Emotion Dysregulation and Posttraumatic Stress Disorder: A Test of the Incremental Role of Difficulties Regulating Positive Emotions

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Abstract

Background and Objectives: Literature provides support for the role of emotion dysregulation in the development and course of posttraumatic stress disorder (PTSD) among women victims of intimate partner violence (IPV). However, a dearth of studies have examined the contribution of emotion dysregulation stemming from positive emotions to PTSD. Extending research, the current study examined (1) the bivariate association of difficulties regulating positive emotions to PTSD symptom severity, and (2) the incremental role of difficulties regulating positive emotions in PTSD symptom severity beyond difficulties regulating negative emotions.

Design: Participants were 210 women victims of IPV involved in the criminal justice system because of their partners' arrest (*M* age = 36.14, 48.6% African American).

Methods: Participants completed empirically-supported self-report measures assessing difficulties regulating positive and negative emotions and PTSD symptom severity.

Results: Difficulties regulating positive and negative emotions (overall and across each of the specific dimensions) were significantly positively associated with PTSD symptom severity. Moreover, difficulties regulating positive emotions demonstrated an incremental relation to PTSD symptom severity beyond the variance accounted for by difficulties regulating negative emotions.

Conclusions: Our findings suggest the potential utility of targeting difficulties regulating positive emotions in interventions for PTSD among women victims of IPV.

Keywords

difficulties regulating positive emotions; difficulties regulating negative emotions; posttraumatic stress disorder severity; intimate partner violence

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Emotion dysregulation is a transdiagnostic construct with relevance to a wide range of clinically-relevant behaviors and psychiatric difficulties (see Gratz & Tull, 2010; Gratz,

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Weiss, & Tull, 2015), including posttraumatic stress disorder (PTSD; e.g., Tull, Barrett, McMillan, & Roemer, 2007; Weiss, Tull, Anestis, & Gratz, 2013). Yet, research in this area has been limited by its narrow focus on dysregulation stemming from negative emotions. To address this critical gap, the current study examined the incremental role of difficulties regulating positive emotions in PTSD symptom severity beyond difficulties regulating negative emotions among women victims of intimate partner violence (IPV).

PTSD is a serious and detrimental psychiatric disorder characterized by intrusions, effortful avoidance of external and internal trauma-related cues, negative alterations in cognitions and mood (NACM), and alterations in arousal and reactivity (AAR) following traumatic experiences (American Psychiatric Association [APA], 2013). Whereas 8–14% of individuals in the general population will develop PTSD at some point in their lifetime (e.g., Breslau, Davis, Andreski, & Peterson, 1998; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), approximately 31% to 84% of women victims of IPV meet lifetime criteria for PTSD (see Golding, 1999 for a review). PTSD among women victims of IPV is clinically-relevant; PTSD symptoms are associated with physical and mental health concerns (e.g., depression, chronic pain; Campbell, Greeson, Bybee, & Raja, 2008; Nixon, Resick, & Nishith, 2004; Stein & Kennedy, 2001), risky behaviors (e.g., alcohol and drug use, deliberate self-harm; Sullivan, Cavanaugh, Buckner, & Edmondson, 2009; Sullivan & Holt, 2008; Weiss, Dixon-Gordon, Duke, & Sullivan, 2015), and impairment in functioning, even among women who do not meet PTSD diagnostic criteria (Hellmuth, Jaquier, Swan, & Sullivan, 2014). Given the clear clinical relevance and public health significance of PTSD among women victims of IPV, it is critical that research identify factors that contribute to their PTSD symptom severity. Studies that further our understanding of the etiology and maintenance of PTSD symptom severity among women victims of IPV can inform the development of preventions and interventions for reducing PTSD severity in this population.

Emotion dysregulation is one important factor to study in this regard. Emotion dysregulation is a multi-faceted construct involving maladaptive ways of responding to emotions, including: (a) a lack of awareness, understanding, and acceptance of emotions; (b) the inability to control behaviors when experiencing emotional distress; (c) a lack of access to situationally appropriate strategies for modulating the duration and/or intensity of emotional responses in order to meet individual goals and situational demands; and (d) an unwillingness to experience emotional distress as part of pursuing meaningful activities in life (Gratz & Roemer, 2004; Gratz & Tull, 2010). Research suggests that higher levels of emotion dysregulation are associated with more severe PTSD symptoms among women victims of IPV (Lilly & Hong, 2013; Lilly, London, & Bridgett, 2014; Weiss, Darosh, Contractor, Forkus, Dixon-Gordon, & Sullivan, 2018; Weiss, Dixon-Gordon, Peasant, & Sullivan, 2018). For instance, among community women with a history of IPV, Lilly and Hong (2013) found that emotion dysregulation was significantly positively related to PTSD severity at zero-order and when accounting for other known risk factors such as avoidant attachment and maladaptive cognitions. In a second study of community women with a history of IPV, Lilly et al. (2014) found that emotion regulation mediated an association between childhood maltreatment and PTSD severity.

Notably, however, research in this area has generally been limited in its focus on dysregulation involving negative emotions. Prior work provides strong support for the role of positive emotion disturbance in psychopathology (for reviews, see Carl, 2013; Dunn, 2017; Hechtman, Raila, Chiao, & Gruber, 2013; Quiodbach, Harrington, & Storch, 2015), finding, for example, that individuals with PTSD exhibit lower levels of positive emotions (Miller, 2003; Miller, Kaloupek, Dillon, & Keane, 2004). Regarding the research on positive emotion regulation, specific strategies for modulating positive emotions have been identified, including modifying attentional bias (Winer, 2016), appraisal of positive emotions and situations (Burr, Javiad, Jell, Werner-Seidler, & Dunn, 2017; Dunn et al., 2018; Werner-Seidler, Banks, Dunn, & Moulds, 2013), and use of experiential processing (Gadeikis, Bos, Schweizer, Murphy, & Dunn, 2017). This focus on specific emotion regulation strategies aligns closely with Gross's (2015) model of emotion regulation, which underscores the role of the type and timing of specific emotion regulation strategies on emotions and their expression. Conversely, other models of emotion regulation focus on an individual's ability to effectively regulate emotions, and conceptualize emotion regulation as the dispositional ways in which individuals understand, regard, and respond to their emotions (Gratz & Roemer, 2004). Tull and Aldao (2015) proposed that emotion regulation abilities are a higher order process that determine the nature and success of emotion regulation strategies. Thus, examination of abilities may provide a clearer picture of how positive emotions relate to clinically relevant outcomes.

Recent evidence (e.g., Weiss, Gratz, & Lavender, 2015) indicates that individuals experience difficulties regulating positive emotions as described by Gratz and Roemer (2004). Further, there is evidence to suggest that these difficulties may be heightened among individuals with PTSD, including women victims of IPV. The experience of positive emotions may be aversive and thus trigger distress among women victims of IPV with PTSD. For example, PTSD has been linked to heightened physiological responding to positive emotional stimuli among individuals with interpersonal traumas such as IPV (Litz, Orsillo, Kaloupek, & Weathers, 2000). Among female victims of IPV with PTSD, the physiological arousal that accompanies positive emotions may be experienced as distressing, perhaps because of its association with trauma-related symptoms (Taylor, Koch, & McNally, 1992). Alternatively, positive emotions may be linked to distress through negative affect interference, or negative emotions in situations that normally elicit positive emotions, which have been found to be elevated among trauma-exposed individuals (Frewen, Dean, & Lanius, 2012; Frewen, Dozois, Neufeld, & Lanius, 2012). The association of positive emotions to distress may lead women victims of IPV with PTSD to be less accepting of these emotional experiences. Consistent with this suggestion, most (64.5%) individuals with PTSD suppress both negative and positive emotions, whereas most (62.5%) individuals without PTSD suppress only negative emotions (Roemer, Litz, Orsillo, & Wagner, 2001).

Among women victims of IPV with PTSD, positive emotions may also directly promote behavioral dyscontrol – such as difficulties controlling impulsive behaviors and engaging in goal-directed behaviors. Positive emotional experiences generally have been found to result in disadvantageous decision-making focused on short- vs. long-term goals (Slovic, Finucane, Peters, & MacGregor, 2004) through such processes as increased distractibility (Dreisbach & Goschke, 2004), narrowed attention (Gable & Harmon-Jones, 2008), less

discriminative use of information (Forgas, 1992), and underestimation of threat (Johnson & Tversky, 1983). These adverse effects of positive emotions may be particularly pronounced among women victims of IPV with PTSD, who already exhibit poor attentional control (DePierro, D'andream & Pole, 2013) and impaired regulatory capacities (Weiss, Dixon-Gordon et al., 2018).

Consistent with these theoretical accounts, a recent empirical investigation by Weiss, Dixon-Gordon et al. (2018) found support for the role of difficulties regulating positive emotions in PTSD among female victims of IPV. Specifically, higher levels of nonacceptance of positive emotions, difficulties engaging in goal-directed behaviors when experiencing positive emotions, and difficulties controlling impulsive behaviors when experiencing positive emotions were related to more severe PTSD symptoms overall and for the intrusion, avoidance/emotional numbing, and hyperarousal clusters among women victims of IPV. Further, the presence (vs. absence) of probable PTSD was related to greater difficulties engaging in goal-directed behaviors and controlling impulsive behaviors when experiencing positive emotions. As a necessary next step, research is needed to test the incremental variance of difficulties regulating positive emotions in PTSD beyond that accounted for by difficulties regulating negative emotions. Difficulties regulating positive and negative emotions demonstrate significant conceptual and empirical overlap (Weiss, Gratz et al., 2015). Thus, research identifying whether difficulties regulating positive emotions add to our understanding of PTSD beyond what is explained by difficulties regulating negative emotions will speak to the need for targeting difficulties regulating both negative *and* positive emotions in the treatment of PTSD among women victims of IPV.

Addressing this gap in the literature, we examined the (1) bivariate associations among difficulties regulating positive emotions and PTSD symptom severity, and (2) the incremental role of difficulties regulating positive emotions in PTSD symptom severity beyond the variance accounted for by difficulties regulating negative emotions. We hypothesized that difficulties regulating positive emotions would be significantly and positively related to PTSD symptom severity at zero-order and when accounting for difficulties regulating negative emotions.

Method

Participants and Procedures

The current study is a secondary data analysis of a larger study examining the influence of criminal orders of protection on the wellbeing of women victims in an IPV case. All procedures were reviewed and approved by the Yale University Institutional Review Board (including the addition of emotion measures as detailed below). Women were recruited from two courthouses in an urban and a suburban New England community. Women were eligible to participate if they were a victim in a criminal IPV case with a male intimate partner, if their partners were arraigned in court approximately 12 to 15 months prior to study recruitment, and if they spoke English or Spanish. The 12- to 15-month period was chosen because the passage of time since the order was issued needed to be sufficient to allow for the impact of the order on women's daily functioning to occur, while at the same time, recent enough so that recall bias was minimized. Eligibility criteria were determined via

records from the Family Violence Victim Advocates Office or the State of Connecticut Judicial Branch.

Potential participants were sent a letter by the study team inviting them to participate in a confidential two-hour study. Interested participants were asked to call the study phone line in response to the mailed letter. Research assistants followed up on the recruitment letter with a phone call to those who did not respond either because the letter was returned or a call back was not received. If interested, eligible participants were scheduled to participate in an interview.

After providing written informed consent, face-to-face individual interviews were administered by trained masters- or doctoral-level female research associates or postdoctoral fellows in private offices to protect participants' safety and confidentiality. Participants were remunerated $50 for their participation and provided with a list of community resources relevant to IPV, mental health and substance use, social services, employment and economic stability. Additionally, we offered victims an opportunity to develop a detailed, individualized safety plan at the conclusion of the interview.

The final sample was comprised of 298 women. The current study used a subsample of 210 women who completed the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) and Difficulties in Emotion Regulation Scale – Positive (DERS-P; Weiss, Gratz, et al., 2015), both added to the study after data collection began. Participants ranged in age from 18 to 66 years ($M = 36.14$, $SD = 11.69$). In terms of racial/ethnic background, 48.6% of participants ($n = 102$) self-identified as African American, 29.5% ($n = 62$) as White, 16.2% ($n = 32$) as Latina, and 5.7% ($n = 12$) as another or multiple racial/ethnic backgrounds. Most women were unemployed for over a month prior to the interview ($n = 108$; 51.4%), 27.1% ($n = 57$) were employed full-time during the past month and 21.4% ($n = 45$) were employed part-time during the past month. Women's monthly household income ranged from $0 to $6,400 ($M = \$1,442.71$; $SD = \$1,075.27$) and their mean level of education was 12.67 years ($SD = 2.07$). At the time of their partners' arraignment, mean years in the relationship was 5.38, ranging from less than one month to 27 years ($SD = 5.29$). At the time of the study interview (i.e., 12 to 15 months after the arraignment), most women were not dating the offending partner ($n = 153$; 72.9%).

Measures

Difficulties regulating positive emotions were measured with the *Difficulties in Emotion Regulation Scale – Positive* (DERS-P; Weiss, Gratz et al., 2015). The DERS-P is a 13-item self-report measure that assesses individuals' typical levels of emotion dysregulation across three domains: nonacceptance of positive emotions (DERS-P Accept), difficulties engaging in goal-directed behaviors when experiencing positive emotions (DERS-P Goals), and difficulties controlling impulsive behaviors when experiencing positive emotions (DERS-P Impulse). Participants rate each item using a 5-point Likert-type scale (1 = *almost never*, 5 = *almost always*). Total and dimension scores were calculated by summing the respective responses. Higher scores indicate greater difficulties regulating positive emotions. The DERS-P total and dimension scores have been found to demonstrate adequate psychometric properties including internal reliability and validity (Weiss, Gratz et al., 2015; Weiss,

Darosh, Contractor, Schick, & Dixon-Gordon, in press). Cronbach's α was .91 in the present study.

Difficulties regulating negative emotions were measured with the *Difficulties in Emotion Regulation Scale* (DERS; Gratz & Roemer, 2004). The DERS is a 36-item self-report measure that assesses individuals' typical levels of emotion dysregulation across six domains: nonacceptance of negative emotions (DERS Accept), difficulties engaging in goal-directed behaviors when experiencing negative emotions (DERS Goals), difficulties controlling impulsive behaviors when experiencing negative emotions (DERS Impulse), limited access to emotion regulation strategies perceived as effective (DERS Strategies), lack of emotional awareness (DERS Aware), and lack of emotional clarity (DERS Clarity). Participants rate each item using a 5-point Likert-type scale (1 = *almost never*, 5 = *almost always*). Total and dimension scores were calculated by summing the respective responses. Higher scores indicate greater difficulties regulating negative emotions. The DERS total and dimension scores have been found to demonstrate adequate psychometric properties including reliability (internal and test-retest) and validity (Gratz & Roemer, 2004). Cronbach's α was .94 in the present study.

PTSD symptom severity was measured using the *Posttraumatic Stress Diagnostic Scale* (PDS; Foa, Cashman, Jaycox, & Perry, 1997). This self-report measure assesses the presence of past 30-day DSM-IV PTSD intrusion, avoidance/numbing, and hyperarousal symptoms. To the extent that it was possible, PTSD symptom severity was assessed in relation to victimization by the offending partner. Participants were asked to indicate the degree to which they agree or disagree with each item (0 = *not at all or only one time*, 3 = *5 or more times a week or almost always*). A total PTSD symptom severity score was calculated by summing all 17 symptom items, with higher scores indicating greater PTSD symptom severity. A diagnosis of PTSD was based on the presence of a Criterion A traumatic event; endorsement of at least one re-experiencing symptom, three avoidance/numbing symptoms, and two hyperarousal symptoms; duration of at least 1 month; and impairment in at least one area of functioning. The PDS has been found to demonstrate adequate psychometric properties including reliability (internal and test-retest) and validity (Foa et al., 1997). Cronbach's α was .92 in the present study.

Perceived stress was measured using the shortened version of the *Perceived Stress Scale* (PSS; Cohen, Kamarck, & Mermelstein, 1983; Cohen & Williamson, 1988). This self-report measure assesses the presence of past 30-day perceived stress. Participants rate the degree to which situations in their life were appraised as stressful on a 5-point Likert-type scale (0 = *never*, 4 = *very often*). A perceived stress score was calculated by summing all 10 items, with higher scores indicating greater perceived stress. The 10-item PSS has been found to demonstrate adequate psychometric properties including reliability (internal and test-retest) and validity (Roberti, Harrington, & Storch, 2006). Cronbach's α for the 10-item PSS scale was .88 in the present study. Stress severity was included as a covariate to adjust for the influence of daily stress on the relations of interest given evidence linking this construct to both emotion regulation difficulties and PTSD symptom severity. For instance, emotion regulation difficulties may impede an individual's ability to successfully reduce the intensity

or duration of emotions stemming from stressors (Gratz & Tull, 2010). Further, stressors may maintain and exacerbate PTSD symptom severity over time (Cerdá et al., 2013).

Demographic and relationship characteristics.—Women reported their age, race/ethnicity, income, education, and employment, as well as relationship status and duration with offending partner (dating: yes/no). Physical victimization was measured by 12 items from the *Revised Conflict Tactics Scale* (CTS-2; Straus, Hamby, & Warren, 2003). Psychological victimization was measured by 14 items from the *Psychological Maltreatment of Women – Short version* (PMWI-SF; Tolman, 1999) because this measure assesses psychological victimization more comprehensively than the CTS-2 (e.g., the PMWI-SF assesses dominance and isolation whereas the CTS-2 does not). Sexual victimization was measured by the 10-item *Sexual Experiences Survey* (SES; Koss & Oros, 1982) as this measure assesses sexual victimization more comprehensively than the CTS-2 (e.g., the CTS-2 does not measure sexual coercion using drugs or alcohol). A referent time period of 30 days was used to assess victimization. Women reported victimization by the offending partner (i.e., who was arraigned for a DV offense). Higher scores on the CTS-2, PMWI-SF, and SES indicate greater physical, psychological, and sexual victimization, respectively. The CTS, PMWI-SF, and SES have been found to demonstrate adequate psychometric properties including reliability (internal and test-retest) and validity (Koss & Gidycz, 1985; Straus, 2004; Tolman, 1999). Cronbach's αs in the present study were .75 for the 12-item CTS-2, .97 for the 14-item PMWI-SF, and .81 for the 10-item SES.

Data Analysis

As recommended by Tabachnick and Fidell (2007), all study variables were assessed for assumptions of normality. Several outliers (the mean plus or minus 3 *SD*; Howell, 1998) were detected for the DERS-P and DERS and were removed from analyses; DERS-P ($n = 9$), DERS ($n = 10$), and three participants for both the DERS-P and DERS.[1]

Rates and frequencies of IPV and PTSD were calculated. Means, standard deviations, and ranges for the PDS, DERS-P, DERS, and PSS were computed. Pearson product-moment correlations were calculated to examine the bivariate associations among the PDS, DERS-P, DERS, and PSS. Fischer r-to-z transformations were used to compare DERS-P (total and dimensions)-PDS with the DERS (total and dimensions)-PDS correlation coefficients. Mean scores of the primary study variables – DERS-P, DERS, and PDS – were compared with those obtained in the original validation studies.

Next, to explore the incremental role of the DERS-P scores beyond the respective DERS scores and the PSS, we conducted four hierarchical multiple regressions (one for the total DERS-P/DERS score and three for the DERS-P/DERS dimensions). Specifically, DERS and PSS scores were entered into the first step of each regression analyses, with the corresponding DERS-P score entered into the second (and final) step of each of the four independent models. A Benjamini-Hochberg adjustment was utilized in regression analyses to minimize both Type I and Type II error (Benjamini & Hochberg, 1995). Specifically, for

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[1]Results remained the same in strength and direction when outliers were included in the analyses.

each model, the *p* values for these effects were rank ordered by size. Then, each individual p-value's Benjamini-Hochberg critical value was calculated using the formula (i/m)*Q*, where i = the individual p-value's rank, m = the total number of tests, and *Q* = the p value (.05). Original p-values are then compared to respective Benjamini-Hochberg critical values. This method preserves an overall Type I error without increasing the risk for Type II error and unnecessarily reducing statistical power.

Results

Preliminary Analyses

During the 30 days prior to the study interview, 129 women (66.5%) reported being victimized by psychological IPV, 19 women (9.8%) reported being victimized by physical IPV, and 15 women (7.8%) reported being victimized by sexual IPV. Forty-four women (22.7%) met DSM-IV diagnostic criteria for current PTSD. Means and standard deviations of all study variables, as well as their bivariate associations, are presented in Table 1. The DERS scores were significant positively associated with the PDS with medium to large effect sizes (*r*s ranging from .32 to .54), with one exception: DERS Aware was not significantly associated with the PDS (*p* = .31). The DERS-P scores were significant positively associated with the PDS with small to medium effect sizes (*r*s ranging from .24 to .38). Using the Fischer r-to-z transformation, correlation coefficients for the DERS-P scores to PDS were compared to the DERS scores to PDS. Correlation coefficients for the DERS-P total score and Impulse to PDS were comparable to correlation coefficients for the DERS total score and Impulse to PDS (*z* = 1.85, *p* = .06 and *z* = 0.76, *p* = .45, respectively). Conversely, correlation coefficients for the DERS-P Accept and Goals to PDS were significantly smaller than to correlation coefficients for the DERS Accept and Goals to PDS (*z* = 2.38, *p* = .02 and *z* = 2.21, *p* = .03, respectively).

To further characterize our sample, we compared the mean scores of the primary study variables – DERS total, DERS-P total, and PDS total – with those obtained in the original validation studies. For each of these variables, mean scores in the current sample were significantly lower than those obtained in the original validation studies of college students. For the DERS total, the mean score was 69.68 (*SD* = 20.76), compared to 77.99 (*SD* = 20.72) in Gratz and Roemer (2004; *t*(451) = 4.22, *p* < .001. For the DERS-P total, the mean score was 13.94 (*SD* = 1.89), compared to 17.18 (*SD* = 5.83) in Weiss, Gratz et al. (2015; *t*(454) = 7.45, *p* < .001). For the PDS, the mean scores for the PTSD and non-PTSD groups were 24.93 (*SD* = 8.13) and 8.10 (*SD* = 8.40), respectively, compared to 33.59 (*SD* = 9.96) and 12.54 (*SD* = 10.54), respectively, in Foa et al. (1997; *t*(170) = 5.20, *p* < .001 and *t*(268) = 3.85, *p* < .001, respectively).

Hierarchical Multiple Regression Models

See Table 2 for a summary of the results of multiple regression analyses.

To test the unique role of DERS-P total in PTSD symptom severity, a hierarchical linear regression analysis was conducted with stress severity and DERS total entered in the first step of the model and DERS-P total entered in the second step (see Model 1). The inclusion

of DERS-P total significantly improved the model ($\Delta R2 = .03$; F change = 7.76, $p = .01$), accounting for a significant amount of unique variance in PTSD symptom severity ($B = .18$, $p = .01$).

To test the unique role of DERS-P Accept in PTSD symptom severity, a hierarchical linear regression analysis was conducted with stress severity and DERS Accept entered in the first step of the model and DERS-P Accept entered in the second step (see Model 2). The inclusion of DERS-P Accept significantly improved the model ($\Delta R2 = .01$; F change = 4.01, $p = .047$), accounting for a significant amount of unique variance in PTSD symptom severity ($B = .12$, $p = .047$).

To test the unique role of DERS-P Goals in PTSD symptom severity, a hierarchical linear regression analysis was conducted with stress severity and DERS Goals entered in the first step of the model and DERS-P Goals entered in the second step (see Model 2). The inclusion of DERS-P Goals significantly improved the model ($\Delta R2 = .03$; F change = 7.87, $p = .006$), accounting for a significant amount of unique variance in PTSD symptom severity ($B = .17$, $p = .01$).

To test the unique role of DERS-P Impulse in PTSD symptom severity, a hierarchical linear regression analysis was conducted with stress severity and DERS Impulse entered in the first step of the model and DERS-P Impulse entered in the second step (see Model 2). The inclusion of DERS-P Impulse significantly improved the model ($\Delta R2 = .03$; F change = 6.70, $p = .01$), accounting for a significant amount of unique variance in PTSD symptom severity ($B = .17$, $p = .01$).

Of note, for Models 1–3, the effect size for the DERS scores was medium, whereas the effect size for the DERS-P scores were small. In Model 4, the effect sizes for both DERS Impulse and DERS-P Impulse were small. [2], [3], [4]

Discussion

The goal of the current study was to extend extant literature by examining the contribution of difficulties regulating positive emotions to PTSD symptom severity in a sample of women victims of IPV. As predicted, difficulties regulating positive emotions (overall and the specific dimensions) were significantly positively related to PTSD symptom severity. Further, difficulties regulating positive emotions (overall and the specific dimensions) were incrementally related to PTSD symptom severity accounting for difficulties regulating negative emotions and stress severity. These results have important implications for theory, research, and practice.

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[2]In general, the pattern of findings remains the same when depression severity is included as a covariate alongside stress severity with the exception of DERS-P Goals, which was no longer significant after correction ($B = 1.09$, $t = 2.01$, $p = .046$).

[3]When all three DERS-P scales were entered into the same model, none were found to uniquely predict PTSD symptom severity.

[4]Analyses were also conducted with depression and stress symptom severity as separate outcomes. Findings for depression and stress symptom severity remained the same as those for PTSD severity with a few exceptions: DERS-P Impulse was not a significant predictor of depression symptom severity controlling for DERS Impulse; DERS-P Total was not a significant predictor of stress symptom severity controlling for DERS Total; and DERS-P Accept was a significant predictor of stress symptom severity controlling for DERS Accept.

Despite growing evidence for the relevance of difficulties regulating positive emotions to clinically-relevant outcomes (Weiss, Forkus, Contractor, & Schick, 2018; Weiss, Dixon-Gordon et al., 2018; Weiss, Forkus, Contractor, Darosh, Goncharenko, & Dixon-Gordon, in press; Weiss, Darosh, et al., 2018; Weiss, Gratz et al., 2015; Weiss, Risi, Bold, Sullivan, & Dixon-Gordon, 2019), difficulties regulating negative emotions are often emphasized and considered most pressing. Current study results suggest that difficulties regulating positive emotions may be clinically relevant as well. Specifically, our findings suggest that women victims of IPV with greater PTSD symptom severity may be nonaccepting of their positive emotions as well as exhibit difficulties controlling impulsive behaviors and engaging in goal-directed behaviors in the context of positive emotions. Although preliminary, these results suggest that difficulties regulating positive emotions may identify women victims of IPV at risk for developing PTSD. Further, they underscore the potential utility of targeting these difficulties in preventions and interventions aimed at reducing PTSD among women victims of IPV. Specifically, they suggest the potential utility of incorporating strategies to facilitate emotional acceptance, impulse control, and goal-directed behavior in the context of positive emotions. Of note, treatments have been developed to address other forms of positive emotional disturbance such as anhedonia (Craske, Meuret, Ritz, Treanor, & Dour, 2016) and low positive affectivity (Carl, Gallagher, Suuer-Zavala, Bentley, & Barlow, 2014; Fava & Ruini, 2003). Future research would benefit from examining the effect of these treatments on difficulties regulating positive emotions and PTSD among women victims of IPV.

It is important to note that difficulties regulating negative emotions demonstrated a significant relation with PTSD symptom severity, and for two dimensions this association was stronger for difficulties regulating negative emotions than difficulties regulating positive emotions. Moreover, the change in the proportion of variability in PTSD symptom severity from models examining difficulties regulating negative emotions alone to those examining difficulties regulating negative emotions and difficulties regulating positive emotions was minimal. These findings are not surprising given the extensive literature linking difficulties regulating negative emotions to the development, maintenance, and exacerbation of PTSD symptom severity (Tull et al., 2007; Weiss et al., 2013; Weiss et al., 2012). Indeed, the aim of this study was not to show that difficulties regulating positive emotions are more relevant to PTSD symptom severity than difficulties regulating negative emotions, but rather to evaluate whether difficulties regulating positive emotions contribute to PTSD symptom severity in a meaningful way when considering difficulties regulating negative emotions. Such knowledge provides important information for intervention development and refinement, highlighting the potential importance of targeting difficulties regulating negative *and* positive emotions. Further, women victims of IPV show serious impairment in quality of life (Bonomi et al., 2006), thus even incremental change may be clinically meaningful. Although there is some evidence that empirically-supported treatments targeting aspects of emotion dysregulation, such as Dialectical Behavior Therapy (Linehan, 1993) and Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999), may reduce PTSD symptom severity, future studies are needed to examine whether these treatments result in improvements in both difficulties regulating negative and positive emotions, and whether improvements in difficulties regulating positive emotions relate to reductions in

PTSD symptom severity. Moreover, research is needed to test whether treatments that target specific emotion regulation *strategies*, such as cognitive reappraisal in Cognitive Behavioral Therapy (Beck, Rush, Shaw, & Emery, 1979), result in improvements in difficulties regulating positive emotions as defined here. Finally, the utility of these treatments for women victims of IPV in particular needs to be examined.

Additionally, difficulties regulating positive emotions were moderately correlated with difficulties regulating negative emotions. Speaking to the relation of these two constructs, a recent study (Weiss, Darosh et al., 2018) used latent profile analysis to identify classes of women victims of IPV defined by varying levels of dimensions of difficulties regulating negative and positive emotions. Three classes of women victims of IPV were identified (1) high levels of difficulties regulating both negative and positive emotions, (2) high levels of difficulties regulating negative emotions and low levels of difficulties regulating positive emotions, and (3) low levels of difficulties regulating both negative and positive emotions. These findings suggest that difficulties regulating positive emotions may occur only among individuals exhibiting high levels of difficulties regulating negative emotions; there are individuals who may exhibit negative emotion regulation difficulties only (which explains the moderate correlations in our study between these two constructs). Future research needs to better understand the chronological relation between the development of difficulties regulating negative and positive emotions among women victims of IPV.

Further, it warrants mention that – while statistically significant – the effect of difficulties regulating positive emotions (overall and the specific dimensions) on PTSD symptom severity above difficulties regulating negative emotions and stress severity was small. This finding underscores the need for future research to explicate how clinically meaningful difficulties regulating emotions are to the development, maintenance, and treatment of PTSD. For instance, existing studies have been conducted with non-clinical samples (e.g., college students). Thus, future investigations examining the effect of difficulties regulating positive emotions on PTSD symptom severity in clinical samples, such as those receiving inpatient or outpatient treatment for PTSD, may be more robust. Such findings may speak to the clinical utility of targeting difficulties regulating emotions in treatments aimed at reducing PTSD symptom severity.

Moreover, while statistically associated with PTSD symptom severity at a significant level, average levels of difficulties regulating positive emotions in this sample were quite low. Indeed, our results provide evidence for fewer difficulties controlling impulsive behaviors and engaging in goal-directed behaviors in the context of positive emotions as compared to the original validation sample of college students. It is possible that some aspects of difficulties regulating positive emotions are more salient to some populations than to others. These particiular dimensions are characterized by behavioral dyscontrol and may be relevant to college-aged individuals who may have more difficulty with impulse control compared to older adults as a result of poor development of execetive funtioning due to maturing frontal lobe. Future investigations are needed to test this hypothesis along with other potential explanations. Futher, studies are needed to identify populations at particular risk for difficulties regulation positive emotions and to test this hypothesis potential explanations.

Finally, research would benefit from examining the relations tested here in samples characterized by higher levels of difficulties regulating positive emotions.

Although results of the present study add to the literature on the role of emotion dysregulation in PTSD symptom severity, limitations warrant mention. First, the cross-sectional and correlational nature of the data precludes determination of the precise nature and direction of the relations examined. Research is needed to investigate these relations through prospective, longitudinal investigations. Second, this study relied on self-report measures of emotion dysregulation, responses to which may be influenced by an individual's willingness and/or ability to report accurately on emotional responses. Future studies would benefit from the integration of behavioral (paced auditory serial addition task-computerized version; Gratz, Bornovalova, Delany-Brumsey, Nick, & Lejuez, 2007) and physiological (respiratory sinus arrhythmia; Vasilev, Crowell, Beauchaine, Mead, & Gatzke-Kopp, 2009) measures of emotion dysregulation. Finally, although our focus on a sample of women victims of IPV is arguably a strength of this study, findings cannot be assumed to generalize to other populations and require replication across more diverse IPV groups (e.g., men, women in same sex relations).

Despite limitations, findings of the present study improve our understanding of the role of difficulties regulating positive emotions in PTSD symptom severity among women victims of IPV. Specifically, difficulties regulating positive emotions were significantly positively related to PTSD symptom severity. Further, they demonstrated a significant incremental relation to PTSD symptom severity beyond difficulties regulating negative emotions and stress severity. These findings suggest the potential and incremental utility of targeting difficulties regulating positive emotions (in addition to difficulties regulating negative emotions) in interventions aimed at reducing PTSD symptom severity among women victims of IPV.

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Table 1

Descriptive Data for and Correlations among Difficulties Regulating Negative and Positive Emotions and PTSD Symptom Severity

	1	2	3	4	5	6	7	8	9	10	11	12
1. DERS Total	--	.67***	.78***	.75***	.85***	.60***	.75***	.40***	.26***	.39***	.26***	.53***
2. DERS Accept		--	.37***	.34***	.54***	.18*	.45***	.30***	.17*	.32***	.16*	.45***
3. DERS Goals			--	.54***	.69***	.33***	.48***	.35***	.24**	.33***	.22**	.54***
4. DERS Impulse				--	.59***	.34***	.49***	.27***	.14	.25***	.24**	.32***
5. DERS Strategies					--	.32***	.50***	.36***	.24***	.36***	.18*	.50***
6. DERS Aware						--	.47***	.09	.08	.07	.09	.07
7. DERS Clarity							--	.41***	.27***	.39***	.26***	.46***
8. DERS-P Total								--	.73***	.89***	.74***	.38***
9. DERS-P Accept									--	.40***	.55***	.24**
10. DERS-P Goals										--	.47***	.36***
11. DERS-P Impulse											--	.25***
12. PTSD Symptom Severity												--
Mean	69.68	10.79	11.05	10.34	14.76	12.92	9.76	13.94	4.22	4.61	5.12	11.92
SD	20.76	5.02	4.63	4.55	5.54	4.81	3.82	1.89	0.62	1.20	0.50	10.91

Note. DERS = Difficulties in Emotion Regulation Scale. DERS-P = Difficulties in Emotion Regulation Scale Positive. PTSD = posttraumatic stress disorder.

*
$p < .05$.

**
$p < .01$.

***
$p < .001$. Unadjusted p values are reported.

Table 2

Regression Analyses Examining the Incremental Role of Difficulties Regulating Positive Emotions in PTSD Symptom Severity Beyond Difficulties Regulating Negative Emotions and Stress Severity

	F	p	Adjusted R^2	β	t	p
Model 1						
Step 1	45.43	<.001	.32			
PSS				.25	3.40[*]	.001
DERS Total				.38	5.21[*]	<.001
Step 2	33.95	<.001	.35			
PSS				.24	3.26[*]	.001
DERS Total				.32	4.23[*]	<.001
DERS-P Total				.18	2.79[*]	.006
Model 2						
Step 1	43.86	<.001	.32			
PSS				.36	5.65[*]	<.001
DERS Accept				.31	4.85[*]	<.001
Step 2	31.04	<.001	.33			
PSS				.34	5.32[*]	<.001
DERS Accept				.30	4.66[*]	<.001
DERS-P Accept				.12	2.00	.047
Model 3						
Step 1	53.08	<.001	.36			
PSS				.29	4.43[*]	<.001
DERS Goals				.40	6.14[*]	<.001
Step 2	39.28	< .001	.38			
PSS				.26	4.02[*]	<.001
DERS Goals				.36	5.44[*]	<.001
DERS-P Goals				.17	2.81[*]	.006

	F	p	Adjusted R^2	β	t	p
Model 4						
Step 1	30.23	<.001	.24			
PSS				.43	5.93 *	<.001
DERS Impulse				.12	1.61 *	.11
Step 2	23.01	<.001	.27			
PSS				.42	5.88 *	<.001
DERS Impulse				.08	1.10	.27
DERS-P Impulse				.17	2.59 *	.01

Note. PTSD = posttraumatic stress disorder. DERS = Difficulties in Emotion Regulation Scale. DERS-P = Difficulties in Emotion Regulation Scale Positive. PSS = Perceived Stress Scale.

*
Significant Benjamini-Hochberg test. Unadjusted *p* values are reported.