Emotion Regulation Strategy Use: Factor Structure and Differential Associations with PTSD Symptom Clusters

by

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Abstract

Emotion regulation (ER) strategies are theorized to play a prominent role in the development and maintenance of posttraumatic stress disorder (PTSD). Although a link has been established between several ER strategies and PTSD symptoms, a number of critical issues have yet to be fully addressed in this literature. These involve key questions such as what factor structure underlies ER strategy use, which strategies are most predictive of PTSD symptoms, which PTSD symptom clusters are best predicted by ER strategies, and what the function is of negative affect in the ER-PTSD association. The purpose of the current study was to examine the associations between several ER strategies and PTSD symptom clusters among independent undergraduate and community samples while controlling for negative affect. For ER strategy use, a measurement model treating each strategy as a distinct latent variable best fit the data in both samples. For PTSD symptoms, the seven-factor Hybrid model best fit the data in both samples. In both samples, ER strategies reflecting a pervasive unwillingness to experience unpleasant thoughts and emotions (i.e., experiential avoidance, thought suppression, self-medication) best predicted PTSD symptoms even after controlling for negative affect. A number of implications for the ER-PTSD association and directions for future research are discussed.

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Introduction

Posttraumatic stress disorder (PTSD) is a chronic, debilitating disorder affecting over 8% of the U.S. population (Kilpatrick et al., 2013). Between medical expenses and productivity losses, PTSD is estimated to cost upwards of three billion dollars annually (Tanielian & Jaycox, 2008). Much research has focused on identifying predictors of the development, maintenance, and recovery from PTSD in an effort to improve methods for preventing and treating this disorder. An increasingly active and productive aspect of this research focuses on the role of emotion regulation.

Emotion regulation (ER) is an umbrella term referring to a heterogeneous group of strategies used to affect the likelihood of experiencing, intensity, or duration of an emotion (Gross, 1998). Several ER strategies have been identified as salient predictors of PTSD (see Seligowski, Lee, Bardeen, & Orcutt, 2015 for a review). For example, a widely investigated strategy – avoidance – is theorized to play a central role in the etiology, maintenance, and recovery from PTSD (Foa, Steketee, & Rothbaum, 1989). In their recent meta-analysis of cross-sectional research, Seligowski and colleagues (2015) found large effect sizes for the associations between several strategies and PTSD, including experiential avoidance, rumination, thought suppression, and expressive suppression. Additionally, the association between ER strategies and PTSD has been extended by recent longitudinal research. For example, Kumpula, Orcutt, Bardeen, and Varkovitzky (2011) found that experiential avoidance pre-trauma predicted PTSD symptoms following trauma exposure. Likewise, Wisco, Sloan, and Marx (2013) found that greater use of reappraisal predicted subsequent reductions in PTSD symptoms within the waitlist condition of a treatment study. Further, treatment research is beginning to show that PTSD treatments cause healthy changes in ER strategy use. Boden and colleagues (2013) found that

group Cognitive Processing Therapy caused significant reductions in use of expressive suppression which subsequently predicted reductions in PTSD symptoms. Likewise, Wisco and colleagues (2013) found that Written Exposure Therapy caused reductions in use of rumination, a strategy established as being positively associated with PTSD symptom severity. Collectively, these results point to an important link between ER strategies PTSD.

Existing research on the association between ER strategies and PTSD has identified a wide variety of strategies that are positively correlated with symptom severity, i.e., habitual use of these strategies is associated with higher PTSD symptom severity. These include behavioral avoidance, experiential avoidance, thought suppression, rumination, expressive suppression, and self-medication (Haller & Chassin, 2014; Lee, Witte, Weathers, & Davis, 2015; Seligowski et al., 2015). Behavioral avoidance involves efforts to evade situations that tend to elicit negative affect (Gámez, Chmielewski, Kotov, Ruggero, & Watson, 2011). Experiential avoidance involves an unwillingness to experience unwanted thoughts and feelings (Bond et al., 2011). Thought suppression involves efforts to direct attention away from a particular topic (Wegner & Zanakos, 1994). Rumination involves a pattern of perseverative fixation on the causes and consequences of an emotion-eliciting event (McLaughlin & Nolen-Hoeksema, 2011). Expressive suppression involves efforts to inhibit the outward display of subjective experiences (Gross, 1998). Self-medication involves substance use to modulate emotional responding (Carver, Scheier, & Weintraub, 1989).

Conversely, a number of other strategies have been found to be negatively correlated with PTSD, i.e., habitual use of these strategies is associated with lower PTSD symptom severity. These include positive reappraisal, acceptance, and social support seeking (Lee et al., 2015; Seligowski et al., 2015; Tsai, Harpaz-Rotem, Pietrzak, & Southwick, 2012). Positive reappraisal

involves thinking about an emotion-eliciting event in a way that affects its impact on emotional responding (Gross, 1998). Acceptance involves the non-judgmental acknowledgement of thoughts and affect (Baer, Smith, & Allen, 2004). Social support seeking involves reaching out to others for a cathartic experience (Carver et al., 1989).

Despite a growing research effort to elucidate the associations between ER strategies and PTSD, this literature has five key limitations. First, most studies have examined the association between a single strategy (e.g., rumination) and PTSD, rather than examining several strategies simultaneously. This precludes multivariate modeling of multiple strategies in the same analysis, which would yield valuable information about the degree of overlap among strategies and the extent of their unique and combined associations with PTSD.

Second, most studies have examined the association between ER strategies and PTSD at the syndrome level, i.e., using total PTSD symptom severity scores. However, numerous factor analytic studies have established convincingly that PTSD comprises a constellation of correlated symptom clusters that do not load onto a higher-order construct (see Armour, Műllerová, & Elhai, 2016 for a discussion). Accordingly, this limitation precludes examination of potential differential patterns of associations between ER strategies and different PTSD symptom clusters. Of note, the relatively few studies that have examined the association between ER strategies and individual PTSD symptom clusters have yielded mixed findings. Some studies have found that strategies tend to be either associated with all symptom clusters or not with any (e.g., Lee et al., 2015), whereas other studies have found unique associations between particular strategies and symptom clusters (e.g., Seligowski, Rogers, & Orcutt, 2016).

Third, insufficient attention has been given to the role of gender in the association between ER and PTSD. Gender differences in ER strategy use are well established (e.g., Gross & John, 2003; Nolen-Hoeksema, 2012). As Nolen-Hoeksema (2012) noted:

> Women are widely viewed as the 'more emotional sex,' with greater tendencies to experience, express, and dwell on their emotions… Men on the other hand, are viewed as tending to suppress or avoid both the experience and expression of emotions. (p. 165)

In keeping with this notion, studies examining gender differences in ER strategy use have found that women report greater habitual engagement in rumination and acceptance (e.g., Nolen-Hoeksema & Aldao, 2011) while men report greater habitual engagement in expressive suppression (e.g., Gross & John, 2003) and experiential avoidance (Bond et al., 2011). As with ER, a link between gender and PTSD has been well-established (Tolin & Foa, 2006). Specifically, although women are less likely to experience traumatic events, they are more likely to develop PTSD in response to trauma exposure (Breslau, 2001; Tolin & Foa, 2006) and experience longer symptom duration compared to men (Breslau, 2001). Some of this observed difference may be accounted for by differences in trauma exposure; women are more likely to experience sexual assault, which poses a greater risk for developing PTSD (e.g., Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Nonetheless, gender differences in PTSD remain even after controlling for differences in trauma exposure (King, Street, Gradus, Vogt, & Resick, 2013; Tolin & Foa, 2006). Despite the established associations between gender and ER on the one hand, and gender and PTSD on the other hand, few studies have examined the role of gender in the association between ER and PTSD.

A fourth limitation of the ER-PTSD literature is the potential confound of negative affect. Varying levels of subjective distress place varying demands on regulatory efforts and thus

potentially on the strategies utilized to manage this distress. As Tull, Barrett, McMillan, and Roemer (2007) noted, this association is particularly important for research examining the link between ER and PTSD as both constructs are associated with distress. Not surprisingly, greater PTSD symptom severity is associated with greater negative affect (e.g., Tull et al., 2007). Likewise, Lee and colleagues (2015) found that of the seven examined ER strategies, all were significantly associated with negative affect and the magnitude of these associations was large at times (e.g., experiential avoidance correlated with negative affect at .63). Accordingly, it is essential to control for negative affect when examining the association between ER strategies and PTSD symptoms to ensure that any relationships identified are not primarily attributable to non-specific distress.

Last, a fifth limitation is that the majority of ER and PTSD research has focused on undergraduate samples (Seligowski et al., 2015). Undergraduate samples are typically higher functioning and endorse relatively low PTSD symptom levels (e.g., Lee et al., 2015). Further, a recent meta-analysis by Aldao, Nolen-Hoeksema, and Schweizer (2010) found that sample type moderated the association between ER strategies and psychopathology. These results suggest that examination of cross-population differences in the association between ER and PTSD holds particular value in understanding the degree to which this link is population-specific.

Collectively, these limitations indicate the need for examination of the association between ER strategies and PTSD symptom clusters using a multivariate approach in non-undergraduate samples. Such an approach would allow for examination of (a) the degree of overlap among strategies, (b) the extent of their unique and combined associations with different PTSD symptom clusters, and (c) the influence of both gender and negative affect in the ER-PTSD relationship. Latent variable modeling provides the ideal analytic platform for examining

both measurement models of ER strategies and PTSD as well as the association between them while controlling for other variables. To provide context for the aims and hypotheses of the present study, the next two sections summarize existing research regarding measurement models of ER and PTSD.

Factor Structure of ER Strategy Use

ER strategies are numerous and heterogeneous and thus require an organizational scheme to make them more tractable to investigate. Several theoretical models have been developed. One of the most widely adopted frameworks is Gross's (1998) Process Model of ER. This model categorizes ER strategies by the point at which they occur in the emotion-generative process. Specifically, this model categorizes strategies into five stages along this process: situation selection (e.g., avoiding an anxiety provoking event), situation modification (e.g., steering a conversation away from an uncomfortable topic), attention deployment (e.g., trying not to think about an upsetting experience), cognitive change (e.g., trying to think about an upsetting situation in a way that lessens its impact), and response modulation (e.g., taking deep breaths to reduce anger). Despite widespread adoption of this model, only two studies (Lee et al., 2015; Seligowski & Orcutt, 2015) have examined it within a factor analytic framework, and neither study found it provided good fit to the data. Accordingly, further empirical testing of this model is needed.

Recently, Webb, Miles, and Sheeran (2012) developed a variant of the Process Model of ER which further divides several of Gross's categories. Webb et al. conducted a meta-analysis of laboratory studies of ER strategy use and compared regulatory success (i.e., achievement of desired subjective, physiological, and behavioral outcomes) across strategies as categorized by the Process Model. They found significant differences in regulatory success between strategies

occurring within the same category of the Process Model. Accordingly, they proposed sub-categories of the Process Model intended to provide meaningful distinctions between strategies occurring at the same point of the emotion generative process. However, this framework has yet to be submitted to empirical examination beyond Webb et al.'s (2012) meta-analysis.

More recently, Seligowski and Orcutt (2015) developed a second variant of the Process Model which proposes a distinction between ER strategies and disposition toward emotional responding. Based on their factor analytic findings, Seligowski and Orcutt posited that rather than being categorized as specific strategies within the Process Model, experiential avoidance, acceptance, and thought suppression are better conceptualized as indicators of a separate construct they labeled emotional distancing. This variant of the Process Model resulted in adequate fit in their sample, but has not been examined beyond their initial study.

Other theoretical and organizational frameworks have received less attention. Parkinson and Totterdell (1999) developed a taxonomy for categorizing ER strategies based on similarity into a nine-block system by strategy intention (e.g., diversion- vs. engagement-oriented strategies), regulatory medium (e.g., cognitive vs. behavioral strategies), and regulatory content (e.g., pleasure/relaxation seeking vs. resource reallocation). More a recently Koole (2009) developed an organizational framework for ER strategies which classifies strategies by intended function (e.g., hedonic needs vs. goal-oriented regulation) as well as by regulatory target (e.g., attention vs. physical regulation). Of note, neither of these theoretical models has ever been subjected to factor analysis or otherwise replicated.

Beyond these theoretical frameworks, two other measurement approaches to ER strategy use have been adopted. The first approach organizes theoretically distinct strategies under a single ER construct (Aldao & Nolen-Hoeksema, 2010), proposing that the various strategies are

indicators of a common underlying construct. The second approach is to organize strategies by direction of association with psychopathology. Accordingly, this model conceptualizes strategies positively associated with psychopathology as "maladaptive" and strategies inversely associated with psychopathology as "adaptive" (Aldao et al., 2010; Conklin et al., 2015). Both of these models have been subjected to factor analysis in only a single study (Lee et al., 2015), and neither provided good fit to the data.

As this summary of the literature indicates, despite a flourishing theoretical literature, few of these ER models have been subjected to empirical examination. To date, two studies have examined the larger factor structure of ER strategies. In an undergraduate sample, Lee et al., (2015) found that a one-factor model (i.e., all strategies loading to one ER strategy use latent variable), two-factor model organizing strategies into the "adaptive" and "maladaptive" categories (Aldao et al., 2010), and three-factor Process Model (Gross, 1998) all failed to provide close fit to the data. The best-fitting model treated each strategy as a unique latent variable. In a sample recruited from Amazon's Mechanical Turk (MTurk), Seligowski and Orcutt (2015) found that Gross's Process Model failed to provide close fit to the data, but a model treating each strategy as a unique latent variable and the above-described emotional distancing variant of the Process Model both provided adequate fit to the data. Given this limited evidence base, the factor structure underlying ER strategy use remains unestablished. In the absence of an established factor structure, examination of individual strategies may represent parallel examination of different indicators of the same underlying construct, rather than genuinely distinct aspects of ER.

PTSD Factor Structure

As with measurement models of ER strategy use, the factor structure underlying *Diagnostic and Statistical Manual of Mental Disorders, 5th edition* (*DSM-5*; American Psychiatric Association, [APA] 2013) PTSD symptoms has yet to be established. An extensive factor analytic literature on *DSM-IV* (APA, 2000) PTSD criteria identified three prominent models: the four-factor Emotional Numbing (King, Leskin, King, & Weathers, 1998), four-factor Dysphoria (Simms, Watson, & Doebbeling, 2002), and five-factor Dysphoric Arousal (Elhai et al., 2011) models (see Armour et al., 2016; Elhai & Palmieri, 2011 for reviews). The four-factor *DSM-5* model, based on the *DSM-IV* Emotional Numbing model, has yielded mixed factor analytic findings to date (Armour et al., 2015; Miller et al., 2012). For example, Miller et al. (2012) found that although the *DSM-5* model provided adequate fit to the data, a four-factor *DSM-5* variant of the Dysphoria model provided better fit. Similarly, Liu and colleagues (2014) found that a five-factor *DSM-5* variant of the Dysphoric Arousal model provided significantly better fit than the *DSM-5* measurement model.

Recently, several alternative measurement models for *DSM-5* PTSD have been proposed and evaluated. Tsai and colleagues (2014) proposed a six-factor Externalizing model which retains the *DSM-5* intrusions, avoidance, and negative alterations in cognition and mood symptom clusters, but divides the alterations in arousal and reactivity symptom cluster into externalizing behaviors, anxious arousal, and dysphoric arousal symptom clusters. Liu et al. (2014) developed a six-factor Anhedonia model which retains the *DSM-5* intrusions and avoidance symptom clusters. However, this model treats three *DSM-5* negative alterations in cognition and mood symptoms as anhedonia and divides alterations in arousal and reactivity symptoms into dysphoric arousal and anxious arousal symptom clusters. Finally, Armour and

colleagues (2015) developed a seven-factor Hybrid model which retains the *DSM-5* intrusions and avoidance symptom clusters, adopts the anhedonia symptom cluster from Liu et al.'s (2014) model and the division of arousal and reactivity symptoms into externalizing behaviors, anxious arousal, and dysphoric arousal symptom clusters from Tsai et al.'s (2014) model. Although a number of studies have compared these measurement models (e.g., Armour et al., 2015, Blevins, Weathers, Davis, Witte, & Domino, 2015), consensus regarding the best-fitting model has yet to be established.

Study Aims

The present study was designed to test several hypotheses related to the association between ER strategy use and PTSD symptoms while addressing several limitations of the existing literature. The first aim was to replicate and extend previous research examining the factor structure underlying ER strategies. To address this aim, several theoretically based measurement models of ER strategy use were tested and compared using confirmatory factor analysis (CFA). Given the previous findings that theoretical categorizations of ER strategies did not fit the data well, it was hypothesized that a measurement model treating each ER strategy as its own distinct latent variable would provide the best fit to the data.

The second aim was to examine the factor structure underlying *DSM-5* PTSD symptoms. As with ER strategies, several competing measurement models of *DSM-5* PTSD symptoms were tested and compared using CFA. In keeping with Armour et al. (2015), it was hypothesized that the seven-factor Hybrid model would provide the best fit to the data.

The third aim was to examine the role of gender in the factor structure of ER strategy use and in the association between ER strategies and PTSD symptoms. To address this aim, gender was entered into (a) the best-fitting ER measurement model as a covariate to examine the

association between gender and ER latent variables, and (b) into the structural models examining the association between ER strategies and PTSD symptom clusters. In keeping with Nolen-Hoeksema's (2012) premise, it was hypothesized that women would report greater habitual engagement in strategies focusing on processing emotional experiences (i.e., social support seeking, positive reappraisal, acceptance, and rumination), whereas men would report greater habitual engagement in strategies focused on distancing from and suppressing emotional experiences (i.e., behavioral avoidance, experiential avoidance, thought suppression, expressive suppression, and self-medication). Additionally, it was hypothesized that women would endorse greater PTSD symptom severity.

The fourth aim was to replicate and extend prior research examining the associations between ER strategies and PTSD symptom clusters. To address this aim, structural equation modeling (SEM) was used to examine the associations between the best-fitting models of ER strategy use and PTSD symptom clusters. In keeping with the existing literature, it was hypothesized that behavioral avoidance, experiential avoidance, thought suppression, rumination, expressive suppression, and self-medication would be positively associated with PTSD symptom severity and that positive reappraisal, acceptance, and social support seeking would be inversely associated with PTSD symptom severity.

The fifth aim was to examine the function of negative affect in the association between ER strategies and PTSD symptom clusters. To address this aim, negative affect was controlled for in a structural model examining the associations between the best fitting models of ER strategy use and PTSD symptom clusters. It was hypothesized that controlling for negative affect would not markedly reduce the magnitude of the associations between ER strategy use and PTSD symptoms and that these associations would remain significant.

Finally, the sixth aim was to examine the association between ER strategy use and PTSD symptoms across independent samples from different populations. To address this aim, the planned analyses were conducted in separate undergraduate and community samples. Given the exploratory nature of these analyses, no specific hypotheses were made regarding differences between these groups.

Methods

Sample 1

Participants and procedure. Participants for Sample 1 were undergraduate students recruited from psychology courses at a large southeastern university. Participants were invited to complete an online survey examining individual differences in response to stressful life events and how individuals manage distress. Participants were compensated with extra credit. All study procedures were approved by the university's Institutional Review Board.

Index events were classified as meeting or not meeting the definition of a traumatic event according to *DSM-5* PTSD Criterion A. This was determined by review of participants' narrative descriptions of their index events, and confirmed using the Life Events Checklist for *DSM-5* (LEC-5; Weathers et al., 2013). Narratives were independently coded by a graduate student and a clinical psychologist with expertise in trauma and PTSD. Discrepancies were resolved through discussion between the two raters. Of the 554 participants who completed the survey, 285 (51.44%) described an index event that met *DSM-5* Criterion A, 200 (36.10%) described an index event that did not meet Criterion A, 28 (5.05%) did not provide adequate information to determine Criterion A status, and 41 (7.40%) did not provide a narrative. Mean number of years since index event occurrence was 4.61 (SD = 4.91). A breakdown of index trauma by event type is provided in Table 1.

The majority of participants identified as female (*n* = 225, 78.95%). Racially, the majority of participants identified as White (*n* = 256, 89.82%), with remaining participants identifying as Black (*n* = 16, 5.61%), Asian (*n* = 5, 1.75%), or other or multiracial (*n* = 8, 2.81%). The majority of participants identified as non-Latino (*n* = 269, 94.39%). Mean age of the sample was 20.12 (SD = 2.33).

Measures. Age, sex, race, and ethnicity information were gathered using a demographics questionnaire. Trauma exposure was assessed using the LEC-5 (Weathers et al., 2013). The LEC-5 is a self-report measure of exposure to a number of *DSM-5* Criterion A events. Additionally, participants were asked to provide a brief written narrative of their self-identified worst event.

PTSD symptoms were assessed using the PTSD Checklist for *DSM-5* (PCL-5; Weathers, et al., 2013). The PCL-5 is a 20-item self-report measure of *DSM-5* PTSD symptom severity. Respondents rate how bothered they have been by each symptom during the past month in reference to their identified index trauma on a five-point scale ranging from *not at all* to *extremely*. Higher scores indicate greater symptom severity.

Behavioral avoidance was assessed using the respective subscale of the Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gámez et al., 2011). The MEAQ is a 62-item self-report measure of six dimensions of experiential avoidance. Only the 11-item behavioral avoidance subscale (MEAQ-B) was administered for the current study. Participants rate the extent to which they agree with a list of statements on a six-point scale ranging from *strongly disagree* to *strongly agree*. Higher scores indicate greater habitual engagement in behavioral avoidance.

Thought suppression was assessed using the White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994). The WBSI is a 15-item self-report measure of thought suppression. Respondents rate their agreement with a list of statements on a five-point scale ranging from *strongly disagree* to *strongly agree*. Higher scores indicate greater habitual engagement in thought suppression.

Rumination was assessed using the Ruminative Responses Scale (RRS; Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). The RRS is a 22-item self-report measure of depressive symptoms as well as engagement in two forms of rumination: brooding (RRS-B) and reflection (RRS-R). Respondents rate how often they engage in rumination when feeling depressed on a four-point scale ranging from *almost never* to *almost always*. Higher scores on each subscale indicate greater habitual engagement in the respective form of rumination.

Positive reappraisal and expressive suppression were assessed using the respective subscales of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The ERQ is a 10-item self-report measure composed of six items measuring positive reappraisal (ERQ-PR) and four items measuring expressive suppression (ERQ-ES). Respondents rate their agreement with a list of statements related to each construct on a seven-point scale ranging from *strongly disagree* to *strongly agree*. Higher scores on each subscale indicate greater habitual engagement in the respective strategy.

Social support seeking and self-medication were assessed using the emotional social support and substance use subscales of the COPE Inventory (COPE; Carver et al., 1989). The Cope Inventory is a 60-item self-report measure of several coping strategies. Only the four-item emotional social support (COPE-SS) and four-item substance use (COPE-SU) subscales were

administered in the current study. Respondents rate what they usually do when confronted with adverse life experiences on a four-point scale ranging from *I usually don't do this at all* to *I usually do this a lot*. Higher scores indicate greater habitual engagement in the respective strategy.

Negative affect was assessed using the respective subscale of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Although the full 20-item measure was administered, only the 10-item negative affect subscale was used in the current study. Respondents rate the degree to which they have experienced a number of negative affective states during the past few weeks on a five-item scale ranging from *very slightly or not at all* to *extremely*. Higher scores indicate greater negative affect.

Sample 2

Participants and procedure. Participants for Sample 2 were recruited from Amazon's MTurk online survey system. A posted advertisement on the MTurk website recruited participants to complete a study about their "life experiences, emotions, and symptoms." Respondents were required to be between 19 and 65 years of age, fluent in English, and located within the United States. Eligible participants followed a link to an online survey which took approximately 40 minutes and were compensated with a small monetary payment. All procedures were approved by the university IRB.

Following procedures outlined by Meade and Craig (2012), a number of items were included in the survey to identify careless responding. Specifically, participants were presented with the following eight true/false items: "I am using a computer currently," "I have been to every country in the world," "I sleep less than one hour per night," "I do not understand a word of English," "I have never brushed my teeth," "I am paid biweekly by leprechauns," "All my

friends are aliens," and "All my friends say I would make a great poodle." Of the 584 participants who completed the survey, 26 (4.45%) responded incorrectly to one or more of these items and were excluded from the study.

Index events were classified as meeting or not meeting the definition of a traumatic event according to *DSM-5* PTSD Criterion A using the same procedure as Sample 1. Of the 558 participants who completed the survey and were not removed due to careless responding, 305 (54.66%) described an index event that met *DSM-5* Criterion A, 189 (33.87%) described an index event that did not meet Criterion A, 26 (4.66%) did not provide adequate information to determine Criterion A status, and 38 (6.81%) did not provide a narrative. Mean number of years since index event occurrence was 13.48 (SD = 12.57). A breakdown of index trauma by event type is provided in Table 1.

The majority of participants identified as female (n = 221, 72.46%). Racially, the majority of participants identified as White (n = 260, 85.25%), with remaining participants identifying as Black (n = 19, 6.23%), Asian (n = 11, 3.61%), or other or multiracial (n = 14, 4.59%). The majority of participants identified as non-Latino (n = 271, 88.85%). Mean age of the sample was 35.71 (SD = 12.19).

Measures. Age, sex, race, and ethnicity information were gathered using a demographics questionnaire. As with Sample 1, trauma exposure and PTSD symptoms were assessed using the LEC-5 and PCL-5, respectively, and negative affect was assessed using the PANAS negative affect subscale. As with Sample 1, behavioral avoidance was assessed using the MEAQ, thought suppression using the WBSI, rumination using the RRS, positive reappraisal and expressive suppression using the ERQ, and social support seeking and self-medication using the COPE.

In addition to the ER measures included in Sample 1, two additional measures were included in Sample 2. Experiential avoidance was assessed using the second edition of the Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011). The AAQ-II is a 10-item self-report measure of experiential avoidance. Respondents rate how true statements are for them on a seven-point scale ranging from *never true* to *always true*. Factor analytic evidence supports a seven-item one-factor solution (Bond et al., 2011). For the current study, the measure was scored such that higher scores indicate greater habitual engagement in experiential avoidance.

Acceptance was assessed using the accepting without judgement subscale of the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004). Although the full KIMS assesses several dimensions of mindfulness, this nine-item subscale specifically measures acceptance. Respondents rate each item to indicate how often it is true for them on a five-point scale ranging from *never or very rarely true* to *very often or always true*. Because all items on this scale are reverse-scored, lower scores indicate greater habitual engagement in acceptance.

Data Analytic Strategy

All analyses were conducted using Mplus version 6.12 (Muthén & Muthén, 1998-2011). In the first step of analyses, competing measurement models of ER strategy use and PTSD symptoms were tested in each sample using CFA. Second, once a measurement model was established for ER, the association between gender and ER factor structure was examined by including gender as a covariate of ER latent variables. Third, a number of structural models were conducted to examine the association between ER strategy use and PTSD symptoms.

Because the group of included strategies differed by sample, separate measurement models were examined in each sample. Eight lower-order measurement models of ER strategy use were examined in Sample 1 (see Table 2). The first model (Model A; Aldao & Nolen-

Hoeksema, 2010) loaded all strategies as onto a single ER factor. The second model (Model B; Aldao et al., 2010) loaded reappraisal and social support seeking items onto an adaptive strategies factor and behavioral avoidance, thought suppression, rumination, expressive suppression, and self-medication items onto a maladaptive strategies factor. The third model (Model C; Gross, 1998) organized strategies according to the Process Model of ER. This model loaded reappraisal items to a cognitive change factor, social support seeking, expressive suppression, and self-medication items onto a response modulation factor, behavioral avoidance items onto a situation selection factor, and thought suppression and rumination items onto an attention deployment factor.

The fourth model (Model D; Webb et al., 2012) examined strategies as categorized within Webb's taxonomy based on the Process Model. This model loaded reappraisal items onto a mixed reappraisal factor, behavioral avoidance items onto a situation selection factor, self-medication items onto a suppression of the experience of emotion factor, thought suppression items onto a suppression of thoughts related to the emotion-eliciting event factor, rumination items onto a mixed concentration factor, and expressive suppression items onto a respective factor. Although social support seeking is not explicitly identified within this model, it is conceptualized as a form of response modulation within the Process Model and these items were loaded onto a response modulation factor. The fifth model (Model E; Seligowski & Orcutt, 2015) is another variant of Gross' Process Model. This model loaded reappraisal items onto a cognitive change factor, social support seeking, expressive suppression, and self-medication items onto a response modulation factor, thought suppression items onto an emotional distancing factor, behavioral avoidance items onto a situation selection factor, and rumination items onto an attentional deployment factor.

The sixth model (Model F; Parkinson & Totterdell, 1999) loaded reappraisal rumination items onto a cognitive engagement factor, social support seeking items onto a behavioral engagement factor, behavioral avoidance and expressive suppression items onto a behavioral disengagement factor, and thought suppression and self-medication items onto a cognitive disengagement factor. The seventh model (Model G; Koole, 2009) loaded reappraisal items onto a goal-oriented knowledge regulation factor, social support seeking, behavioral avoidance, and rumination items onto a need-oriented attention regulation factor, thought suppression items onto a goal-oriented attention regulation factor, expressive suppression items onto a goal-oriented body regulation factor, and self-medication items onto a need-oriented body regulation factor. Last, the eighth model (Model H) was an eight-factor model which categorized each strategy as an independent latent variable. Eight lower-order measurement models of ER strategy use were examined in Sample 2 (see Table 2). These models were highly similar to those examined in Sample 1 and only varied to accommodate the additional strategies included in this sample.

Additionally, several higher-order measurement models of ER strategy use were also examined. Six higher-order models (Models I-N) were used to examine the utility of Model A as a higher-order model by forcing the latent variables in Models C-H to load up to a single higher order latent variable titled ER strategy use. Two additional higher-order models (Models O and P) examined the utility of Model B as a higher-order model by forcing the latent variables in Models D and H to load to higher-order latent variables titled adaptive and maladaptive strategies. Model Q examined a higher-order version of Model F where latent variables for cognitive disengagement and behavioral disengagement were forced to load onto a higher-order latent variable labeled disengagement, and latent variables for cognitive engagement and behavioral engagement were forced to load onto a higher-order latent variable labeled

engagement. Finally, Model R examined a higher-order version of Model G where latent variables for need-oriented attention and body regulation were forced to load onto a higher-order latent variable labeled need-oriented regulation, and latent variables for goal-oriented attention, knowledge, and body regulation were forced to load onto a higher-order latent variable labeled goal-oriented regulation.

Once a measurement model was established for ER in each sample, the association between gender and ER factor structure was examined by including gender as a covariate of ER latent variables. Specifically, the multiple indicators, multiple causes (MIMIC) modeling technique was used. Following procedures outlined by Brown (2006), once a viable measurement model was established collapsing across male and female participants, gender was added to the measurement model as a covariate to examine its direct effects on latent variables.

Several lower-order measurement models of PTSD symptoms were examined (see Table 3). First, the four-factor *DSM-5* (APA, 2013) model categorizes symptoms into intrusions, avoidance, negative alterations in cognition and mood, and alterations in arousal and reactivity symptom clusters. The second model examined was the four-factor Dysphoria model (Simms et al., 2002) which categorizes symptoms into reexperiencing, avoidance, dysphoria, and hyperarousal symptom clusters. The third model examined was the five-factor Dysphoric Arousal model (Elhai et al., 2011) which categorizes symptoms into reexperiencing, avoidance, emotional numbing, dysphoric arousal, and anxious arousal symptom clusters. The fourth model examined was the six-factor Externalizing model (Tsai et al., 2014) which categorizes symptoms into reexperiencing, avoidance, negative alterations in cognition and mood, externalizing behaviors, anxious arousal, and dysphoric arousal symptom clusters. The fifth model examined was the six-factor Anhedonia model (Liu et al., 2014) which categorizes symptoms into

reexperiencing, avoidance, negative alterations in cognition and mood, anhedonia, dysphoric arousal, and anxious arousal symptom clusters. Finally, the sixth model examined was the seven-factor Hybrid model (Armour et al., 2015) which categorizes symptoms into reexperiencing, avoidance, negative affect, anhedonia, externalizing behaviors, anxious arousal, and dysphoric arousal symptom clusters. Additionally, each of these models was examined as a higher order model in which the latent variables in each model are forced to load onto a single higher-order PTSD latent variable.

Once measurement models were established for both ER strategy use and PTSD symptoms, zero-order correlations were computed to examine the associations among all included latent variables. Next, four structural models in each sample were used to examine the association between strategies and symptom severity. The first structural model regressed the best fitting measurement model of PTSD on the best fitting measurement model ER strategy use. The second structural model was identical to the first, but added negative affect as an exogenous latent variable to control for negative affect in the association between ER strategy use and PTSD symptoms. The third and fourth structural models were identical to the first and second models, respectively, but included gender as a predictor of both ER strategy use and PTSD symptoms.

Individual items were used as indicators in all models. Many items did not approximate a normal distribution across samples (see Table 4). Accordingly, items were treated as ordinal (Flora & Curran, 2004; Wirth & Edwards, 2007). Parameters were estimated using mean- and variance-adjusted weighted least squares (WLSMV) which provides a robust χ^2. Model fit was evaluated using χ^2, Bentler Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). Fit statistics were collectively evaluated for

each model and established criteria used to determine close fit: χ^2 *p* values > .05, CFI and TLI ≥ .95, and lower limit of the RMSEA 95% confidence interval < .05 (Bentler, 1990; Brown, 2006; Browne & Cudeck, 1993; Hu & Bentler, 1999; Kline, 2011). Nested models were compared using the DIFFTEST function in Mplus (Muthen & Muthen, 2006), which allows for comparison of nested models while using the WLSMV estimator (Brown, 2006).

The covariance coverage matrix was reviewed for each sample prior to running planned analyses to identify amount of missing data. A small portion of the data was missing in each sample; the covariance coverage matrix ranged from .96 to 1 in Sample 1 and .98 to 1 in Sample 2. Missing data were handled using pairwise deletion due to the absence of techniques for pooling most fit indices across estimates in multiple imputation (Enders, 2010), and inability to use full information maximum likelihood (FIML) procedures with the WLSMV estimator.

Results

Sample 1

Results of ER measurement models are provided in Table 5. Most examined models did not provide close fit to the data. Models A, F, G, L, and M failed to converge[1]. Both the seven-factor model D and eight-factor model H provided close fit to the data. However, model H provided significantly better fit to the data ($\chi^2 = 42.89$, $df = 7$, $p<.001$). Within this model, all items had significant loadings on respective latent variables (standardized loadings range = .41 to .99; see Table 6). Correlations between latent variables ranged in magnitude from .01 (reappraisal with reflection) to -.53 (social support seeking with expressive suppression; see

[1] These models also failed to converge using the robust maximum likelihood estimator (MLR) and maximum likelihood (ML) estimator as well as increasing the number of iterations. Accordingly, these models may have failed to converge due to the complexity of these models and large number of parameters estimated.

Table 7). As the best fitting ER measurement model, the eight-factor model H was retained for subsequent analyses.

To examine the role of gender in the factor structure of ER, a MIMIC model was used in which each ER latent variable was regressed on a dichotomous gender item. This model provided close fit (χ^2 = 2253.12, *df* = 1395, *p*<.001, CFI = .95, TLI = .95, RMSEA = .05 [90% CI = .04-.05]). Within this model, item loadings were highly similar to the model without gender included as a covariate; all items had significant loadings on their respective latent variables of at least moderate magnitude (see Table 6). As with the previous model, correlations between latent variables ranged from weak and non-significant to strong and significant (see Table 7). Gender had a significant effect on social support seeking, behavioral avoidance, and expressive suppression such that women endorsed greater habitual engagement in social support seeking and behavioral avoidance, and significantly less habitual engagement in expressive suppression compared to men (see Table 8). By comparison, habitual engagement in reappraisal, thought suppression, both forms of rumination, and self-medication was invariant across men and women.

Results of PTSD symptom measurement models are provided in Table 9. The five-factor Dysphoric Arousal, six-factor Externalizing, six-factor Anhedonia, and seven-factor Hybrid models all provided close fit to the data. However, the seven-factor Hybrid model provided significantly better fit to the data compared to the Dysphoric Arousal (χ^2 = 73.14, *df* = 11, *p*<.001), Externalizing (χ^2 = 47.43, *df* = 6, *p*<.001), and Anhedonia (χ^2 = 24.74, *df* = 6, *p*<.001) models. Within the Hybrid model, all items had significant loadings to respective latent variables and all symptom clusters were significantly correlated (see Table 11). As the best fitting model, the seven-factor Hybrid model was retained for subsequent analyses.

Prior to running a structural model, correlations were estimated between all included latent variables (see Table 12). A number of strong associations were observed between ER strategy use latent variables. For example, brooding was strongly associated with reflection (r = .77) and thought suppression (r = .67). Additionally, negative affect was significantly correlated with all but two of the examined strategies (social support seeking and expressive suppression) and was significantly associated with every PTSD symptom cluster.

Having identified the best fitting measurement models of ER and PTSD, the next step of analyses consisted of several structural models examining the associations between these ER strategy use and PTSD symptom latent variables. The first structural model regressed the seven PTSD latent variables on the eight ER latent variables. This structural model provided close fit to the data (χ^2 = 3331.46, df = 2522, p<.001, CFI = .96, TLI = .96, RMSEA = .03 [90% CI = .03-.04]; see Table 13) and explained a small to moderate amount of the variance in symptom clusters (R^2 range = .12-.36). Within this model, thought suppression was significantly associated with intrusion, avoidance, anxious arousal, and dysphoric arousal symptom clusters such that greater habitual engagement in thought suppression was associated with greater symptom severity. Behavioral avoidance was significantly associated with avoidance and anxious arousal symptom clusters such that greater habitual engagement in behavioral avoidance was associated with greater symptom severity. Reflection and brooding were significantly associated with externalizing and cognition and mood symptom clusters, respectively, such that greater habitual engagement in these strategies was associated with greater symptom severity. Self-medication was significantly associated with the externalizing symptom cluster such that greater habitual engagement in self-medication was associated with greater symptom severity. Social support seeking and expressive suppression were not significantly associated with any

PTSD symptom clusters. Additionally, no strategies were significantly associated with the anhedonic symptom cluster.

Within the first structural model, a small but significant association was observed between reappraisal and the avoidance symptom cluster such that greater habitual engagement in reappraisal was associated with greater symptom severity. This association is in the opposite of the hypothesized direction, inconsistent with previous research, and inconsistent with the association observed among correlations (r = .09, p > .05). Given the observed strong associations among exogenous variables in this model, this association is likely a result of multicollinearity.

The second structural model was identical to the first with negative affect was added as an exogenous latent variable. This structural model provided close fit to the data (χ^2 = 4246.04, *df* = 3282, p<.001, CFI = .95, TLI = .95, RMSEA = .03 [90% CI = .03-.04]; see Table 13) and explained a similar amount of variance in symptom clusters to the first structural model (R^2 range = .19-.39). Within this model, negative affect was significantly associated with externalizing and anxious arousal symptom clusters. With the single exception of the association between self-medication and externalizing symptoms, all observed significant associations between strategy use and symptom severity remained significant after controlling for negative affect.

The third structural model was identical to the first with gender added as a predictor of both ER strategy use and PTSD symptom severity. This model provided close fit to the data (χ^2 = 3385.75, *df* = 2581, p<.001, CFI = .96, TLI = .96, RMSEA = .03 [90% CI = .03-.04]; see Table 13). Within this model, gender was only significantly associated with one symptom cluster; men

endorsed greater externalizing symptom severity. Observed significant associations between ER strategy use and PTSD symptoms in this model were identical to the first structural model.

Finally, the fourth structural model was identical to the third with negative affect as an exogenous latent variable. This structural model provided close fit to the data (χ^2 = 4303.26, *df* = 3350, *p*<.001, CFI = .96, TLI = .95, RMSEA = .03 [90% CI = .03-.03]; see Table 13). Within this model, results were nearly identical to model 2; nearly all significant associations between strategies and symptoms in model 3 remained significant. The two exceptions were the associations between self-medication and externalizing symptoms and between brooding and cognition and mood symptoms which were no longer significant after controlling for negative affect.

Sample 2

Results of ER measurement models are provided in Table 5. Models G and M failed to converge[2]. Only the ten-factor, lower-order model H provided close fit to the data. The only other model resulting in adequate fit was the one-factor, higher-order model N. However, model H provided significantly better fit to the data (χ^2 = 286, *df* = 35, *p*<.001). Within this model, all items had significant loadings on respective latent variables (standardized loadings range = .35 to .98; see Table 6). Correlations between latent variables ranged in magnitude from -.02 (social support seeking with brooding) to .84 (experiential avoidance with brooding; see Table 7). As the best fitting ER measurement model, the ten-factor model H was retained for subsequent analyses.

[2] These models also failed to converge using the robust maximum likelihood estimator (MLR) and maximum likelihood (ML) estimator as well as increasing the number of iterations. Accordingly, these models may have failed to converge due to the complexity of these models and large number of parameters estimated.

To examine the role of gender in the factor structure of ER, a MIMIC model was conducted where each ER latent variable was regressed on a dichotomous gender item. This model provided close fit to the data (χ^2 = 3922.30, *df* = 2360, *p*<.001, CFI = .95, TLI = .95, RMSEA = .05 [90% CI = .04-.05]). Within this model, item loadings were comparable to the model without gender included as a covariate; all items had significant loadings on their respective latent variables of at least moderate magnitude (see Table 6). As with the previous model, correlations between latent variables ranged from small and non-significant to large and significant (see Table 7). Gender had a significant effect on social support seeking, experiential avoidance, thought suppression, brooding, and expressive suppression such that women endorsed greater habitual engagement in social support seeking, experiential avoidance, thought suppression, and brooding, and significantly less habitual engagement in expressive suppression compared to men (see Table 8). By comparison, habitual engagement in reappraisal, acceptance, reflection, and self-medication was invariant across men and women.

Results of PTSD symptom measurement model CFAs are presented in Table 9. Only the six-factor Anhedonia and seven-factor Hybrid model provided close fit to the data. When compared, the seven-factor Hybrid model provided significantly better fit than the Anhedonia model (χ^2 = 22.28, *df* = 6, *p*<.01). Within this model, all items had significant loadings on their respective factors; standardized parameter estimates of factor loadings ranged from .56 to .96 (see Table 10). All factors were significantly correlated; standardized coefficients ranged from .61 to .91 (see Table 11). As the best-fitting model, the seven-factor Hybrid model was retained for subsequent analyses.

Prior to running a structural model, correlations were estimated between all included latent variables (see Table 14). A number of strong associations were observed between ER

strategy use latent variables. For example, acceptance was strongly associated with experiential avoidance (r = .77), brooding (r = .82), and thought suppression (r = .75). Likewise, experiential avoidance was strongly associated with brooding (r = .84) and thought suppression (r = .74). Finally, brooding was strongly associated with thought suppression (r = .77). Additionally, negative affect was significantly associated with every ER strategy except social support seeking and was significantly associated with every PTSD symptom cluster.

The first structural model in Sample 2 regressed the seven PTSD latent variables from the Hybrid model on the ten ER latent variables from measurement model H. This model provided close fit to the data (χ^2 = 5390.08, df = 3779, p<.001, CFI = .96, TLI = .96, RMSEA = .04 [90%CI = .04-.04]; see Table 15) and explained a substantial amount of variance in symptom clusters (R^2 range = .39-.61). Within this model, experiential avoidance was significantly associated with all PTSD symptom clusters such that greater experiential avoidance was associated with greater symptom severity. Likewise, self-medication was significantly associated with all PTSD symptom cluster except avoidance such that greater habitual engagement in self-medication was associated with greater symptom severity. Acceptance was significantly associated with anxious arousal such that greater habitual engagement in acceptance was associated with lower symptom severity. Reappraisal, social support seeking, behavioral avoidance, both dimensions of rumination, and expressive suppression were not significantly associated with any PTSD symptom cluster.

Thought suppression was significantly associated with avoidance and externalizing symptom clusters, but in opposite directions. As hypothesized, greater habitual engagement in thought suppression was associated with greater avoidance. However, greater habitual engagement in thought suppression was associated with but lower externalizing symptom

severity. The direction of this association is the opposite of the hypothesized direction, inconsistent with previous research, and inconsistent with the association observed among correlations (r = .45, p < .01). Given the observed strong associations among exogenous variables in this model, this association is likely a result of multicollinearity.

The second structural model was identical to the first with negative affect was added as an exogenous latent variable. This model provided close fit to the data (χ^2 = 6329.30, df = 4697, p<.001, CFI = .96, TLI = .96, RMSEA = .03 [90%CI = .03-.04]; see Table 15). Within this model, negative affect was significantly associated with intrusions, externalizing, anxious arousal, and dysphoric arousal symptom clusters such that greater negative affect was associated with greater symptom severity. All significant associations between strategies and PTSD symptom clusters remained significant after controlling for negative affect. Additionally, a positive, significant association emerged between reappraisal and negative alterations in cognition and mood symptoms. As with the previous sample, this association is inconsistent with the association observed correlation between these variables (r = -.13, p < .05) and is likely a result of multicollinearity.

The third structural model was similar to the first model but included gender as a predictor of both ER strategy use and PTSD symptom cluster latent variables. This model provided close fit to the data (χ^2 = 5466.92, df = 3853, p<.001, CFI = .96, TLI = .96, RMSEA = .04 [90%CI = .04-.04]; see Table 15). Results of this model were highly consistent with the first structural model: Experiential avoidance and self-medication were significantly associated with every PTSD symptom cluster, acceptance was significantly associated with anxious arousal, and all other strategies were not significantly associated with any symptom cluster. Gender was not significantly associated with any symptom cluster.

Finally, the fourth structural model was identical to the third, with negative affect added as an additional exogenous latent variable. This model provided close fit to the data (χ^2 = 6414.80, *df* = 4780, *p*<.001, CFI = .96, TLI = .96, RMSEA = .03 [90%CI = .03-.04]; see Table 15). Within this model, negative affect was significantly associated with intrusions, externalizing, anxious arousal, and dysphoric arousal symptom clusters such that greater negative affect was associated with greater symptom severity. All significant associations between ER strategies and PTSD symptom clusters remained significant after controlling for negative affect and, as with the previous model, a positive, significant association emerged between reappraisal and negative alterations in cognition and mood symptoms, likely a result of multicollinearity.

Discussion

A growing literature has established associations between several ER strategies and PTSD. However, the existing literature has a number of critical gaps. The present study aimed to narrow these gaps in the literature by examining the association between multiple ER strategies and PTSD symptom clusters while exploring the role of gender and negative affect in these associations in separate undergraduate and community samples.

Replicating two previous studies (Lee et al., 2015, Seligowski & Orcutt, 2015), the hypothesized measurement models treating each ER strategy as a distinct latent variable provided the best fit to the data in both samples. These results collectively suggest that more parsimonious approaches to categorizing ER strategies consistently fail to adequately explain variance in strategy use. As noted by Lee et al. (2015), use of different retrospective self-report measures to examine the larger factor structure underlying ER strategy use creates a potential method confound, particularly as these measures differ substantially in their identification of an

emotion being regulated and response formats, and do not specify a timeframe for strategy use. However, to date no measure exists allowing for examination of the ER factor structure on a single measure referring to a consistent emotion and timeframe for strategy use. Accordingly, although evidence to date indicates that ER strategies should not be conceptualized as indicators of a more parsimonious measurement model, stronger conclusions should not be made in the absence of such a measure.

In addition to the retained measurement models of ER strategy use, several other examined models warrant further study. In particular, ER measurement model D (Webb et al., 2012) provided close fit to the data in the undergraduate sample and adequate fit in the community sample. Likewise, models E (Seligowski & Orcutt, 2015) and higher-order models J, K, and N all provided adequate fit to the data in both samples and warrant further consideration. Model C (Gross, 1998) provided adequate fit in the undergraduate sample but poor fit in the community sample. Of note, Gross's Process Model was intended to provide a conceptual framework for understanding the temporal sequence of when ER strategies occur in the context of the emotion generative process. Accordingly, this model does not lend itself cleanly to CFA. Nonetheless, this model has resulted in adequate fit in one sample from the current study as well as a community sample in one previous study (Seligowski & Orcutt, 2015) and as such warrants further examination. By comparison, organizing strategies into adaptive and maladaptive categories (i.e., measurement model B) provided poor fit to the data in both samples. This model may function well as a conceptual framework for characterizing associations between ER strategies and psychopathology but does not appear to explain strategy use covariance well. Accordingly, caution is warranted in grouping strategies together into composite adaptive and maladaptive strategy variables.

PTSD measurement model results add to a growing literature supporting the Hybrid measurement model (Armour et al., 2016). In keeping with several recent studies (e.g., Armour et al., 2015; Blevins et al., 2015), the more parsimonious Anhedonia model also provided close fit to the data in both samples. As Armour and colleagues (2016) noted, future work examining the factor structure of *DSM-5* PTSD symptoms will benefit most from examination using multiple assessment approaches (e.g., self-report and clinician-administered) among clinical samples.

The hypothesized direction of the associations between ER strategy use and gender was supported for some strategies but not others. As hypothesized, women endorsed greater habitual engagement in social support seeking in both samples and greater engagement in brooding rumination in the community sample, while men endorsed greater habitual engagement in expressive suppression in both samples. Significant differences were not observed in positive reappraisal, reflection, or self-medication in either sample or in acceptance in the community sample. A number of other observed associations were in the opposite of the hypothesized direction. Women endorsed greater engagement in experiential avoidance and thought suppression in the community sample and greater habitual engagement in behavioral avoidance in the undergraduate sample. The observed results suggest that differences in ER strategy use between men and women are robust for some strategies (e.g., social support seeking, expressive suppression), vary by population for others (e.g., brooding), and are non-existent for others (e.g., self-medication). Accordingly, links between gender and specific ER strategies appear to better fit the data than generalizations about types of ER strategies.

Surprisingly, gender was only significantly associated with externalizing behavior PTSD symptoms among the undergraduate sample. Likewise, adding gender into the structural models

did not have a substantial impact on the observed associations between ER strategies and PTSD symptoms. One potential explanation for this finding is that ER strategy use accounted for the effect of gender on PTSD symptoms. Previous research has found that observed gender differences ER strategy use help explain differences in psychopathology prevalence rates between men and women (Nolen-Hoeksema, 2012; Nolen-Hoeksema, Larson, & Grayson, 1999). Research examining the degree to which differences in ER help explain differential trauma recovery trajectories between men and women could help improve early intervention efforts.

The hypothesized associations between ER strategy use and PTSD symptom clusters were supported for some strategies but not others. Experiential avoidance and thought suppression stood out as salient predictors across PTSD symptom clusters. Additionally, self-medication, which has received less attention as an ER strategy, also emerged as a robust predictor in the community sample. With few exceptions, these associations remained significant after controlling for negative affect, indicating these effects are not attributable to level of subjective distress. These findings are in keeping with a now robust literature establishing these strategies as strong predictors of PTSD symptoms (Seligwoski et al., 2015; 2016; Lee et al., 2015). These strategies share a common underlying feature: a pervasive unwillingness to experience and constant effort to distance from unpleasant thoughts and emotions. Seligowski and Orcutt (2015) noted that their emotional distancing construct appeared to index an orientation toward emotional responding, rather than a specific regulation strategy. Given how consistently emotional distancing-oriented ER strategies predict PTSD symptoms across samples, this distancing orientation toward emotional responding as well as its impact on PTSD symptoms warrants further research.

Most other examined strategies were much less predictive of PTSD symptoms. Social support seeking and expressive suppression were not significantly associated with any symptom clusters in either sample. Positive reappraisal, acceptance, behavioral avoidance, and both dimensions of rumination all had significant associations with particular symptom clusters but these associations varied by sample. Most of these strategies were significantly correlated in the hypothesized direction with all PTSD symptom clusters but when examined simultaneously appear to have weaker associations.

In keeping with previous findings, negative affect was significantly associated with most examined ER strategies and PTSD symptom clusters. The observed minimal impact of negative affect on the associations between strategies and symptoms is also consistent with previous research and emphasizes that these associations do not appear to be a function of distress. That is, level of distress is associated with use of most ER strategies; individuals experiencing greater distress are more likely to engage in experiential and behavioral avoidance, rumination, thought and expressive suppression, and self-medication and less likely to engage in positive reappraisal and acceptance. However, these associations between negative affect and strategy use do not negate the associations between ER strategies and PTSD symptoms.

With the exception of self-medication, observed associations between ER strategies and PTSD symptom clusters were fairly consistent across samples. Beyond findings from the structural models, correlations between strategies and PTSD symptom clusters were similar in magnitude across samples for all strategies except self-medication. One potential reason for this finding is that the recruited community sample, while demographically distinct, reported relatively comparable PTSD symptom severity to the undergraduate sample. One substantive difference between samples in this study was the amount of variance in PTSD symptom clusters

explained by ER strategy use. In the undergraduate sample, ER strategy use explained only a small to moderate portion of the variance while it explained a considerable amount of the variance in PTSD symptom clusters in the community sample (see Tables 13 and 15). These findings suggest the associations between ER strategy use and PTSD symptoms are not an artifact of over-reliance on convenience undergraduate samples in this literature.

The current study had a number of limitations. First, the cross-sectional design of this study does not allow for examination of the direction of the observed effects. For example, although there is preliminary evidence that changes in experiential avoidance precipitate changes in PTSD symptoms (Kumpula et al., 2011), it is possible that changes in PTSD symptoms subsequently cause changes in ER and that this effect is not reciprocal. The cross-sectional design of the current study precludes examination of these effects. Second, the current study was exclusively reliant on retrospective self-report measures of all included constructs. This limitation is of particular note for measures of ER strategy use which have a number of substantive limitations (see Lee et al., 2015, Seligowski et al., 2015 for discussion). Finally, neither of the current samples was demographically diverse. Accordingly, conclusions about how well these findings generalize to more gender and racially diverse populations are difficult to make.

Future research examining the association between ER strategy use and PTSD symptoms would benefit from a number of specific approaches. First, several emotional distancing-oriented strategies (e.g., experiential avoidance, thought suppression, self-medication) have consistently stood out in predicting PTSD symptoms across studies. Future work would benefit by examining the interactions among these regulatory efforts and the degree to which, as suggested by Seligowski and Orcutt (2015), these strategies are influenced by an underlying attitude toward

emotional responding. Second, given the limitations of existing self-report measures of ER strategy use, future research examining the association between ER and PTSD would benefit from utilization of alternate assessment approaches such as clinician-administered measures (e.g., Werner, Goldin, Ball, Heimberg, & Gross, 2011), ecological momentary assessment (e.g., Gruber, Kogan, Mennin, & Murray, 2013), or ideally multisource multimethod approaches. Finally, changes in ER strategy use is theorized to function as a pivotal mechanism in the onset and remission of PTSD symptoms, yet little longitudinal or treatment research examining this hypothesis exists. Specifically, research examining the temporal sequence of change in ER strategy use and PTSD symptoms following trauma exposure and during treatment will provide the greatest contributions to prevention and intervention efforts.

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Table 1.
Summary of Index Traumatic Events

	Sample 1		Sample 2	
Index Event Type	*n*	% of Sample	*n*	% of Sample
Natural Disaster	46	16.14	27	8.85
Fire or Explosion	8	2.81	15	4.92
Transportation Accident	68	23.86	59	19.34
Other Accident	21	7.37	11	3.61
Exposure to Toxic Substance	6	2.11	0	0
Physical Assault	14	4.91	26	8.52
Assault with a Weapon	20	7.02	15	4.92
Sexual Assault	30	10.53	82	26.89
Other Unwanted Sexual Experience	3	1.05	1	0.33
Combat or Exposure to a War Zone	6	2.11	4	1.31
Captivity	0	0	2	0.66
Life Threatening Illness or Injury	16	5.61	8	2.62
Sudden, Violent Death	23	8.07	28	9.18
Sudden, Accidental Death	8	2.81	10	3.28
Serious Harm Caused to Someone Else	0	0	1	0.33
Other	16	5.61	16	5.25
Total	285		305	

Table 2.
Lower-Order Measurement Models of Emotion Regulation by Sample

	Measurement Models – Sample 1							
Scale Items	A	B	C	D	E	F	G	H
ERQ-Positive Reappraisal	1	1	1	1	1	1	1	1
COPE-Social Support Seeking	1	1	2	2	2	2	2	2
MEAQ-Behavioral Avoidance	1	2	3	3	3	3	2	3
WBSI-Thought Suppression	1	2	4	4	4	4	3	4
RRS-Reflective Rumination	1	2	4	5	5	1	2	5
RRS-Brooding Rumination	1	2	4	5	5	1	2	6
ERQ-Expressive Suppression	1	2	2	6	2	3	4	7
COPE-Self-Medication	1	2	2	7	2	4	5	8
	Measurement Models – Sample 2							
ERQ-Positive Reappraisal	1	1	1	1	1	1	1	1
COPE-Social Support Seeking	1	1	2	2	2	2	2	2
KIMS-Acceptance	1	1	2	3	3	3	3	3
MEAQ-Behavioral Avoidance	1	2	3	4	4	4	2	4
AAQ-II-Experiential Avoidance	1	2	2	5	3	5	4	5
WBSI-Thought Suppression	1	2	4	6	3	5	4	6
RRS-Reflective Rumination	1	2	4	7	5	1	2	7
RRS-Brooding Rumination	1	2	4	7	5	1	2	8
ERQ-Expressive Suppression	1	2	2	8	2	4	5	9
COPE-Self-Medication	1	2	2	5	2	5	6	10

Note. AAQ-II = acceptance and action questionnaire, second edition; COPE = COPE inventory; ERQ = emotion regulation questionnaire; KIMS = Kentucky inventory of mindfulness skills; MEAQ = multidimensional experiential avoidance questionnaire; RRS = ruminative responses style questionnaire; WBSI = white bear suppression inventory.

Table 3.

Measurement Models of DSM-5 PTSD Symptoms

PTSD Symptom	*DSM-5*	Dysphoria	Dysphoric Arousal	Externalizing	Anhedonia	Hybrid
1. Intrusive memories	1	1	1	1	1	1
2. Nightmares	1	1	1	1	1	1
3. Flashbacks	1	1	1	1	1	1
4. Emotional cue reactivity	1	1	1	1	1	1
5. Physiological cue reactivity	1	1	1	1	1	1
6. Avoidance of thoughts	2	2	2	2	2	2
7. Avoidance of reminders	2	2	2	2	2	2
8. Trauma-related amnesia	3	3	3	3	3	3
9. Negative beliefs	3	3	3	3	3	3
10. Blame	3	3	3	3	3	3
11. Negative feelings	3	3	3	3	3	3
12. Loss of interest	3	3	3	3	4	4
13. Feeling detached	3	3	3	3	4	4
14. Feeling numb	3	3	3	3	4	4
15. Irritability	4	3	4	4	5	5
16. Risk taking	4	4	4	4	5	5
17. Hypervigilance	4	4	5	5	6	6
18. Startle	4	4	5	5	6	6
19. Difficulty concentrating	4	3	4	6	5	7
20. Sleep disturbance	4	3	4	6	5	7

Note. DSM-5 = Diagnostic and Statistical Manual of Mental Disorders, 5th edition; PTSD = posttraumatic stress disorder.

Table 4.
Descriptive Statistics for Included Items by Sample

		Sample 1						Sample 2				
Measure-Strategy	Item	Mean	SD	Poss. Range	Obs. Range	Skewness	Kurtosis	Mean	SD	Obs. Range	Skewness	Kurtosis
ERQ-PRP	1	4.94	1.67	6	6	-.68	-.22	5.16	1.44	6	-.80	.35
	3	4.99	1.56	6	6	-.62	-.23	5.14	1.41	6	-.78	.21
	5	4.73	1.56	6	6	-.47	-.53	4.99	1.47	6	-.68	.06
	7	5.05	1.48	6	6	-.64	.01	5.10	1.37	6	-.76	.24
	8	4.77	1.55	6	6	-.36	-.40	4.95	1.39	6	-.61	.06
	10	4.84	1.52	6	6	-.57	-.05	5.02	1.44	6	-.73	.14
ERQ-EXS	2	4.52	1.77	6	6	-.29	-.91	4.34	1.85	6	-.19	-1.10
	4	2.37	1.45	6	6	1.20	.86	2.74	1.56	6	.69	-.41
	6	3.76	1.85	6	6	.06	-1.10	3.77	1.84	6	.03	-1.11
	9	4.12	1.74	6	6	.04	-.98	3.88	1.76	6	.10	-.99
COPE-SSS	11	2.56	1.03	3	3	.04	-1.15	2.56	1.06	3	-.04	-1.21
	23	2.56	1.07	3	3	-.03	-1.25	2.53	1.03	3	.02	-1.15
	34	2.31	1.00	3	3	.22	-1.01	2.45	1.01	3	.08	-1.07
	52	2.54	1.01	3	3	-.04	-1.07	2.59	1.02	3	-.06	-1.12
COPE-SMD	12	1.38	.72	3	3	1.98	3.31	1.63	.96	3	1.32	.45
	26	1.36	.71	3	3	2.07	3.71	1.53	.91	3	1.57	1.19
	35	1.32	.69	3	3	2.36	5.25	1.56	.91	3	1.47	.99
	53	1.27	.64	3	3	2.56	6.15	1.54	.93	3	1.53	1.05
KIMS-ACC	4	-	-	4	-	-	-	2.62	1.23	4	.23	-.94
	8	-	-	4	-	-	-	3.42	1.09	4	-.56	-.18
	12	-	-	4	-	-	-	2.86	1.17	4	-.04	-.88
	16	-	-	4	-	-	-	2.37	1.28	4	.53	-.85
	20	-	-	4	-	-	-	2.86	1.26	4	-.07	-1.02
	24	-	-	4	-	-	-	2.70	1.21	4	.23	-.87

	28	-	-	4	-	-	-	2.64	1.19	4	.14	-.97
	32	-	-	4	-	-	-	2.35	1.23	4	.49	-.90
	36	-	-	4	-	-	-	2.64	1.26	4	.18	-1.09
AAQ-II-EXA	2	-	-	6	-	-	-	2.66	1.65	6	.71	-.52
	3	-	-	6	-	-	-	2.89	1.71	6	.52	-.75
	4	-	-	6	-	-	-	3.07	1.78	6	.40	-.99
	5	-	-	6	-	-	-	2.68	1.74	6	.76	-.42
	7	-	-	6	-	-	-	3.38	1.73	6	.19	-.87
	8	-	-	6	-	-	-	3.69	1.97	6	.07	-1.27
	9	-	-	6	-	-	-	3.46	1.92	6	.21	-1.12
RRS-RFL	7	1.99	.98	3	3	.67	-.60	2.31	.92	3	.27	-.74
	11	2.00	1.02	3	3	.61	-.85	2.14	.95	3	.45	-.71
	12	1.43	.79	3	3	1.79	2.21	1.63	.89	3	1.21	.42
	20	1.84	.98	3	3	.91	-.27	2.05	.98	3	.52	-.80
	21	2.08	1.01	3	3	.61	-.71	2.18	.94	3	.40	-.72
RRS-BRD	5	1.76	.88	3	3	.99	.14	2.07	1.04	3	.56	-.91
	10	1.97	.97	3	3	.55	-.86	2.02	1.00	3	.59	-.79
	13	2.61	.86	3	3	.08	-.71	2.57	.88	3	.14	-.77
	15	1.99	.99	3	3	.68	-.60	2.10	1.10	3	.49	-1.15
	16	2.14	1.02	3	3	.45	-.96	2.17	1.06	3	.37	-1.13
MEAQ-BAV	1	4.42	1.32	5	5	-.70	-.16	4.10	1.29	5	-.54	-.34
	8	3.09	1.39	5	5	.22	-.75	3.32	1.37	5	-.04	-.76
	14	3.49	1.39	5	5	-.06	-.82	3.59	1.40	5	-.26	-.76
	20	3.81	1.35	5	5	-.22	-.67	3.80	1.42	5	-.46	-.62
	26	3.41	1.39	5	5	.05	-.79	3.49	1.43	5	-.07	-.87
	32	3.12	1.27	5	5	.30	-.35	3.34	1.45	5	.03	-.85
	39	3.65	1.31	5	5	-.02	-.63	3.88	1.44	5	-.30	-.78
	45	3.43	1.36	5	5	.07	-.74	3.71	1.40	5	-.30	-.71
	51	3.33	1.27	5	5	.10	-.64	3.47	1.39	5	-.04	-.79

	55	3.18	1.33	5	5	.20	-.67	3.33	1.41	5	-.10	-.83
	59	3.43	1.31	5	5	.13	-.60	3.63	1.41	5	-.20	-.74
WBSI-TSP	1	4.12	.82	4	4	-1.31	2.77	4.09	.93	4	-1.28	1.73
	2	3.45	1.16	4	4	-.45	-.71	3.22	1.27	4	-.31	-1.04
	3	3.14	1.27	4	4	-.17	-1.04	2.97	1.31	4	-.02	-1.23
	4	3.30	1.21	4	4	-.50	-.76	3.19	1.29	4	-.28	-1.11
	5	2.92	1.15	4	4	-.08	-.80	2.67	1.17	4	.24	-.91
	6	3.45	1.24	4	4	-.61	-.66	3.32	1.28	4	-.47	-.89
	7	3.08	1.31	4	4	-.16	-1.16	2.95	1.36	4	-.05	-1.32
	8	3.15	1.11	4	4	-.17	-.94	3.13	1.10	4	-.27	-.77
	9	3.24	1.21	4	4	-.39	-.84	3.07	1.20	4	-.33	-1.05
	10	3.77	1.04	4	4	-1.08	.75	3.78	1.06	4	-1.00	.46
	11	3.03	1.39	4	4	-.10	-1.30	3.05	1.40	4	-.10	-1.30
	12	3.23	1.26	4	4	-.27	-1.00	3.24	1.27	4	-.43	-.96
	13	3.52	1.21	4	4	-.59	-.68	3.52	1.19	4	-.71	-.51
	14	3.49	1.38	4	4	-.57	-.99	3.43	1.30	4	-.40	-1.00
	15	3.19	1.33	4	4	-.20	-1.16	3.19	1.26	4	-.35	-.97
PANAS-NAF	2	2.57	1.06	4	4	.56	-.20	2.50	1.18	4	.39	-.85
	3	2.09	1.08	4	4	.85	.08	1.88	1.09	4	1.21	.73
	6	2.38	1.01	4	4	.56	-.19	2.26	1.22	4	.65	-.66
	7	1.97	1.08	4	4	1.10	.59	1.64	.98	4	1.51	1.54
	10	2.77	1.19	4	4	.26	-.86	2.29	1.28	4	.62	-.82
	11	1.68	.94	4	4	1.25	.74	1.59	.91	4	1.55	1.82
	13	2.20	1.19	4	4	.63	-.70	1.90	1.13	4	1.00	-.13
	15	1.70	.98	4	4	1.51	1.80	1.59	1.00	4	1.72	2.12
	16	2.05	1.13	4	4	1.02	.35	1.83	1.17	4	1.36	.84
	20	2.40	1.17	4	4	.46	-.73	2.15	1.18	4	.80	-.35
PCL-5	1	1.03	1.11	4	4	.98	.28	.89	1.11	4	1.11	.32
	2	0.60	1.02	4	4	1.83	2.73	.53	.97	4	1.95	3.14

3	0.51	0.87	4	4	1.77	2.52	.50	.96	4	2.14	3.98
4	1.37	1.23	4	4	.64	-.61	1.26	1.25	4	.72	-.50
5	0.94	1.19	4	4	1.08	.10	.82	1.15	4	1.28	.54
6	1.37	1.30	4	4	.58	-.87	1.37	1.38	4	.60	-.98
7	1.11	1.30	4	4	.96	-.31	1.17	1.38	4	.77	-.83
8	0.78	1.13	4	4	1.40	.95	.71	1.12	4	1.50	1.20
9	0.79	1.19	4	4	1.38	.74	.96	1.29	4	1.11	-.06
10	0.89	1.24	4	4	1.22	.29	1.05	1.37	4	1.00	-.40
11	0.98	1.24	4	4	1.12	.11	1.11	1.35	4	.89	-.57
12	0.39	0.83	4	4	2.38	5.52	.69	1.14	4	1.56	1.30
13	0.55	1.05	4	4	1.97	2.99	.99	1.37	4	1.05	-.34
14	0.46	0.96	4	4	2.28	4.52	.75	1.15	4	1.40	.80
15	0.51	0.91	4	4	1.93	3.22	.69	1.09	4	1.54	1.47
16	0.27	0.74	4	4	3.16	10.36	.40	.93	4	2.43	5.16
17	0.99	1.29	4	4	1.10	.00	1.12	1.36	4	.87	-.62
18	0.68	1.09	4	4	1.69	1.98	.87	1.22	4	1.24	.32
19	0.70	1.13	4	4	1.65	1.71	.80	1.12	4	1.19	.24
20	0.89	1.30	4	4	1.28	.33	.99	1.32	4	1.04	-.28

Note. AAQ-II-EXA = acceptance and action questionnaire, second edition, experiential avoidance; COPE-SMD = COPE inventory, self-medication; COPE-SSS = COPE inventory, social support seeking; ERQ-EXS = emotion regulation questionnaire, expressive suppression; ERQ-PRP = emotion regulation questionnaire, positive reappraisal; KIMS-ACC = Kentucky inventory of mindfulness skills, acceptance; MEAQ-BAV = multidimensional experiential avoidance questionnaire, behavioral avoidance; PANAS-NAF = positive and negative affect schedule, negative affect subscale; PCL-5 = posttraumatic stress disorder checklist for the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders; RRS-BRD = ruminative responses style questionnaire, brooding; RRS-RFL = ruminative responses style questionnaire, reflection; WBSI-TSP = white bear suppression inventory, thought suppression.

Table 5.

Fit Statistics of Emotion Regulation Measurement Models

	Sample 1					Sample 2				
Model	χ^2	*df*	CFI	TLI	RMSEA (90% CI)	χ^2	*df*	CFI	TLI	RMSEA (90% CI)
Lower-Order										
A	FTC	-	-	-	-	FTC	-	-	-	-
B	6500.37*	1376	.72	.71	.12 (.11-.12)	13022.28*	2344	.70	.69	.12 (.12-.12)
C	3124.91*	1371	.90	.90	.07 (.06-.07)	9377.14*	2339	.80	.79	.10 (.10-.10)
D	2258.79*	1356	.95	.95	.05 (.05-.05)	5382.44*	2317	.91	.91	.07 (.06-.07)
E	2761.13*	1367	.92	.92	.06 (.06-.06)	5744.74*	2335	.90	.90	.07 (.07-.07)
F	FTC	-	-	-	-	8863.51*	2335	.81	.81	.10 (.09-.10)
G	FTC	-	-	-	-		-	-	-	-
H	2207.48*	1349	.95	.95	.05 (.04-.05)	3854.31*	2300	.96	.95	.05 (.04-.05)
Higher-Order										
I	3028.78*	1373	.91	.91	.07 (.06-.07)	9357.23*	2341	.80	.79	.10 (.10-.10)
J	2501.94*	1370	.94	.94	.05 (.05-.06)	5770.40*	2337	.90	.90	.07 (.07-.07)
K	2647.10*	1372	.93	.93	.06 (.05-.06)	5603.12*	2340	.91	.90	.07 (.07-.07)
L	FTC	-	-	-	-	8853.29*	2340	.81	.81	.10 (.10-.10)
M	FTC	-	-	-	-		-	-	-	-
N	2479.45*	1369	.94	.94	.05 (.05-.06)	4464.91*	2335	.94	.94	.06 (.05-.06)

Note. CFI = Bentler Comparative Fit Index; FTC = model failed to converge; TLI = Tucker Lewis Index; RMSEA = Root Mean Square Error of Approximation; * = $p < .05$.

Table 6.

Fully Standardized Parameter Estimates for the Eight-Factor ER Strategy Use Measurement Model H

		Sample 1		Sample 2	
Measure-Item	Factor	CFA Est.	MIMIC Est.	CFA Est.	MIMIC Est.
ERQ-1	Reappraisal	.72*	.73*	.80*	.80*
ERQ-3		.73*	.73*	.83*	.83*
ERQ-5		.47*	.47*	.72*	.72*
ERQ-7		.89*	.89*	.90*	.91*
ERQ-8		.88*	.88*	.84*	.84*
ERQ-10		.86*	.86*	.82*	.82*
COPE-11	Social Support Seeking	.94*	.94*	.95*	.95*
COPE-23		.90*	.91*	.93*	.93*
COPE-34		.79*	.79*	.86*	.86*
COPE-52		.95*	.95*	.82*	.92
KIMS-4	Acceptance	-	-	.82*	.82*
KIMS-8		-	-	.53*	.54*
KIMS-12		-	-	.86*	.86*
KIMS-16		-	-	.93*	.93*
KIMS-20		-	-	.74*	.74*
KIMS-24		-	-	.76*	.77*
KIMS-28		-	-	.89*	.89*
KIMS-32		-	-	.83*	.93*
KIMS-36		-	-	.79*	.80*
AAQ-II-2	Experiential Avoidance	-	-	.84*	.84*
AAQ-II-3		-	-	.88*	.88*
AAQ-II-4		-	-	.92*	.92*
AAQ-II-5		-	-	.89*	.89*
AAQ-II-7		-	-	.88*	.87*
AAQ-II-8		-	-	.84*	.84*

AAQ-II-9		-	-	.85*	.85*
MEAQ-1	Behavioral Avoidance	.53*	.51*	.58*	.58*
MEAQ-8		.61*	.59*	.62*	.62*
MEAQ-14		.72*	.71*	.77*	.77*
MEAQ-20		.71*	.71*	.83*	.83*
MEAQ-26		.60*	.60*	.67*	.68*
MEAQ-32		.69*	.70*	.80*	.80*
MEAQ-39		.64*	.64*	.66*	.66*
MEAQ-45		.83*	.84*	.85*	.85*
MEAQ-51		.84*	.84*	.84*	.84*
MEAQ-55		.79*	.79*	.82*	.82*
MEAQ-59		.86*	.86*	.87*	.87*
WBSI-1	Thought Suppression	.67*	.67*	.58*	.58*
WBSI-2		.80*	.81*	.83*	.82*
WBSI-3		.75*	.75*	.87*	.87*
WBSI-4		.69*	.70*	.77*	.78*
WBSI-5		.67*	.68*	.73*	.74*
WBSI-6		.84*	.84*	.79*	.89*
WBSI-7		.73*	.73*	.67*	.68*
WBSI-8		.47*	.47*	.34*	.35*
WBSI-9		.78*	.78*	.85*	.85*
WBSI-10		.78*	.78*	.72*	.72*
WBSI-11		.77*	.78*	.80*	.80*
WBSI-12		.74*	.74*	.71*	.71*
WBSI-13		.74*	.84*	.81*	.81*
WBSI-14		.76*	.77*	.68*	.69*
WBSI-15		.76*	.76*	.73*	.73*
ERQ-2	Expressive Suppression	.81*	.81*	.81*	.80*
ERQ-4		.58*	.59*	.66*	.66*

ERQ-6		.79*	.79*	.88*	.88*
ERQ-9		.62*	.62*	.72*	.72*
RRS-5	Brooding	.59*	.59*	.75*	.75*
RRS-10		.83*	.83*	.84*	.84*
RRS-13		.71*	.72*	.68*	.68*
RRS-15		.76*	.76*	.85*	.85*
RRS-16		.88*	.88*	.92*	.92*
RRS-7	Reflection	.83*	.83*	.73*	.72*
RRS-11		.94*	.94*	.91*	.92*
RRS-12		.41*	.42*	.48*	.48*
RRS-20		.85*	.85*	.95*	.94*
RRS-21		.84*	.84*	.77*	.77*
COPE-12	Self-Medication	.95*	.95*	.97*	.97*
COPE-26		.96*	.97*	.98*	.98*
COPE-35		.99*	.99*	.97*	.97*
COPE-53		.97*	.96*	.98*	.98*

Note. AAQ-II = acceptance and action questionnaire, second edition; CFA = confirmatory factor analysis; COPE = COPE inventory; ERQ = emotion regulation questionnaire; Est. = fully standardized parameter estimate; KIMS = Kentucky inventory of mindfulness skills; MEAQ = multidimensional experiential avoidance questionnaire; MIMIC = multiple indicators, multiple causes; RRS = ruminative responses style questionnaire; WBSI = white bear suppression inventory; * = $p<.05$.

Table 7.

Correlations among Emotion Regulation Latent Variables

Sample 1

	PRP	SSS	BAV	TSP	BRD	RFL	EXS
SSS	.17* (.19*)	-	-	-	-	-	-
BAV	.03 (.04)	.06 (.00)	-	-	-	-	-
TSP	.06 (.06)	-.23* (-.25*)	.25* (.25*)	-	-	-	-
BRD	-.08 (-.08)	-.07 (-.10)	.28* (.26*)	.67* (.67*)	-	-	-
RFL	-.01 (-.01)	-.14* (-.14*)	.23* (.24*)	.55* (.55*)	.77* (.77*)	-	-
EXS	-.06 (-.07)	-.70* (-.68*)	.03 (.09)	.31* (.33*)	.11 (.14*)	.14* (.14*)	-
SMD	-.08 (-.08)	-.21* (-.23*)	.14 (.13)	.32* (.32*)	.33* (.33*)	.29* (.29*)	.20* (.22*)

Sample 2

	PRP	SSS	ACC	BAV	EXA	TSP	BRD	RFL	EXS
SSS	.16* (.15*)	-	-	-	-	-	-	-	-
ACC	-.24* (-.28*)	-.07 (-.09)	-	-	-	-	-	-	-
BAV	-.17* (-.17*)	-.09 (-.10)	.36* (.36*)	-	-	-	-	-	-
EXA	-.40* (-.41*)	-.18* (-.21*)	.77* (.76*)	.42* (.42*)	-	-	-	-	-
TSP	-.11* (-.11*)	-.15* (-.19*)	.75* (.75*)	.46* (.46*)	.74* (.74*)	-	-	-	-
BRD	-.30* (-.31*)	-.03 (-.05)	.82* (.82*)	.41* (.41*)	.74* (.83*)	.77* (.77*)	-	-	-
RFL	.03 (.03)	.03 (.02)	.60* (.61*)	.23* (.22*)	.56* (.55*)	.57* (.57*)	.69* (.69*)	-	-
EXS	-.19* (-.18*)	-.68* (-.67*)	.26* (.28*)	.23* (.24*)	.35* (.38*)	.29* (.33*)	.21* (.24*)	.13* (.14*)	-
SMD	-.14* (-.14*)	-.07 (-.06)	.28* (.29*)	.22* (.22*)	.38* (.40*)	.39* (.40*)	.39* (.41*)	.33* (.34*)	.13 (.12)

Note. Parameter estimates in parentheses are from MIMIC models; ACC = acceptance; BAV = behavioral avoidance; BRD = brooding; EXA = experiential avoidance; EXS = expressive suppression; PRP = positive reappraisal; RFL = reflection; SMD = self-medication; SSS = social support seeking; TSP = thought suppression;* = $p<.05$.

Table 8.

Association between Gender and Emotion Regulation Latent Variables

	Parameter Estimate	
	Sample 1	Sample 2
Positive Reappraisal	-.04	.03
Social Support Seeking	.26*	.20*
Acceptance	-	.09
Experiential Avoidance	-	.14*
Behavioral Avoidance	.24*	.03
Thought Suppression	.05	.15*
Brooding	.11	.15*
Reflection	-.02	.05
Expressive Suppression	-.20*	-.17*
Self-Medication	.05	-.07

Note. Parameter estimates are fully standardized; gender is coded 1 = male, 2 = female; * = $p<.05$.

Table 9.

Fit Statistics of DSM-5 PTSD Symptoms Measurement Models

	Sample 1					Sample 2				
Model	χ^2	*df*	CFI	TLI	RMSEA (90% CI)	χ^2	*df*	CFI	TLI	RMSEA (90% CI)
Lower-Order Models										
DSM-5	383.40*	164	.97	.97	.07 (.06-.08)	436.31*	164	.98	.98	.07 (.07-.07)
Dysphoria	501.20*	164	.96	.95	.09 (.08-.09)	496.87*	164	.98	.97	.08 (.08-.09)
Dysphoric Arousal	327.87*	160	.98	.97	.06 (.05-.07)	411.20*	160	.98	.98	.07 (.06-.08)
Externalizing	303.02*	155	.98	.98	.06 (.05-.07)	399.33*	155	.98	.98	.07 (.06-.08)
Anhedonia	254.02*	155	.98	.98	.05 (.04-.06)	304.35*	155	.99	.99	.06 (.05-.07)
Hybrid	226.30*	149	.99	.99	.04 (.03-.05)	258.94*	149	.99	.99	.06 (.05-.06)
Higher-Order Models										
DSM-5	412.87*	166	.97	.96	.07 (.06-.08)	473.45*	166	.98	.98	.08 (.07-.09)
Dysphoria	523.34*	166	.95	.95	.09 (.08-.10)	537.51*	166	.97	.97	.09 (.08-.09)
Dysphoric Arousal	425.51*	165	.97	.96	.08 (.07-.08)	477.46*	165	.98	.97	.08 (.07-.09)
Externalizing	435.08*	164	.97	.96	.08 (.07-.09)	472.00*	164	.98	.98	.08 (.07-.09)
Anhedonia	387.60*	164	.97	.97	.07 (.06-.08)	424.59*	164	.98	.98	.07 (.06-.08)
Hybrid	400.23*	163	.97	.96	.07 (.06-.08)	419.86*	163	.98	.98	.07 (.06-.08)

Note. CFI = Bentler Comparative Fit Index; DSM-5 = fifth edition of the Diagnostic and Statistical Manual of Mental Disorders; TLI = Tucker Lewis Index; RMSEA = Root Mean Square Error of Approximation; * = $p < .05$.

Table 10.

Fully Standardized Parameter Estimates for the Seven-Factor Hybrid PTSD Symptom Measurement Model

PTSD Symptom	Factor	Sample 1	Sample 2
1. Intrusive memories	Intrusions	.83*	.92*
2. Nightmares		.78*	.56*
3. Flashbacks		.76*	.84*
4. Emotional cue reactivity		.81*	.88*
5. Physiological cue reactivity		.84*	.90*
6. Avoidance of thoughts	Avoidance	.89*	.90*
7. Avoidance of reminders		.91*	.92*
8. Trauma-related amnesia	Cognition and Mood	.34*	.65*
9. Negative beliefs		.84*	.86*
10. Blame		.82*	.88*
11. Negative feelings		.97*	.92*
12. Loss of interest	Anhedonia	.90*	.96*
13. Feeling detached		.89*	.94*
14. Feeling numb		.94*	.90*
15. Irritability	Externalizing	.91*	.90*
16. Risk taking		.76*	.89*
17. Hypervigilance	Anxious Arousal	.83*	.86*
18. Startle		.92*	.96*
19. Difficulty concentrating	Dysphoric Arousal	.91*	.94*
20. Sleep disturbance		.92*	.84*

Note. * = $p<.05$.

Table 11.

Correlations among Seven-Factor Hybrid PTSD Symptom Measurement Model Latent Variables in Samples 1 (and 2)

	INT	AVD	NCM	ANH	EXT	DYS
AVD	.83* (.87*)	-	-	-	-	-
NCM	.79* (.89*)	.82* (.83*)	-	-	-	-
ANH	.72* (.82*)	.77* (.72*)	.84* (.86*)	-	-	-
EXT	.61* (.76*)	.56* (.69*)	.72* (.83*)	.85* (.88*)	-	-
DYS	.72* (.83*)	.64* (.70*)	.65* (.83*)	.63* (.78*)	.68* (.83*)	-
AAR	.68* (.84*)	.60* (.71*)	.68* (.80*)	.80* (.90*)	.84* (.90*)	.83* (.91*)

Note. AAR = anxious arousal; ANH = anhedonia; AVD = avoidance; DYS = dysphoric arousal; XT = externalizing behaviors; INT = intrusions; NCM = negative alterations in cognition and mood; * = $p < .05$.

Table 12.

Standardized Correlation Coefficients among Latent Variables in Sample 1

	PRP	SSS	BAV	RFL	BRD	TSP	EXS	SMD	INT	AVD	NCM	ANH	EXT	DYS	AAR
SSS	.17*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BAV	.03	.06	-	-	-	-	-	-	-	-	-	-	-	-	-
RFL	-.01	-.14*	.23*	-	-	-	-	-	-	-	-	-	-	-	-
BRD	-.08	-.07	.28*	.77*	-	-	-	-	-	-	-	-	-	-	-
TSP	.06	-.23*	.25*	.55*	.67*	-	-	-	-	-	-	-	-	-	-
EXS	-.06	-.70*	.03	.14*	.11	.31*	-	-	-	-	-	-	-	-	-
SMD	-.09	-.21*	.14*	.29*	.33*	.32*	.20*	-	-	-	-	-	-	-	-
INT	.07	-.09	.15*	.33*	.33*	.39*	.10	.22*	-	-	-	-	-	-	-
AVD	.09	-.14*	.30*	.33*	.40*	.42*	.15*	.22*	.82*	-	-	-	-	-	-
NCM	-.05	-.09	.20*	.37*	.48*	.39*	.17*	.26*	.79*	.82*	-	-	-	-	-
ANH	-.04	-.12	.18*	.42*	.46*	.44*	.23*	.26*	.72*	.77*	.84*	-	-	-	-
EXT	-.08	-.12	.21*	.51*	.41*	.41*	.20*	.39*	.63*	.57*	.74*	.87*	-	-	-
AAR	.04	-.07	.28*	.29*	.36*	.40*	.13	.16	.72*	.64*	.65*	.63*	.69*	-	-
DAR	-.04	-.02	.18*	.28*	.29*	.41*	.14*	.28*	.68*	.60*	.68*	.80*	.87*	.83*	-
NAF	-.16*	-.05	.35*	.38*	.55*	.39*	.12	.35*	.28*	.30*	.34*	.35*	.42*	.42*	.33*

Note. AAR = anxious arousal; ACC = acceptance; ANH = anhedonia; AVD = avoidance; BAV = behavioral avoidance; BRD = brooding; DYS = dysphoric arousal; EXA = experiential avoidance; EXS = expressive suppression; EXT = externalizing behaviors; INT = intrusions; NAF = negative affect; NCM = negative alterations in cognition and mood; PRP = positive reappraisal; RFL = reflection; SMD = self-medication; SSS = social support seeking; TSP = thought suppression; * = $p < .05$.

Table 13.

Standardized Parameter Estimates of the Structural Equation Models Examining the Associations between Emotion Regulation Strategies and PTSD Symptoms in Sample 1

	Models 1 (2)						
	INT	AVD	NCM	ANH	EXT	AAR	DAR
PRP	.06 (.08)	.11* (.12*)	-.02 (-.01)	-.04 (-.02)	-.10 (-.07)	.03 (.07)	-.09 (-.07)
SSS	-.03 (-.04)	-.13 (-.14)	.06 (.05)	.11 (.10)	.13 (.12)	.00 (-.03)	.21 (.20)
BAV	.04 (.01)	.19* (.18*)	.06 (.05)	.03 (.01)	.06 (.02)	.17* (.12*)	.06 (.03)
RFL	.16 (.18)	.00 (.00)	-.01 (.00)	.14 (.16)	.44* (.47*)	-.02 (.02)	.12 (.13)
BRD	-.01 (-.06)	.20 (.18)	.37* (.35*)	.18 (.15)	-.15 (-.23)	.17 (.05)	-.13 (-.19)
TSP	.27* (.25*)	.20* (.19*)	.08 (.08)	.17 (.16)	.17 (.12)	.24* (.19)	.38* (.35*)
EXS	-.04 (-.05)	-.04 (-.04)	.12 (.12)	.19 (.19)	.14 (.13)	.03 (.02)	.12 (.12)
SMD	.09 (.07)	.06 (.05)	.10 (.09)	.08 (.07)	.24* (.20)	.00 (-.04)	.18 (.16)
NAF	(.12)	(.05)	(.05)	(.09)	(.21*)	(.27*)	(.14)
R^2	.18 (.19)	.26 (.26)	.26 (.26)	.28 (.28)	.36 (.39)	.21 (.25)	.23 (.24)
	Models 3 (4)						
	INT	AVD	NCM	ANH	EXT	AAR	DAR
PRP	.07 (.09)	.12* (.13*)	-.02 (-.01)	-.04 (-.03)	-.12 (-.09)	.03 (.07)	-.09 (-.07)
SSS	-.04 (-.05)	-.14 (-.14)	.04 (.04)	.12 (.11)	.17 (.16)	.00 (-.02)	.20 (.20)
BAV	.02 (-.01)	.19* (.18*)	.05 (.04)	.04 (.02)	.10 (.06)	.18* (.13*)	.07 (.04)
RFL	.19 (.20)	.01 (.01)	.00 (.01)	.13 (.14)	.40* (.43*)	-.02 (.01)	.11 (.13)
BRD	-.03 (-.08)	.20 (.18)	.36* (.34)	.19 (.15)	-.11 (-.20)	.17 (.06)	-.13 (-.18)
TSP	.27* (.25*)	.20* (.19*)	.08 (.07)	.18 (.16)	.17 (.13)	.25* (.20*)	.38* (.35*)
EXS	-.04 (-.04)	-.04 (-.04)	.11 (.11)	.17 (.17)	.13 (.12)	.02 (.01)	.10 (.10)
SMD	.08 (.06)	.06 (.05)	.09 (.09)	.09 (.07)	.25* (.21)	.01 (-.04)	.18 (.16)
Gender	.09 (.09)	.04 (.04)	.05 (.05)	-.09 (-.09)	-.17* (-.18*)	-.07 (-.08)	-.06 (-.07)
NAF	(.12)	(.05)	(.05)	(.10)	(.22*)	(.28*)	(.14)
R^2	.19 (.20)	.26 (.26)	.26 (.26)	.28 (.29)	.39 (.42)	.21 (.25)	.22 (.24)

Note. AAR = anxious arousal; ANH = anhedonia; AVD = avoidance; BAV = behavioral avoidance; BRD = brooding; DAR = dysphoric arousal; EXS = expressive suppression; EXT = externalizing behaviors; INT = intrusions; NAF = negative affect; NCM = negative alterations in cognition and mood; PRP = positive reappraisal; RFL = reflection; SMD = self-medication; SSS = social support seeking; TSP = thought suppression; * = $p < .05$.

Table 14.

Standardized Correlation Coefficients among Latent Variables in Sample 2

	PRP	SSS	ACC	EXA	BAV	RFL	BRD	TSP	EXS	SMD	INT	AVD	NCM	ANH	EXT	DYS	AAR
SSS	.16*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ACC	-.23*	-.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EXA	-.40*	-.18*	.77*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BAV	-.17*	-.09	.36*	.42*	-	-	-	-	-	-	-	-	-	-	-	-	-
RFL	.03	.03	.60*	.55*	.22*	-	-	-	-	-	-	-	-	-	-	-	-
BRD	-.30*	-.02	.82*	.84*	.41*	.69*	-	-	-	-	-	-	-	-	-	-	-
TSP	-.11*	-.15*	.75*	.74*	.46*	.57*	.77*	-	-	-	-	-	-	-	-	-	-
EXS	-.19*	-.68*	.26*	.35*	.23*	.13*	.21*	.29*	-	-	-	-	-	-	-	-	-
SMD	-.14	-.07	.28*	.38*	.22*	.33*	.39*	.39*	.14	-	-	-	-	-	-	-	-
INT	-.18*	-.06	.51*	.60*	.29*	.39*	.49*	.49*	.22*	.38*	-	-	-	-	-	-	-
AVD	-.12*	-.07	.46*	.57*	.35*	.37*	.48*	.53*	.22*	.36*	.88*	-	-	-	-	-	-
NCM	-.13*	-.09	.56*	.65*	.28*	.44*	.56*	.52*	.19*	.42*	.89*	.54*	-	-	-	-	-
ANH	-.22*	-.22*	.57*	.70*	.33*	.48*	.60*	.56*	.38*	.47*	.82*	.73*	.86*	-	-	-	-
EXT	-.23*	-.10	.51*	.66*	.26*	.41*	.53*	.45*	.27*	.60*	.76*	.69*	.83*	.88*	-	-	-
DYS	-.13*	-.10*	.47*	.50*	.22*	.39*	.43*	.40*	.15*	.35*	.83*	.70*	.83*	.78*	.83*	-	-
AAR	-.18*	-.14	.58*	.67*	.25*	.48*	.62*	.56*	.23*	.45*	.84*	.71*	.80*	.91*	.90*	.91*	-
NAF	-.28*	-.07	.60*	.70*	.28*	.47*	.67*	.58*	.21*	.35*	.51*	.42*	.53*	.57*	.57*	.50*	.58*

Note. AAR = anxious arousal; ACC = acceptance; ANH = anhedonia; AVD = avoidance; BAV = behavioral avoidance; BRD = brooding; DYS = dysphoric arousal; EXA = experiential avoidance; EXS = expressive suppression; EXT = externalizing behaviors; INT = intrusions; NAF = negative affect; NCM = negative alterations in cognition and mood; PRP = positive reappraisal; RFL = reflection; SMD = self-medication; SSS = social support seeking; TSP = thought suppression; * = $p < .05$.

Table 15.

Standardized Parameter Estimates of the Structural Equation Models Examining the Associations between Emotion Regulation Strategies and PTSD Symptoms in Sample 2

	Models 1 (and 2)						
	INT	AVD	NCM	ANH	EXT	AAR	DAR
PRP	.03 (.03)	.07 (.07)	.14 (.14*)	.05 (.05)	.05 (.06)	.05 (.06)	.07 (.07)
SSS	.10 (.09)	.09 (.08)	-.03 (-.04)	-.02 (-.03)	.08 (.08)	-.09 (-.10)	-.07 (-.07)
ACC	.20 (.20)	.01 (.01)	.20 (.19)	.08 (.07)	.19 (.18)	.30* (.29*)	.13 (.12)
EXA	.57* (.49*)	.51* (.50*)	.62* (.56*)	.54* (.48*)	.67* (.59*)	.41* (.30*)	.47* (.39*)
BAV	.03 (.04)	.10 (.10)	.01 (.01)	.02 (.03)	-.02 (-.01)	.03 (.04)	-.06 (-.05)
RFL	.08 (.07)	.05 (.05)	.04 (.04)	.09 (.09)	.04 (.04)	.15 (.14)	.06 (.06)
BRD	-.31 (-.34)	-.24 (-.24)	-.13 (-.15)	-.04 (-.06)	-.22 (-.25)	-.23 (-.28)	.04 (.01)
TSP	.03 (.02)	.22* (.21*)	-.07 (-.07)	-.06 (-.06)	-.23* (-.23*)	-.11 (-.11)	.01 (.00)
EXS	.06 (.06)	.05 (.05)	-.06 (-.06)	.14 (.14)	.09 (.09)	-.10 (-.10)	-.03 (-.03)
SMD	.19* (.18*)	.14 (.14)	.21* (.20*)	.23* (.22*)	.45* (.44*)	.20* (.18*)	.22* (.21*)
NAF	(.16*)	(.03)	(.12)	(.13)	(.19*)	(.26*)	(.17*)
R^2	.42 (.43)	.39 (.39)	.48 (.49)	.57 (.57)	.61 (.63)	.33 (.36)	.52 (.53)
	Models 3 (and 4)						
	INT	AVD	NCM	ANH	EXT	AAR	DAR
PRP	.03 (.04)	.07 (.07)	.14 (.14*)	.06 (.06)	.06 (.06)	.04 (.05)	.07 (.07)
SSS	.10 (.10)	.08 (.08)	-.04 (-.04)	-.01 (-.02)	.09 (.08)	-.10 (-.11)	-.06 (-.07)
ACC	.20 (.19)	.02 (.01)	.21 (.20)	.07 (.06)	.18 (.17)	.31* (.30*)	.12 (.12)
EXA	.57* (.50*)	.50* (.49*)	.61 (.55*)	.55* (.49*)	.68* (.60*)	.38* (.27)	.47* (.39*)
BAV	.03 (.04)	.10 (.10)	.01 (.02)	.02 (.02)	-.02 (-.01)	.03 (.04)	-.06 (-.05)
RFL	.07 (.07)	.05 (.05)	.05 (.04)	.09 (.08)	.03 (.02)	.16 (.15)	.07 (.06)
BRD	-.31 (-.34)	-.24 (-.25)	-.14 (-.16)	-.03 (-.05)	-.20 (-.23)	-.24 (-.29)	.03 (.00)
TSP	.04 (.03)	.21* (.21*)	-.08 (-.08)	-.05 (-.05)	-.20 (-.21)	-.13 (-.14)	.02 (.01)
EXS	.05 (.05)	.05 (.05)	-.06 (-.06)	.13 (.13)	.07 (.07)	-.08 (-.08)	-.03 (-.03)
SMD	.18* (.17*)	.15* (.15*)	.22* (.21*)	.22* (.21*)	.43* (.42*)	.22* (.20*)	.22* (.21*)
Gender	-.04 (-.04)	.02 (.02)	.04 (.04)	-.05 (-.05)	-.10 (-.10)	.12 (.11)	-.02 (-.02)
NAF	(.16*)	(.03)	(.12)	(.13)	(.19*)	(.26*)	(.18*)
R^2	.42 (.43)	.39 (.39)	.49 (.50)	.57 (.58)	.61 (.63)	.34 (.37)	.52 (.53)

Note. AAR = anxious arousal; ACC = acceptance; ANH = anhedonia; AVD = avoidance; BAV = behavioral avoidance; BRD = brooding; DAR = dysphoric arousal; EXA = experiential avoidance; EXS = expressive suppression; EXT = externalizing behaviors; INT = intrusions; NAF = negative affect; NCM = negative alterations in cognition and mood; PRP = positive reappraisal; RFL = reflection; SMD = self-medication; SSS = social support seeking; TSP = thought suppression; * = $p < .05$.