



## Relations among emotion regulation and *DSM-5* symptom clusters of PTSD



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### ABSTRACT

Emotion regulation has been implicated as a risk and maintaining factor for posttraumatic stress disorder (PTSD). Three aspects of emotion regulation have demonstrated the strongest relations with PTSD symptoms: experiential avoidance, rumination, and thought suppression. Given that emotion regulation has demonstrated differential relations with DSM-IV PTSD symptom clusters, the current study sought to examine these relations with the DSM-5 symptom clusters of PTSD. Participants were recruited via Amazon's Mechanical Turk ( $N = 403$ ). All participants endorsed trauma exposure. Measures included the PTSD Checklist for DSM-5 (PCL-5), the Acceptance and Action Questionnaire-II (AAQ-II), the negative affect scale of the Positive and Negative Affect Schedule (PANAS-NA; included as a control variable), the Ruminative Responses Scale (RRS), and the White Bear Suppression Inventory (WBSI). A path analysis model in Mplus indicated that the AAQ-II demonstrated large effects with all four PTSD symptom clusters. Of those relations, the largest was observed for the AAQ-II and the Negative Alterations in Cognition and Mood cluster of PTSD. Results suggest that individual variation in PTSD symptoms may have implications for the salience of particular emotion regulation strategies.

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### 1. Introduction

The pervasive influence of emotion regulation on psychopathology has been increasingly examined in the literature. Specifically, poor emotion regulation has been implicated as a risk and maintaining factor for various psychological disorders (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Bardeen, Kumpula, & Orcutt, 2013). Emotion regulation has been defined as the attempt to change the frequency, intensity, and/or duration of an emotion (Gross & Levenson, 1993). This may be done in a variety of ways, but recent meta-analyses suggest that three emotion regulation strategies may demonstrate the strongest relations with psychopathology: experiential avoidance, rumination, and thought suppression (Aldao et al., 2010; Seligowski, Lee, Bardeen, & Orcutt, 2015).

Experiential avoidance involves an unwillingness to experience thoughts, emotions, and/or physical sensations, as well as efforts to change their nature or frequency (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). It appears to have a paradoxical effect, such that instead of an individual experiencing anxiety that may dissipate on its own, the individual may perpetuate the state of anxiety by attempting not to feel anxious (Kashdan, Barrios, Forsyth, & Steger, 2006). This may explain the strong relation between experiential avoidance and psychopathology ( $r$ 's = .27 to .55; Hayes et al., 1996).

Rumination has been conceptualized as a persistent focus on the form, causes, and consequences of one's psychological distress (Nolen-

Hoeksema, 2000). This involves only passive fixation on one's distress, rather than attempts to actively change it or address the problem to which it relates. Much of the research on rumination has been in relation to depression, with effect sizes for rumination being highest for individuals with symptoms of depression as compared to other psychological disorders (average  $r = .55$ ; Aldao et al., 2010). In addition, rumination has been linked to binge eating, substance abuse, general anxiety, and posttraumatic stress disorder (Nolen-Hoeksema, 2000; Nolen-Hoeksema, Stice, Wade, & Bohon, 2007).

Thought suppression involves attempts to suppress unwanted thoughts (e.g., trying not to think about a recent argument). This may create a paradox, called "the self-referent quality of the plan to suppress" (Wegner, Schneider, Carter, & White, 1987). In essence, this means that an individual must first identify the thought to suppress, thereby bringing the thought to mind. Research has demonstrated that this is not only difficult, but it also results in preoccupation or obsession with the thought, resulting in what has been called "the rebound effect" (Abramowitz, Tolin, & Street, 2001; Wegner et al., 1987). Given this effect and the strong relation between thought suppression and psychopathology, it has been proposed as a maladaptive emotion regulation strategy ( $r$ 's = .29 to .36; Aldao et al., 2010).

In addition to the significant relations between the aforementioned emotion regulation strategies and psychopathology, they have all demonstrated strong relations with symptoms of posttraumatic stress disorder (PTSD) as well (Seligowski et al., 2015). A recent meta-analysis of emotion regulation and PTSD reported that the largest average effect sizes (for specific strategies, rather than a general inability to regulate emotion) were

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for rumination ( $r = .51$ ), thought suppression ( $r = .47$ ), and experiential avoidance ( $r = .40$ ), suggesting that these strategies are particularly salient for individuals with PTSD symptoms (Seligowski et al., 2015).

Given that PTSD symptom presentations vary in the number of symptoms on each cluster (Norrholm & Jovanovic, 2010), examinations of PTSD and emotion regulation may benefit from the breakdown of symptom clusters, rather than examining overall level of PTSD symptomatology. Of studies examining relations between PTSD and emotion regulation, four are known to have explored these relations using symptom clusters of PTSD. In a sample of sexual assault survivors, Tull and Roemer (2003) found that experiential avoidance was almost equally related to the Intrusion ( $r = .40$ ), Avoidance ( $r = .42$ ), Numbing ( $r = .37$ ), and Hyperarousal ( $r = .42$ ) symptom clusters of PTSD, using the *DSM-IV* version of the PTSD Checklist (PCL; Weathers, Weathers, Litz, Herman, Huska, & Keane, 1993). Neufeind, Dritschel, Astell, and MacLeod (2009) reported that thought suppression was significantly related to the Intrusion ( $r = .26$ ), Avoidance ( $r = .35$ ), and Hyperarousal ( $r = .26$ ) symptom clusters of PTSD in a sample of undergraduates, using the Impact of Event Scale – Revised. Among a sample of female undergraduates exposed to a campus mass shooting, Kumpula, Orcutt, Bardeen, and Varkovitzky (2011) found that experiential avoidance was significantly related to the Intrusion ( $r = .43$ ), Avoidance ( $r = .33$ ), Dysphoria ( $r = .53$ ), and Hyperarousal ( $r = .37$ ) symptom clusters of PTSD, using the Distressing Events Questionnaire. Lastly, among a sample of undergraduates, Lee, Witte, Weathers, and Davis (2015) examined PTSD symptom clusters using the PCL along with several emotion regulation strategies, while controlling for negative affect. The authors found that experiential avoidance demonstrated its strongest relations with the Numbing and Dysphoric Arousal symptom clusters of PTSD (using the Dysphoric Arousal model of PTSD; standardized estimates = .34 and .35, respectively). Further, Lee et al. (2015) found that thought suppression demonstrated its strongest relations with the Avoidance and Anxious Arousal clusters (standardized estimates = .45 and .46, respectively), and that rumination did not demonstrate a significant relation with any symptom cluster (a likely result of the inclusion of negative affect). The differential relations observed between emotion regulation and PTSD symptom clusters highlight the heterogeneity of PTSD as a disorder and suggest that individuals with differing PTSD symptom presentations may not have homogenous emotion regulation deficits.

Given that differences in emotion regulation may be observed based on specific PTSD symptom clusters and since these clusters have changed with the emergence of *DSM-5*, it is important to re-examine relations between emotion regulation and PTSD symptom clusters. In particular, since individuals with PTSD often have varying symptom presentations, continued examination of which emotion regulation strategies are most strongly related to which symptom clusters may have implications for treatment. While the current study did not explore these relations within a treatment context, it is the first known study to report on the associations between different forms of emotion regulation and the new *DSM-5* symptom clusters of PTSD, which is an important first step in this line of research.

In building upon the literature related to PTSD symptom clusters and emotion regulation, the current study examined relations between the three emotion regulation strategies thought to be most strongly related to total PTSD symptoms (experiential avoidance, rumination, and thought suppression) and *DSM-5* symptom clusters of PTSD: Intrusion, Avoidance, Negative Alterations in Cognition and Mood, and Alterations in Arousal and Reactivity (American Psychiatric Association, 2013). Results from Kumpula et al. (2011) and Lee et al. (2015) suggest that experiential avoidance demonstrates the strongest relations with the Dysphoria/Numbing items of PTSD. Therefore, we hypothesized that experiential avoidance would be most strongly related to the *DSM-5* Negative Alterations in Cognition and Mood cluster of PTSD. Given that Neufeind et al. (2009) and Lee et al. (2015) reported a larger relation between thought suppression and Avoidance compared to the other

symptom clusters, we hypothesized that thought suppression would be most strongly related to the *DSM-5* Avoidance cluster of PTSD. We also hypothesized that thought suppression would demonstrate a strong relation with the Alterations in Arousal and Reactivity cluster based on Lee et al.'s (2015) findings using the Dysphoric and Anxious Arousal clusters. Given that Lee et al. (2015) did not observe significant relations among rumination and PTSD symptom clusters, and since no other studies are known to have examined rumination in relation to different PTSD clusters, no specific hypotheses were made regarding rumination.

Additionally, the current study sought to examine these relations in the context of negative affect, which has demonstrated relations with both PTSD and emotion regulation, and which may represent an underlying factor of various forms of emotional distress (Tull, Jakupcak, McFadden, & Roemer, 2007; Watson, O'Hara, & Stuart, 2008). Exploring the relations among PTSD and emotion regulation while simultaneously considering negative affect should provide a clearer view of how specific emotion regulation strategies differentially relate to the four *DSM-5* symptom clusters of PTSD.

## 2. Method

### 2.1. Participants

Participants were recruited from an online survey system, Amazon's Mechanical Turk, and were compensated 50 cents for 1 h of work (mTurk.com). Participants were required to be at least 18 years old, live in the United States, be fluent in English, have an mTurk response accuracy rating of at least 95%, and endorse exposure to a traumatic event on the PTSD Checklist – 5 (Weathers et al., 2013). Two of the study authors independently coded each traumatic event to determine whether or not it met Criterion A in *DSM-5* (APA, 2013). Percentage of agreement between the two raters was 93% and Cohen's kappa index of interrater reliability was .71. Disagreements were resolved between the authors and final decisions were made collaboratively. Eligible individuals were given a link to the online survey where they could first complete the informed consent document (selecting the option, "I agree to participate in the present study") and then the survey. Following completion of the survey, participants were given a debriefing form and payment. A total of 403 individuals met inclusion criteria out of an original sample of 611 (66%). The mean age of participants was 37.75 ( $SD = 13.38$ ;  $n = 279$  female).

In terms of race, 345 (86.5%) participants identified as White, 22 (5.5%) as Black, 17 (4.3%) as "Other," 13 (3.3%) as Asian, and 2 (.5%) as American Indian or Alaskan Native; 4 (1%) declined to respond. The majority of participants identified as non-Latino/Hispanic (94%).

Regarding traumatic events, the majority of participants endorsed sexual assault ( $n = 101$ , 25.06%), physical assault ( $n = 89$ , 22.08%), knowing someone who was murdered or committed suicide ( $n = 76$ , 18.86%), or experiencing a motor vehicle/other serious accident ( $n = 60$ , 14.89%). Other traumatic events included exposure to a life-threatening illness/injury ( $n = 38$ , 9.43%), natural disaster ( $n = 15$ , 3.72%), combat ( $n = 10$ , 2.48%), captivity ( $n = 6$ , 1.49%), and exposure to fire/toxic substance ( $n = 6$ , 1.49%). Twenty-eight participants (6.95%) endorsed exposure to traumatic events not otherwise categorized (e.g., witnessing death, being burglarized). Although the PCL-5 asks participants to describe the single worst event, 23 participants (5.71%) described two traumatic events, and three (.74%) described three traumatic events. Because these participants did not indicate their worst event, all events were included in the percentages reported above.

## 3. Measures

### 3.1. Acceptance and action questionnaire – II

The Acceptance and Action Questionnaire – II (AAQ-II; Bond et al., 2011) is a 7-item self-report measure of experiential avoidance. Cronbach's alpha in the current sample was .94.

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