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## PTSD, emotion dysregulation, and dissociative symptoms in a highly traumatized sample

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### Abstract

Exposure to multiple traumas has been shown to result in many negative mental health outcomes, including posttraumatic stress disorder (PTSD). Dissociation, which involves disruptions in memory, identity, and perceptions, may be a component of PTSD, particularly among individuals who have experienced childhood trauma. Emotion regulation difficulties are also strongly associated with childhood trauma and emotion dysregulation may be a particularly important factor to consider in the development and maintenance of dissociative symptoms. The goal of the present study was to determine whether emotion dysregulation mediated the relationship between PTSD symptoms and dissociation in a sample of 154 (80% female, 97% African-American) adults recruited from a public, urban hospital. PTSD was measured using the Clinician Administered PTSD Scale, emotion dysregulation was measured using the Difficulties in Emotion Regulation Scale, and dissociation was measured using the Multiscale Dissociation Inventory. A linear regression analysis showed that both PTSD and emotion dysregulation were statistically significant predictors of dissociation even after controlling for trauma exposure. Alexithymia and an inability to use emotion regulation strategies in particular were predictive of dissociation above and beyond other predictor variables. Using bootstrapping techniques, we found that overall emotion dysregulation partially mediated the effect of PTSD symptoms on dissociative symptoms. Our results suggest that emotion dysregulation may be important in understanding the relation between PTSD and dissociative symptoms. Treatment approaches may consider a focus on training in emotional understanding and the development of adaptive regulation strategies as a way to address dissociative symptoms in PTSD patients.

### Keywords

posttraumatic stress disorder; trauma; emotion dysregulation; emotion regulation; dissociation

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## Introduction

Dissociation, which involves disruptions in the usually integrated functions of memory, identity, and perception of self and environment, is thought to play an important role in posttraumatic stress disorder for many individuals (PTSD; Stovall-McClough and Cloitre, 2006; Briere, Scott, and Weathers, 2005; Van der Kolk, et al., 1996). Dissociative symptoms that may co-occur with PTSD can interfere with emotional activation and may negatively impact trauma-focused treatment success (Cloitre et al., 2004; Price, Kearns, Houry, and Rothbaum, 2014; Spitzer et al., 2007). Dissociative symptoms have also been shown to contribute to functional impairment in PTSD and may also be associated with overall severity of PTSD symptoms (Branscomb, 1991; Cloitre, Koenen, Cohen, and Han, 2002; Norman, Stein, and Davidson, 2007).

The type of dissociation most often studied in relation to PTSD is peritraumatic dissociation, which is the tendency for one to dissociate during or soon after a traumatic event. Numerous studies have shown that peritraumatic dissociation is a significant risk factor for the development of PTSD (Bremner et al., 1992; Kumpula, Orcutt, Bandede, and Varkovitzky, 2011; Marmar et al., 1994; Shalev, Peri, Canetti, and Schreiber, 1996; Tichenor et al., Weiss, Marmar, Metzger, and Ronfeldt, 1995). However, two recent studies (both described in Briere et al., 2005) in trauma-exposed and normative samples demonstrated that persistent dissociation in response to trauma cues was significantly associated with PTSD, and peritraumatic dissociation was no longer related to PTSD when persistent dissociation was included in analyses. Furthermore, the researchers found that generalized dissociation (i.e., dissociative symptoms related to a change in consciousness that is not necessarily tied to a trauma cue) remained associated with PTSD independent of peritraumatic or persistent trauma-related dissociation. This dissociative capacity may reflect an effort to tolerate strong and distressing emotional responses.

Emotion dysregulation, more generally, has previously been linked to increased vulnerability for the development and maintenance of PTSD and other trauma-related psychopathology (Bradley et al., 2011; Kring, 2008; McLaughlin, Hatzenbuehler, Mennin, and Nolen-Hoeksema, 2011). Research on children exposed to childhood maltreatment has shown that traumatized children are more likely to show emotion regulation difficulties, which can then lead to the trauma-related psychopathology (Burns, Jackson, and Harding, 2010; Herman, 1992; McLaughlin et al., 2011; Van der Kolk, Perry, and Herman, 1991). Research also shows that poor emotion regulation is predictive of greater PTSD symptom severity (Tull, Barrett, McMillan, and Roemer, 2007) and predicts level of overall adaptive functioning in individuals with PTSD (Cloitre, Miranda, Stovall-McClough, and Han, 2005), suggesting that emotion dysregulation may be a mechanism that accentuates or perpetuates PTSD symptoms.

Growing evidence supports a dissociative subtype of PTSD (Lanius et al., 2010, 2012; Wolf et al., 2012) and this has been included in the fifth edition of the Diagnostic and Statistical Manual for Mental Disorders, (DSM-5; APA, 2013). In particular, symptoms of depersonalization and/or derealization in the context of PTSD symptoms constitute the dissociative subtype of PTSD. This subtype is supported by fMRI research by Lanius et al.

(2010) showing separate neural manifestations of dissociative and hyperarousal subtypes of PTSD. The researchers found that dissociative PTSD patients appear to experience emotional under-engagement in response to traumatic memories evidenced by abnormally high activation in brain regions involved in emotion regulation and prefrontal inhibition of the limbic regions of the brain. Other fMRI research with PTSD participants supports this, showing that participants with dissociative PTSD demonstrated enhanced prefrontal activation during conscious fear processing tasks compared with non-dissociative PTSD patients (Felmingham et al., 2008). Other research on civilian participants with PTSD also found that individuals with high levels of dissociation showed significantly increased early cortical responses to emotional stimuli, suggesting that dissociative symptoms may be associated with greater automatic reactivity to threat stimuli (Klimova et al., 2013). These studies provide support for the idea that dissociation is a form of emotion regulation used to cope with high levels of arousal.

However, we still know little about the complex relationship between dissociative symptoms, PTSD, and overall emotion regulation tendencies. Furthermore, most research has focused on only trauma-related dissociation (i.e., dissociation in the presence of trauma cues or memories). Since it is clear that dissociation may occur more generally in day to day life (whether or not trauma cues are present), there is still a great deal to understand about what impacts general dissociative tendencies. The above evidence points to the possibility of emotion dysregulation mediating the association between PTSD symptoms and dissociative tendencies. The goal of this study was to examine the potential relationship among these variables in a highly-traumatized, economically disadvantaged population. Specifically, the current study explored how PTSD symptoms and emotion dysregulation are related to dissociative symptoms, focusing on the unique effects of PTSD symptoms and emotion dysregulation dimensions to better understand how dissociation may be addressed in a treatment context.

## Method

### Procedure

Participants were drawn from an NIMH-funded study of risk factors for the development of PTSD in a low socioeconomic, primarily African American urban population. Participants were recruited from waiting rooms in the gynecology and primary care medical (non-psychiatric) clinics at Grady Memorial Hospital, a publicly funded hospital in Atlanta, Georgia. We did not narrow our recruitment to specific selection criteria, but approached any individual in the waiting room. During the recruitment phase of this study, approximately 58% of individuals that were approached agreed to participate. To be eligible for participation, subjects had to be at least 18 years old, not actively psychotic, and able to give informed consent. After signing the informed consent approved by the Emory Institutional Review Board, an initial interview was administered with questionnaires regarding trauma history, PTSD symptoms, and psychological variables. Trained research assistants administered this interview, which took 45–75 minutes to complete (duration largely dependent on participant's trauma history and symptoms). Study participants completing the initial interview were invited to participate in a secondary phase of the study

in which additional detailed measures of trauma exposure were administered. During this phase of the study, subjects completed additional self-report measures and structured clinical interviews that were conducted by trained research staff. PTSD, emotion dysregulation, and dissociative symptoms were measured during this secondary phase.

## Participants

The sample consisted of 154 individuals, with 80% females. The subjects were all adult (> 18 years; median age of 42) and primarily African American (96.8%). The remainder of the racial composition was as follows: White (1.9%), mixed/other (0.6%), and Hispanic or Latino (0.6%). The sample was predominately low income, with 71.9% of individuals unemployed and 77.0% coming from households with a monthly income of less than \$1,000. The majority of participants were medical patients (>85%). Other participants were present in the waiting rooms for other reasons, such as waiting for a family member or friend that had an appointment. All participants in the study reported at least one criterion A traumatic event and 88% of participants reported experiencing at least two traumas in their lifetime. A subset of participants reported childhood abuse or neglect. Based on CTQ data, 45.0% reported moderate or severe childhood abuse (20.1% physical abuse, 34.2% sexual abuse, 20.1% emotional abuse, 16.1% emotional neglect and 12.8% physical neglect).

## Measures

**Childhood Trauma Questionnaire (CTQ)**—The CTQ (Bernstein et al., 2003) is a 25-item, brief, reliable and valid self-report instrument assessing sexual, physical, emotional abuse, and neglect in childhood. Researchers created a continuous variable to account for reported rates of moderate-to-severe emotional, physical, and sexual abuse, as well as emotional and physical neglect. Higher scores on the measure indicated higher levels of reported abuse (mean=41.88, SD=17.20, range=25–105).

**Traumatic Events Inventory (TEI)**—The TEI is a 14-item screening instrument for lifetime history of traumatic events. It was administered to detail frequency and type of trauma(s) experienced; consistent with prior research (Gillespie et al, 2009; Schwartz et al., 2005), total level of trauma exposure was measured by a sum score reflecting the total number of different types of trauma (e.g., car accident, sexual assault, and natural disaster) to which a participant had been exposed over the course of their life. For this study, the TEI was used to measure trauma exposure in adulthood alone (mean=4.19, SD=2.40, range=1–11).

**Clinician-Administered PTSD Scale (CAPS)**—The CAPS is an interviewer-administered psychometrically validated diagnostic instrument measuring PTSD (Blake et al., 1990, 1995). It includes items that rate social and occupational functioning, global PTSD symptom severity, and the validity of participant's responses. The CAPS assesses lifetime and current PTSD and yields a continuous measure of the severity of overall PTSD and of the three symptom clusters (re-experiencing, avoidance/numbing, and arousal). The frequency and intensity scores for each of the 17 diagnostic criteria are summed to arrive at a total severity score (mean=27.79, SD=22.63, range 0–99).

**Difficulties in Emotion Regulation Scale (DERS)**—The DERS is a 36-item psychometrically validated (Gratz and Roemer, 2004) self-report measure of emotion regulation difficulties. It measures several aspects of emotion regulation, including awareness and understanding of one's emotions, acceptance of negative emotions, the ability to successfully engage in goal-directed behavior and control impulsive behavior when experiencing negative emotions, and the ability to use situationally appropriate emotion regulation strategies. The internal consistency of the DERS total scale was high ( $\alpha = 0.82$ ). For the present study, we used an overall measure of emotion dysregulation symptoms (mean=70.63, SD=21.35, range=36–165), as well as sums of the six dimensions of emotion dysregulation: nonacceptance of emotions (mean=11.27, SD=5.01), difficulty with goal-directed activities (mean=11.14, SD=4.17), difficulty controlling impulses (mean=10.93, SD=4.40), difficulty with awareness of emotions (mean=13.30, SD=4.51), difficulty with emotion regulation strategies (mean=14.44, SD=5.94), and lack of clarity of emotions (mean=9.57, SD=3.79).

**Multiscale Dissociation Inventory (MDI)**—The MDI is a 30-item self-report measure of dissociative symptomatology in the previous month (Briere, 2002). It measures six different types of dissociative response, including disengagement, depersonalization, derealization, emotional constriction, memory disturbance, and identity dissociation. The MDI has shown good psychometric properties in both normative and validation samples (Briere, 2006; Briere, Weathers, and Runtz, 2005). The internal consistency of the MDI total scale was high ( $\alpha = 0.91$ ). For the present study, we used an overall measure of dissociative symptoms (mean=45.82, SD=15.11, range=30–129), as well as sums of the six dimensions of dissociation measured by the MDI: disengagement (mean=9.21, SD=3.26), depersonalization (mean=6.53, SD=2.76), derealization (mean=7.91, SD=3.25), emotional constriction (mean=8.25, SD=3.80), memory disturbance (mean=7.95, SD=3.09), and identity dissociation (mean=5.95, SD=2.36).

## Data Analysis

The overall analytic approach was to examine the predictive utility of current PTSD symptoms and emotion dysregulation on reported dissociative symptoms. We first examined the distributions of all key predictor and outcome variables. The PTSD, childhood abuse, adult trauma, emotion dysregulation, and dissociative symptoms were positively skewed. However, the level of skewness (range .29 to 1.44), as well as the level of kurtosis (range -0.54 to 1.76) in this sample fell within acceptable parameters for the sample size on all variables (Tabachnick, and Fidell, 2000) except dissociation (skewness = 2.04, kurtosis = 6.37). Three outliers were identified for dissociation and level of skewness and kurtosis improved when these outliers were removed (skewness = 1.41, kurtosis = 2.00). All statistical analyses were run both with and without the inclusion of the outliers but results did not change significantly and so all subjects are included in the reported analyses.

Descriptive statistics were computed and bivariate correlations among variables were described. A series of multiple linear regression models were utilized to examine the unique predictive value of PTSD symptoms and emotion dysregulation on overall dissociative symptoms, over and above trauma exposure in childhood and adulthood. Mediation analyses

were performed with INDIRECT (Preacher and Hayes, 2008) for SPSS, which allows for the examination of the mediating effects of a variable conditional on the effects of other variables in the model. INDIRECT is a macro for SPSS that estimates the path coefficients in a multiple mediator model and generates bootstrap confidence intervals (bias-corrected) for total and specific indirect effects of  $X$  on  $Y$  through one or more mediator variable(s)  $M$ . This macro adjusts all paths for the potential influence of covariates not proposed to be mediators in the model. By being able to include covariates in the mediation model, we can be certain that we are seeing important effects independent of any influence of these covariates. Bootstrapping with 95% confidence intervals (CI) was utilized to determine significance of mediation effects. Bootstrapping is a particularly useful method for interpreting mediation analyses because it does not assume that sampling distributions of the indirect effects are normally distributed (Preacher and Hayes, 2008). Age, sex, race, childhood abuse, and adult trauma exposure were included as covariates in all analyses<sup>1</sup>.

## Results

To determine the extent of association between our predictor variables and dissociative symptoms, we first calculated Pearson correlation coefficients. Both childhood abuse and adult trauma exposure were significantly positively correlated with overall dissociative symptoms at  $r = 0.24$  ( $p < .01$ ) and  $r = 0.17$  ( $p < .05$ ), respectively. As shown in Table 1, current PTSD symptom severity was also significantly positively correlated with overall dissociative symptom score as well as all six dimensions of dissociation ( $p < .001$ ). The highest correlations were shown between current PTSD symptoms and *dissociative derealization* and *emotional constriction*. Correlations between emotion dysregulation and dissociation dimensions were all significant ( $p < .05$ ), although some associations were stronger than others. Correlations of emotion dysregulation dimensions and overall dissociative symptoms ranged from  $r = 0.27 - 0.58$  ( $p < .001$ ), with *lack of emotion regulation strategies* and *lack of emotional clarity* showing the strongest associations. Total emotion dysregulation showed the strongest associations with *dissociative derealization*, *emotional constriction*, and *memory disturbance*. See Table 1 for all correlations between emotion dysregulation and dissociation dimensions.

We then conducted a series of multiple linear regression models to examine the unique and combined associations of PTSD symptoms and emotion dysregulation ratings with overall dissociative symptoms. In each regression, age, sex, race, childhood abuse, and adult trauma exposure were entered as covariates.

### Regression Analyses Predicting Dissociative Symptoms

As shown in Table 2, childhood abuse was significantly predictive of dissociative symptoms in model 1, while adult trauma exposure was not ( $\beta = 0.24$ ,  $p < .01$ ;  $\beta = 0.09$ ,  $p = .28$ ). When PTSD symptom severity score was entered into model 2, childhood abuse was no longer significant and only PTSD symptoms predicted reported dissociative symptoms ( $\beta = 0.50$ ,  $p < .001$ ). When emotion dysregulation was included in model 3, emotion dysregulation was

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<sup>1</sup>All predictor and outcome variables were compared between male and female participants and there were no significant differences.



a significant predictor above and beyond PTSD symptoms and both child and adult trauma exposure ( $\beta = 0.53, p < .001$ ), accounting for an additional 19% of variance explained in dissociative symptoms beyond what was explained by model 2 which included demographic variables, trauma load, and PTSD symptoms. In the final model with emotion dysregulation, PTSD symptoms remained significantly predictive of dissociative symptoms, although the coefficient decreased suggesting a partial mediation effect ( $\beta = 0.27, p < .001$ ). The overall variance in dissociative symptoms accounted for in the full model (model 3) was 50%. Of the demographic variables included, only age was significant; age was predictive of fewer reported dissociative symptoms ( $\beta = -0.21, p < .05$ ).

In the next series of linear regression models using the six dimensions of emotion dysregulation, similar results emerged (see Table 3). Seventy-four percent of variance in the overall model was explained when including age, sex, child and adult trauma exposure, current PTSD symptoms, and the six dimensions of emotion dysregulation. In model 3, emotion dysregulation dimensions accounted for 24% of additional variance in dissociative symptoms beyond what was explained by model 2 which included demographic variables, trauma load, and PTSD symptoms ( $F \text{ change} = 12.39, p < .001$ ). Interestingly, when all the emotion dysregulation dimensions were included in model 3, only *lack of emotion regulation strategies* and *lack of emotional clarity* were significant predictors of dissociative symptoms ( $\beta = 0.36, p < .01$  and  $\beta = 0.26, p < .01$ , respectively).

### Mediation Analyses

Following the guidelines of Preacher and Hayes (2008), we used bootstrapping techniques to formally test for mediation effects among our variables. We again included age, sex, race, child abuse, and adult trauma load as control variables. As expected based on regression findings, there was a significant partial mediation effect of emotion dysregulation on the relation between PTSD symptoms and dissociative symptoms ( $F = 20.84, R^2 = 0.50, p < .001$ , bias-corrected 95% confidence interval (CI) = 0.08 – 0.26). These results are depicted in Figure 1<sup>2</sup>.

### Discussion

To our knowledge, this is the first study to examine associations between PTSD, emotion dysregulation, and general dissociative symptoms. Compared with other studies that focus on dissociation in the presence of trauma reminders (e.g., Lanius et al., 2010, 2012; Wolf et al., 2012), this study focused on generalized dissociative tendencies that occur in daily life (and may or may not be a result of a trauma reminder). Understanding the connection between these variables is critical as the field moves forward in trying to better understand and treat PTSD and other trauma-related psychopathology. Examining these associations in such an at-risk population is particularly beneficial, since we are seeing extremely high rates of overall trauma exposure (>85% exposed to at least one criterion A trauma) and lifetime PTSD (>40%; Gillespie et al., 2009) among these individuals and treatment availability in samples like these remains very limited.

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<sup>2</sup>Mediation analyses examining *lack of emotion regulation strategies* and *lack of emotional clarity* individually were also significant.

In support of previous research, our results showed that both PTSD and emotion dysregulation were significantly associated with dissociation even after controlling for overall trauma load and relevant demographic characteristics. When examining associations with the six dimensions of dissociation, we found that all dimensions of dissociation were related to PTSD and emotion dysregulation symptoms, with derealization and emotional constriction showing particularly strong associations with both. Emotion dysregulation also had a partial mediation effect on the relation between PTSD and dissociative symptoms. It is possible that high levels of emotion dysregulation could serve as a risk factor for the development of dissociative symptoms, particularly in the face of trauma and PTSD symptoms, although it is impossible to know causality based on the present findings using cross-sectional data.

Of the six emotion regulation dimensions, alexithymia and an inability to use emotion regulation strategies were predictive of dissociation above and beyond other predictor variables. This could be important when considering treatment approaches for individuals with dissociative tendencies and a history of trauma exposure. There are a number of psychological interventions that now incorporate components focused on decreasing emotional dysregulation in individuals with varying types of psychopathology (Fehlinger, Stumpfenhorst, Stenzel, and Rief, 2013; McMMain, Korman, and Dimeff, 2001; Mennin, 2006), and knowing what aspects of emotion dysregulation are targeted in such treatments might assist in choosing treatments not only based on an individual's diagnosis but also based on the specific deficits in emotion regulation that are present. For example, Dialectical Behavior Therapy (Linehan, 1993) uses mindfulness techniques including psychoeducation regarding emotional experience, building emotional understanding and acceptance, and teaching patients strategies for how to manage intense, negative emotions as they arise. Similarly, the Skill Training in Affect and Interpersonal Regulation (STAIR; Cloitre et al., 2002), a trauma-focused therapy program designed for women with PTSD that were exposed to childhood abuse, includes a module on emotion regulation that teaches emotional awareness and strategies for managing strong negative emotions as they arise. As found in the present study, lack of emotional awareness and lack of strategies for managing emotions may be particular problem areas for individuals exposed to chronic trauma and it is possible that addressing these types of emotion dysregulation could reduce dissociative tendencies and assist in treating PTSD or other trauma-related psychopathology concurrently.

Several study limitations are worth noting. First, given the cross-sectional nature of this study and the use of retrospective reports, we cannot make assertions about causality or time of onset for PTSD symptoms, emotion dysregulation, or dissociative symptoms.

Prospective, longitudinal studies are required to examine the temporal onset of PTSD symptomatology and dissociative symptoms. It is possible that the dissociative symptoms preceded the onset of PTSD symptoms and emotion dysregulation, and therefore should serve as a predictor rather than outcome variable. However, our measure of dissociation reflects general dissociative tendencies, not trauma-related dissociation per se, and in this study we were particularly interested in understanding how current reports of PTSD and emotion dysregulation symptoms may explain varying levels of dissociative symptoms in our population. This is preliminary evidence that needs to be followed up with longitudinal research, and we are currently conducting a longitudinal study of children and their mothers



in this traumatized population with the hope of answering such temporal and developmental questions. Additionally, it would have been beneficial to measure peritraumatic dissociation, since there is differing evidence regarding the effects of acute dissociation at the time of a traumatic experience and the long term consequences of more generalized dissociation that occurs long after a trauma has occurred. More research should be conducted on such differences to determine how these are separately related to emotion dysregulation and PTSD symptoms. Finally, our sample was largely low income, female, and African American. However, this weakness is counterbalanced by the public health importance of studying these variables in an often under-researched and under-served population with such high rates of trauma exposure as well as mental and physical health problems. There are very limited mental health resources available for individuals in this population, despite the strong need for treatment options given the high rates of trauma and trauma-related psychopathology. Therefore, it is even more critical that we continue to study factors that might influence symptom severity of a given disorder and thus affect how successful current evidence-based treatments are for such groups.

Overall, these findings suggest that emotion dysregulation may be a key factor in understanding the relation between PTSD and general dissociative symptoms. Incorporating emotion regulation training into treatment protocols for individuals with PTSD and dissociative symptoms, with a focus on the development of emotional understanding and adaptive regulation strategies, may help to reduce these individuals' tendency to use dissociation as an emotion regulation strategy and increase both treatment success and general functioning. This preliminary data supports the need for continued research in this area with varied populations as the field moves forward in understanding dissociation in the context of trauma exposure and PTSD.

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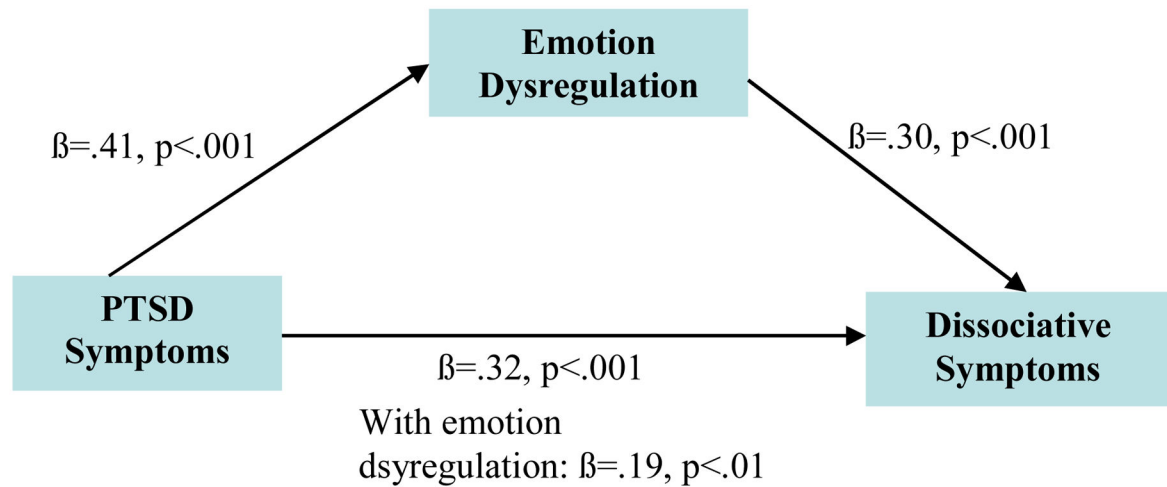
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## Biography

Abigail Powers is the corresponding author on this manuscript and took the primary role in literature review, manuscript preparation, and statistical analysis, as well as helped with data collection and study conceptualization. Dorthie Cross, Negar Fani, and Bekh Bradley assisted with data collection, overall conceptualization of the study, and revising manuscript drafts.

### Highlights

- Difficulties with emotion regulation may be a particularly significant factor to consider in the development and maintenance of dissociative symptoms among traumatized individuals.
- Emotion regulation difficulties may also be important in understanding the relation between posttraumatic stress disorder and dissociative symptoms.
- Treatment approaches may consider a focus on training in emotional understanding and the development of adaptive regulation strategies as a way to address dissociative symptoms in posttraumatic stress disorder patients.



**Figure 1.**

The partial mediating effect of emotion dysregulation symptoms on the relation between current PTSD symptoms and dissociative symptoms found using INDIRECT, a macro for SPSS that estimates the path coefficients in a multiple mediator model and generates bootstrap confidence intervals (bias-corrected) for total and specific indirect effects of  $X$  on  $Y$  through one or more mediator variable(s)  $M$ . Age, sex, race, and overall trauma load were controlled. Current PTSD symptoms were measured using the CAPS; Emotion dysregulation was measured using the DERS; Dissociative symptoms were measured using the MDI.

**Table 1**  
 Correlational Analyses between Dissociative Symptom Dimensions and Current PTSD Symptom Severity and Emotion Dysregulation Dimensions

	Current PTSD Symptom Severity	Emotion Dysregulation Total	Nonacceptance of Emotions	Lack of Goals	Impulsive Behaviors	Lack of Awareness	Lack of Strategies	Lack of Clarity
Overall Dissociation	<b>0.52</b>	<b>0.65</b>	<b>0.41</b>	<b>0.49</b>	<b>0.55</b>	<b>0.31</b>	<b>0.63</b>	<b>0.56</b>
Disengagement	<b>0.43</b>	<b>0.50</b>	<b>0.28</b>	<b>0.42</b>	<b>0.38</b>	<b>0.22</b>	<b>0.50</b>	<b>0.48</b>
Depersonalization	<b>0.41</b>	<b>0.48</b>	<b>0.34</b>	<b>0.33</b>	<b>0.41</b>	<b>0.22</b>	<b>0.49</b>	<b>0.39</b>
Derealization	<b>0.47</b>	<b>0.61</b>	<b>0.40</b>	<b>0.50</b>	<b>0.54</b>	<b>0.24</b>	<b>0.62</b>	<b>0.46</b>
Emotional Constriction	<b>0.46</b>	<b>0.57</b>	<b>0.38</b>	<b>0.44</b>	<b>0.40</b>	<b>0.32</b>	<b>0.52</b>	<b>0.57</b>
Memory Disturbance	<b>0.35</b>	<b>0.58</b>	<b>0.36</b>	<b>0.45</b>	<b>0.54</b>	<b>0.30</b>	<b>0.53</b>	<b>0.47</b>
Identity Dissociation	<b>0.41</b>	<b>0.37</b>	<b>0.23</b>	<b>0.22</b>	<b>0.39</b>	<b>0.18</b>	<b>0.39</b>	<b>0.26</b>

**Bold = p<.001;**

**p<.05;**

**\*\* p<.01**

Current PTSD symptoms were measured using the CAPS; Emotion dysregulation was measured using the DERS; Dissociative symptoms were measured using the MDI.



**Table 2**  
 Linear Regression Models Predicting Dissociative Symptoms from Current PTSD Symptoms and Emotion Dysregulation

	<i>Stand. β</i>	<i>T</i>	<i>R</i>	<i>R</i> <sup>2</sup> change	<i>F</i> change	<i>p</i> change
<i>Predicting Dissociative Symptoms</i>						
Model 1:			0.35	0.12	4.01	<i>p</i> = .002**
Adult trauma (TEI)	0.09	1.10				
Child trauma (CTQ)	0.24	2.92**				
Model 2:			0.55	0.19	39.84	<i>p</i> < .001
Adult trauma (TEI)	-0.01	-0.16				
Child trauma (CTQ)	0.06	0.74				
Current PTSD Symptom Severity	0.50	6.31**				
Model 3:			0.71	0.19	56.21	<i>p</i> < .001
Adult trauma (TEI)	0.05	0.61				
Child trauma (CTQ)	-0.07	-0.95				
Current PTSD Symptom Severity (CAPS)	0.27	3.65**				
Emotion Dysregulation (DERS)	0.53	7.50**				

N=154;

\*\* *p* < .01;

Note: Age, sex, and race were included as covariates in all models. The value for *R*<sup>2</sup> change in Model 1 reflects the variation explained by all variables included in this linear regression model. *R*<sup>2</sup> change values in Models 2 and 3 reflect additional variation explained by the new variables included in these models above and beyond the previous model.

**Table 3**

Linear Regression Results with Model including the Six Dimensions of Emotion Dysregulation

	<i>Stand. <math>\beta</math></i>	<i>T</i>	<i>p</i>
DERS Nonacceptance	-0.12	-1.50	0.12
DERS Goals	0.04	0.50	0.57
DERS Impulse	0.11	1.17	0.26
DERS Awareness	-0.02	-0.32	0.78
DERS Strategies	0.36	3.42**	0.001**
DERS Clarity	0.26	3.10**	0.003**

N=154;

\*\*  
 $p < .01$ ;

Note: This reflects model 3 of regression analysis; model results are otherwise similar to Table 2 and age, sex, race, trauma load, and current PTSD symptoms severity were included.