relationships among modulation and psychopathology variables, suggesting that the processes in the two groups may be similar.

Limitations and Future Directions

The results from the present study, although preliminary, revealed complex interrelationships among symptoms and modulation strategy use that should be interpreted in light of some of the study's limitations. The correlational and cross-sectional design of the present study allows for a preliminary examination of relationships between variables; however, causal direction is

unknown. Future research would benefit from the use of longitudinal designs to examine developing trends in the relationships among symptoms and modulation strategy implementation, as well as the effects of treatment, recovery environment, and time elapsed. It would be helpful to examine the choice of modulation strategy and frequency of use in response to trauma-specific stressors and general stressors, and the unfolding impact of such use. Similar to other studies utilizing a college sample, the current study is limited by the relative homogeneity of the sample. Given that this is not a clinical sample, there are limits on the generalizability of our results to a treatment population. Additionally, the present sample is limited by a relatively small number of participants. Nonetheless, the present investigation marks an important first step in understanding the relationship between psychopathology and self-regulation attempts following trauma.

Acknowledgments

Ananda B. Amstadter, Ph.D., is supported by NIMH #18869 and is a junior faculty member at the National Crime Victims Center in the Department of Psychiatry and Behavioral Sciences – Medical University of South Carolina, Charleston, SC.

References

- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. Vol. 4th ed. Author; Washington, DC: 2000.
- Amir M, Kaplan Z, Efroni R, Levine Y, Benjamin J, Kotler M. Coping styles in post-traumatic stress disorder (PTSD) patients. *Personality and Individual Differences* 1997;23:399–405.
- Amstadter AB, Vernon LL. Suppression of neutral and trauma targets: Implications for posttraumatic stress disorder. *Journal of Traumatic Stress* 2006;19:517–526. [PubMed: 16929506]
- Barlow D,H, Allen LB, Choate ML. Toward a unified treatment for emotional disorders. *Behaviour Therapy* 2004;35:205–230.
- Blake DD, Weathers FW, Nagy LM, Kaloupek DG, Gusman FD, Charney DS, et al. The development of a clinician-administered PTSD scale. *Journal of Traumatic Stress* 1995;8:75–90. [PubMed: 7712061]
- Blanchard EB, Jones-Alexander J, Buckley TC, Forneris CA. Psychometric properties of the PTSD Checklist (PCL). *Behaviour Research and Therapy* 1996;34:669–673. [PubMed: 8870294]
- Bonanno GA, Kaltman S. Toward an integrative perspective on bereavement. *Psychological Bulletin* 1999;125(6):760–766. [PubMed: 10589301]
- Bryant RA, Harvey AG. Avoidant coping style and post-traumatic stress following motor vehicle accidents. *Behaviour Research and Therapy* 1995;33:631–635. [PubMed: 7654155]
- Burgess AW, Holmstrom LL. Recovery from rape and prior life stress. *Research on Health Nursing* 1978;1:165–174.
- Campbell-Sills, L.; Barlow, DH.; Brown, TA.; Hofmann, SG. The relevance of emotion regulatory processes to anxiety and mood disorders. 2003. Unpublished manuscript
- Clark DM, Ball S, Pope D. An experimental investigation of thought suppression. *Behaviour Research and Therapy* 1991;29:253–257. [PubMed: 1883305]
- Clark LA, Watson D. Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology* 1991;100:316–336. [PubMed: 1918611]
- Conway M, Howell A, Giannopoulos C. Dysphoria and thought suppression. *Cognitive Therapy and Research* 1991;15:153–166.
- Elhers A, Mayou RA, Bryant B. Psychological predictors of chronic posttraumatic stress disorder after motor vehicle accidents. *Journal of Abnormal Psychology* 1998;107:508–519. [PubMed: 9715585]
- Feldner MT, Zvolensky MJ, Eifert GH, Spira AP. Emotional avoidance: An experimental test of individual differences and response suppression using biological challenge. *Behaviour Research and Therapy* 2003;41:403–411. [PubMed: 12643964]
- Frazier PA, Burnett JW. Immediate coping strategies among rape victims. *Journal of Counseling and Development* 1994;72:663–639.

- Gross JJ, John OP. Individual differences in tow emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology* 2003;85:348–362. [PubMed: 12916575]
- Horowitz, MJ. *Stress response syndromes*. Jason Aronson Inc.; New York: 1976.
- Howell A, Conway M. Mood and the suppression of positive and negative self-referent thoughts. *Cognitive Therapy and Research* 1992;16:535–555.
- Kamphuis JH, Telch MJ. Effects of distraction and guided threat reappraisal on fear reduction during exposure-based treatments for specific fears. *Behaviour Research and Therapy* 2000;38:1163–1181. [PubMed: 11104181]
- Levitt JT, Brown TA, Orsillo SM, Barlow DH. The effects of acceptance versus suppression of emotion on subjective and psychophysiological response to carbon dioxide challenge in patients with panic disorder. *Behaviour Therapy* 2004;35:747–766.
- Linehan, MM. *Skills training manual for treating borderline personality disorder*. Guilford Press; New York: 1993.
- Lynch TA, Robins CJ, Morse JO, Krause ED. A mediational model relating affect intensity, emotional inhibition, and psychological distress. *Behaviour Therapy* 2001;32:519–536.
- McNally RJ, Ricciardi JN. Suppression of negative and neutral thoughts. *Behavioral and Cognitive Psychotherapy* 1996;24:17–25.
- Muris P, Merckelbach H, Horselenberg R. Individual differences in thought suppression. The White Bear Suppression Inventory: Factor structure, reliability, validity and correlates. *Behaviour Research and Therapy* 1996;34:501–513. [PubMed: 8687372]
- Nebert DW. Extreme discordant phenotype methodology: An intuitive approach to clinical pharmacogenetics. *European Journal of Pharmacology* 2000;410:107–120. [PubMed: 11134663]
- Roemer L, Litz BT, Orsillo SM, Wagner AW. A preliminary investigation of the role of strategic withholding of emotions in PTSD. *Journal of Traumatic Stress* 2001;14:149–156.
- Rottenberg J, Gross JJ. When emotion goes wrong: Realizing the promise of affective science. *Clinical Psychology Science and Practice* 2003;10:227–232.
- Shipherd JC, Beck GJ. The effects of suppressing trauma-related thoughts on women with rape-related posttraumatic stress disorder. *Behaviour Research and Therapy* 1999;37:99–112. [PubMed: 9990742]
- Shipherd JC, Beck GJ. The role of thought suppression in posttraumatic stress disorder. *Behaviour Therapy* 2005;36:277–287.
- Skinner EA, Edge K, Altman J, Sherwood H. Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin* 2003;129(2):216–269. [PubMed: 12696840]
- Tobin DL, Holroyd KA, Reynolds RV, Wigal JK. The hierarchical factor structure of the Coping Strategies Inventory. *Cognitive Therapy & Research* 1989;13:343–361.
- Tull MT, Gratz KL, Salters K, Roemer L. The role of experimental avoidance in posttraumatic stress symptoms and symptoms of depression, anxiety, and somatization. *Journal of Nervous & Mental Disease* 2004;192:754–761. [PubMed: 15505519]
- Valentiner DP, Holahan CJ, Moos RH. Social support, appraisals of event controllability, and coping: An integrative model. *Journal of Personality and Social Psychology* 1994;66:1094–1102.
- Watson, D.; Clark, LA. *The Mood and Anxiety Symptom Questionnaire*. Southern Methodist University; Dallas, TX: 1991. Unpublished manuscript
- Weathers, FW.; Litz, BT.; Herman, DS.; Huska, JA.; Keane, TM. The PTSD checklist: Reliability, validity, and diagnostic utility. Paper presented at the Annual Meeting of the International Society for Traumatic Stress Studies; San Antonio, TX. Oct. 1993
- Wegner DM, Zanakos S. Chronic thought suppression. *Journal of Personality* 1994;62:615–640.
- Wenzlaff RM, Bates DE. Unmasking a cognitive vulnerability to depression: How lapses in mental control reveal depressive thinking. *Journal of Personality and Social Psychology* 1998;75:1559–1571. [PubMed: 9914666]
- Wenzlaff RM, Wegner DM. Thought suppression. *Annual Review of Psychology* 2000;51:59–91.

Table 1

Descriptive Statistics for All Measures by PTSD Symptom Group

	PTSD		No-PTSD		F (1,62)
	M	(SD)	M	(SD)	
PTSD	47.50	(9.56)	20.47	(7.41)	161.72***
Mixed Symptoms	36.19	(9.91)	28.18	(8.13)	12.56**
Anxious Symptoms	20.55	(6.45)	16.18	(4.78)	9.55**
Anxious Arousal	27.29	(8.47)	21.09	(4.92)	13.01**
Depressive Symptoms	25.03	(9.28)	19.87	(5.89)	7.12*
Anhedonic Depression	60.16	(11.59)	53.70	(14.83)	3.74
Thought Suppression	59.35	(10.13)	51.55	(10.00)	9.63**
Emotion Suppression	12.74	(4.74)	12.79	(4.98)	.01
Problem Avoidance	30.58	(13.87)	22.76	(11.35)	6.13*
Emotion Avoidance	25.52	(18.00)	12.88	(11.46)	11.41**
Emotion Reappraisal	27.81	(5.84)	27.68	(7.33)	.01
Problem Approach	22.19	(12.08)	27.33	(12.93)	2.69
Emotion Approach	35.52	(13.05)	27.88	(14.06)	5.06*

* $p < .05$.** $p < .01$.*** $p < .001$.

Table 2

Bivariate Correlations for the Combined PTSD and No-PTSD Sample

	Thought Suppression	Emotion Suppression	Emotion Reappraisal	Problem Avoidance Coping	Emotion Avoidance Coping	Problem Approach Coping	Emotion Approach Coping	PTSD	Mixed Symptoms	Anxious Symptoms	Anxious Arousal	Depressive Symptoms
Emotion Suppression	.21											
Emotion Reappraisal	-.13	.03										
Problem Avoidance Coping	.48***	.07	-.11									
Emotion Avoidance Coping	.49***	.42**	-.03	.64***								
Problem Approach Coping	-.17	-.06	.36**	.14	.02							
Emotion Approach Coping	.13	-.42**	-.13	.23	-.11	.16						
PTSD	.41**	-.06	-.15	.40**	.42**	-.19	.38**					
Mixed Symptoms	.65***	.22	-.25	.57***	.56***	-.19	.05	.50***				
Anxious Symptoms	.50***	.13	-.21	.55***	.52***	-.18	-.01	.46***	.84***			
Anxious Arousal	.43***	.17	-.24	.45***	.49***	-.11	.11	.48***	.66***	.70***		
Depressive Symptoms	.48***	.14	-.21	.40**	.38**	-.17	.08	.41**	.75***	.68***	.52***	
Autodominic Depression	.42**	-.23	.06	.30*	.31*	-.45***	-.10	-.13	.58***	.42**	.39**	.56***

* p < .05
 ** p < .01
 *** p < .001.

Table 3
 Summary of Five Hierarchical Multiple Regression Analyses Predicting Psychopathology for the Combined PTSD and no-PTSD Sample

Dependent Variable	Step One			Step One βs					Step Two				
	R ²	df	F	Thought Suppression	Emotion Suppression	Problem Avoidance	Emotion Avoidance	R ²	df	F	R ² Δ	F Δ	
Mixed Symptoms	.53	(4,59)	16.33***	.44***	.04	.24	.17	.57	(7,56)	10.40***	.04	1.71	
Anxious Symptoms	.40	(4,59)	9.92***	.26*	-.04	.28*	.24	.46	(7,56)	6.67***	.05	1.80	
Anxious Arousal	.30	(4,59)	6.32***	.21	.00	.18	.27	.34	(7,56)	4.18**	.04	1.23	
Depressive Symptoms	.27	(4,59)	5.43**	.35*	.01	.17	.10	.30	(7,56)	3.40**	.03	.79	
Anhedonic Depression	.19	(4,59)	3.54*	.34*	.00	.07	.11	.42	(7,56)	5.81***	.23	7.32***	

* $p < .05$.
 ** $p < .01$.
 *** $p < .001$.