Emotion Regulation Difficulties in Trauma Survivors: The Role of Trauma Type and PTSD Symptom Severity

Thomas Ehring  
University of Amsterdam

Dorothea Quack  
University of Bielefeld

Two different hypotheses regarding the relationship between emotion regulation and PTSD are described in the literature. First, it has been suggested that emotion regulation difficulties are part of the complex sequelae of early-onset chronic interpersonal trauma and less common following late-onset or single-event traumas. Second, PTSD in general has been suggested to be related to emotion regulation difficulties. Bringing these two lines of research together, the current study aimed to investigate the role of trauma type and PTSD symptom severity on emotion regulation difficulties in a large sample of trauma survivors (N=616). In line with the hypotheses, PTSD symptom severity was significantly associated with all variables assessing emotion regulation difficulties. In addition, survivors of early-onset chronic interpersonal trauma showed higher scores on these measures than survivors of single-event and/or late-onset traumas. However, when controlling for PTSD symptom severity, the group differences only remained significant for 2 out of 9 variables. The most robust findings were found for the variable “lack of clarity of emotions.” Implications for future research, theoretical models of trauma-related disorders, and their treatment will be discussed.

Although posttraumatic stress disorder (PTSD) is mostly regarded as a reliable, valid, and clinically useful diagnostic category (Nemeroff et al., 2006), some aspects of the diagnosis nevertheless remain controversial (e.g., McHugh & Treisman, 2007; McNally, 2004). Most importantly, a number of authors have argued that it is too much focused on the sequelae of single-event traumas, but does not adequately capture the more complex problems experienced by adult survivors of childhood interpersonal trauma, especially if the traumatic events have occurred repeatedly or chronically (Briere & Spinazzola, 2005; Cloitre, Miranda, Stovall-McClough, & Han, 2005; Herman, 1992a, 1992b; van der Kolk, 2005; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). A number of additional trauma-related diagnoses for this specific subgroup have therefore been suggested, including complex PTSD (Herman, 1992b), disorder of extreme stress not otherwise specified (DESNOS; van der Kolk et al., 2005), and, more recently, developmental trauma disorder (van der Kolk, 2005). Other authors have described groups of symptoms that are thought to be typical sequelae of early-onset interpersonal trauma without suggesting a separate diagnostic category (Briere, Kaltman, & Green, 2008; Briere & Spinazzola, 2005; Cloitre et al., 2005). Although the different conceptualizations of complex trauma sequelae show considerable differences, they also agree on a number of key symptoms, including emotion regulation difficulties.

The suggestion that exposure to chronic interpersonal trauma early in life should lead to emotion regulation difficulties is based on findings from developmental psychology. Research has shown
that adaptive emotion regulation is learned in interaction with primary caregivers (Calkins & Hill, 2007; Cole, Michel, & Teti, 1994). On the one hand, caregivers’ own emotion regulation behavior serves as a model for the developing child as to how to deal with emotional states. In addition, caregivers guide the child in understanding and labeling his/her own emotions and ultimately regulating them in a way to achieve his/her goals. In addition, there is evidence that compromised attachment is associated with emotion regulation deficits (Cloitre, Stovall-McClough, Zorbas, & Charuvastra, 2008), which supports the idea that the interpersonal context is important for the development of emotion regulation. On a theoretical level, it is therefore conceivable that the experience of chronic interpersonal trauma in early developmental stages should disrupt the development of adaptive emotion regulation, especially when the perpetrator is one of the key caregivers (Cloitre et al., 2005, 2008; Ford, 2009; van der Kolk et al., 1996); however, to our knowledge no prospective studies testing this hypothesis have been conducted to date. On the basis of the theoretical assumptions regarding the effects of trauma on the development of emotion regulation, a number of authors suggest that emotion regulation difficulties are one of the complex symptoms that specifically develop after early-onset chronic interpersonal trauma (e.g., Cloitre et al., 2005; van der Kolk et al., 2005). The suggestion that survivors of early-onset interpersonal trauma typically show pronounced emotion regulation difficulties also forms the rationale for treatment approaches specifically developed for this group that include strategies to build up emotion regulation skills (Cloitre, Koenen, Cohen, & Han, 2002; Wolfsdorf & Zlotnick, 2001).

A review of evidence supporting this view is complicated by the fact that emotion regulation is a broad concept that has been defined in different ways (see Gross & Thompson, 2007; Kring & Werner, 2004). The current study is based on Gratz and Roemer’s (2004) integrative conceptualization, which suggests four key dimensions of emotion regulation: (a) awareness and understanding of one’s emotions, (b) acceptance of negative emotions, (c) the ability to successfully engage in goal-directed behavior and control impulsive behavior when experiencing negative emotions, and (d) the ability to use situationally appropriate emotion regulation strategies. On the basis of this conceptualization, Gratz and Roemer developed the Difficulties in Emotion Regulation Scale (DERS). Results of factor analyses support a six-factor solution for the DERS, whereby the first and third dimension suggested by the authors are represented by two factors each (Dimension 1: Lack of Emotional Awareness and Lack of Emotional Clarity; Dimension 3: Difficulties Engaging in Goal-Directed Behavior and Impulse Control Difficulties).

Evidence for the idea that survivors of early-onset interpersonal trauma suffer from alterations in emotion regulation comes from three groups of studies. First, survivors of early-onset interpersonal trauma were found to report higher levels of alexithymia than nontraumatized controls (Cloitre, Scarvalone, & Difede, 1997; McLean, Toner, Jackson, Desrocher, & Stuckless, 2006; Zlotnick et al., 1996). Alexithymia is defined as difficulty with identifying and labeling one’s own emotional state and corresponds to the first dimension of Gratz and Roemer’s (2004) conceptualization. Second, a number of studies have investigated acceptance of negative emotions. When compared to nontraumatized controls, survivors of early-onset interpersonal trauma were found to report more difficulties tolerating and regulating negative emotions (Briere & Rickards, 2007), higher levels of fear of emotions (Tull, Jakupcak, McFadden, & Roemer, 2007), and higher experiential avoidance, defined as an unwillingness to experience negative thoughts and feelings and high efforts to escape from them (Batten, Follette, & Aban, 2001; Marx & Sloan, 2002). Furthermore, studies conducted as part of the DSM-IV field trial showed that a majority of survivors of early-onset interpersonal trauma reported difficulties appropriately regulating their emotions (e.g., fear, anger) or impulses (e.g., self-destructive behavior, sexual involvement; Pelcovitz et al., 1997; van der Kolk et al., 1996). Finally, a recent study found self-reported emotion regulation problems to be strongly associated with functional impairment beyond PTSD symptom severity in treatment-seeking women who had experienced early-onset interpersonal trauma (Cloitre et al., 2005).

Taken together, earlier findings support the view that psychological problems following early-onset interpersonal trauma include emotion regulation difficulties. However, to our knowledge, no prospective studies have been conducted to date investigating the suggested temporal precedence of traumatic events leading to emotion regulation difficulties. In addition, it is less clear whether these difficulties are indeed specific for survivors of this type of events or whether they are also present in individuals with PTSD who have experienced traumas later in life and/or only once. In line with the latter view, it is interesting to note that the DSM-IV diagnosis of PTSD includes symptoms that...
may directly reflect difficulties in emotion regulation, with emotional hyperreactivity to trauma-related cues on the one hand and hyporeactivity in the form of emotional numbing on the other hand (see Frewen & Lanius, 2006; Litz, Orsillo, Kkaloupek, & Weathers, 2000). A number of studies have shown that PTSD in general, even following adult-onset traumas, is related to alterations in emotion regulation. Specifically, PTSD has been found to be related to (a) alexithymia (Frewen, Dozois, Neufeld, & Lanius, 2008); (b) a negative attitude towards emotional expression and a tendency to suppress and/or withhold negative emotions (Lowery & Stokes, 2005; Moore, Zoellner, & Mollenholt, 2008; Nightingale & Williams, 2000; Roemer, Litz, Orsillo, & Wagner, 2001), as well as high levels of experiential avoidance (Kashdan, Morina, & Priebe, 2009; Marx & Sloan, 2005; Morina, Stangier, & Risch, 2008; Plumb, Orsillo, & Luterek, 2004); and (c) self-reported problems regulating one’s emotions (Tull, Barrett, McMillan, & Roemer, 2007). Taken together, these findings show an association of emotion regulation difficulties with PTSD following late-onset single-event traumas, which may call into question the widespread assumption that they are a specific characteristic of early-onset chronic interpersonal trauma. An alternative hypothesis would be that emotion regulation difficulties are simply related to the severity of PTSD symptoms irrespective of the type of traumatic event experienced.

We suggest that studies testing these two hypotheses against each other need to fulfill two requirements. First, they need to directly compare survivors of early-onset interpersonal traumas with survivors of late-onset and/or noninterpersonal traumas regarding characteristics of emotion regulation that are thought to be implicated in trauma-related disturbances. Secondly, PTSD symptom severity needs to be controlled for in order to ensure that possible differences between different types of trauma survivors are not just due to differences in the severity of PTSD symptoms experienced. To our knowledge, there is no published study that fulfills both requirements. However, a small number of studies have directly compared different types of trauma survivors regarding characteristics of emotion regulation. Results showed that survivors of early-onset interpersonal trauma report higher levels of alexithymia (Cloitre et al., 1997), more difficulties tolerating and regulating negative emotions (Briere & Rickards, 2007), and more problems with the regulation of anger as well as more self-destructive behavior (Pelcovitz et al., 1997; Scoboria, Ford, Lin, & Frisman, 2008; van der Kolk et al., 1996) when compared to survivors of late-onset interpersonal trauma and/or noninterpersonal trauma (but see also Ford, Stockton, Kaltman, & Green, 2006, who failed to find differences in emotion regulation between different types of trauma survivors). Thus, results of most studies directly comparing different types of trauma survivors support the view that emotion regulation difficulties are more pronounced in survivors of early-onset interpersonal than late-onset or single-event traumas. However, as none of the existing studies has controlled for levels of PTSD, it is unclear whether the emotion regulation difficulties observed are indeed due to the type of event experienced or simply due to higher levels of PTSD in the early-onset group.

In addition, past studies differ considerably regarding their definition of the different trauma types that were compared. Whereas some studies compared survivors of early-onset versus late-onset interpersonal trauma regardless of the number of events experienced (e.g., Cloitre et al., 1997; Pelcovitz et al., 1997; van der Kolk et al., 2005), others distinguished between single incidents vs. ongoing/chronic traumatization within the group of early-onset interpersonal traumas (e.g., Ford et al., 2006; Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997). Most studies used the age of 14 as the cutoff to distinguish between early vs. late traumas. However, some studies chose the higher cutoff of 18 years of age (e.g., Cloitre et al., 1997).

In the current study, self-reported characteristics of emotion regulation were assessed in a large group of trauma survivors via a web-based survey. The assessment battery for emotion regulation was compiled with the aim to assess all four groups of emotion regulation variables suggested by Gratz and Roemer (2004), with at least two measures per group. In addition, emotion suppression and cognitive reappraisal were assessed as two specific emotion regulation strategies that have been found in earlier research to be significantly related to PTSD symptomatology (Moore et al., 2008) as well as other types of emotional problems (e.g., Gross & John, 2003). As emotion suppression can be assumed to be related to low acceptance of negative emotions, it was included in the group of variables assessing emotion acceptance. Reappraisal, on the other hand, was added to the fourth group of variables assessing the functional and flexible use of emotion regulation strategies. In line with most earlier studies (e.g., Pelcovitz et al., 1997; van der Kolk et al., 2005), early-onset interpersonal trauma was defined as sexual or physical violence experienced before the age of 14. We also distinguished whether the trauma was “chronic” (i.e., for the duration of at least 1 year) or not, as done in earlier
studies (e.g., Roth et al., 1997). Based on the developmental literature, we expected chronic interpersonal trauma experienced at an early age to be specifically associated with emotion regulation deficits.

The hypotheses were as follows:

1. Emotion regulation difficulties are significantly related to levels of PTSD symptoms.
2. Survivors of early-onset chronic interpersonal trauma report higher levels of emotion regulation difficulties than survivors of late-onset, early-onset single/repeated and noninterpersonal traumas.
3. The differences in emotion regulation between the different types of trauma survivors remain significant when controlling for PTSD symptoms.

**Method**

**Participants**

The study was conducted as a web-based survey. In this way it was hoped to reach a larger and more diverse sample of trauma survivors than when recruiting participants via clinical services. Past studies directly comparing web-based versus paper-and-pencil surveys found both types of research to be equally reliable (e.g., Fortson, Scotti, Del Ben, & Chen, 2006; Nosek, Banaji, & Greenwald, 2002). The final sample consisted of 616 participants (see Table 1 for demographic information). Recruitment took place in two ways. First, information about the study and a link to the online questionnaire were posted on 15 websites, which were either websites advertising web-based studies in general or websites providing information about trauma-related and/or other emotional disorders. Second, self-help organizations, mailing lists, and online communities for trauma survivors were contacted and asked to distribute study information and the link to the online questionnaire among their members. The online questionnaire was active between July 2006 and February 2007. A total of 2,423 individuals accessed the welcome page providing information about the study: 2,022 individuals agreed to take part in the survey and started filling in the questionnaire, 772 of which provided complete data. For all events reported in the Trauma History Questionnaire (see below), we checked whether these events met DSM-IV trauma criterion A1 (experiencing, witnessing, or being confronted with an event that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Demographic Variables and PTSD Symptom Severity by Trauma Type</th>
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<tbody>
<tr>
<td></td>
<td>Total sample</td>
</tr>
<tr>
<td>Age: <em>M (SD)</em></td>
<td>(N=616)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>32.03 (11.16)</td>
</tr>
<tr>
<td>Male</td>
<td>17.1%</td>
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<tr>
<td>Marital Status</td>
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</tr>
<tr>
<td>Single</td>
<td>65%</td>
</tr>
<tr>
<td>Married</td>
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</tr>
<tr>
<td>Divorced/ widowed</td>
<td>7.8%</td>
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<tr>
<td>Employment Status</td>
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<tr>
<td>Not working</td>
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<tr>
<td>Employed</td>
<td>44.7%</td>
</tr>
<tr>
<td>Self-employed</td>
<td>9.1%</td>
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<tr>
<td>IES-R</td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>2.55 (.84)</td>
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<tr>
<td>Sum score</td>
<td>56.1 (18.48)</td>
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</tbody>
</table>

*Note. Different superscripts denote differences between groups at *p*<.05.*
others). Participants who did not report any traumatic event according to this definition were excluded from the analyses (n=156). The final sample therefore consisted of 616 participants. Participants did not receive a compensation for their participation.

Based on participants’ answers to the Trauma History Questionnaire (Green, 1996) including their descriptions of the traumatic events, the sample was divided into four trauma groups: (1) survivors of noninterpersonal traumas (e.g., accidents, fire, observed traumatic events in others; n=135); (2) survivors of late-onset (age ≥ 14) interpersonal traumas (n=211; 51.7% physical assault, 19.5% sexual assault, 28.8% physical and sexual assault); (3) survivors of early-onset (age < 14) single or repeated interpersonal traumas that lasted for less than 1 year (n=101; 59.8% physical assault, 21.8% sexual assault, 17.8% physical and sexual assault); (4) survivors of early-onset (age < 14) chronic interpersonal traumas that lasted for at least 1 year (n=169; 30.2% physical abuse, 33.1% sexual abuse, 36.7% physical and sexual abuse). To classify participants who had experienced several traumatic events that belonged to different categories, a hierarchy was used with “early-onset chronic interpersonal trauma” at the top, followed by “early-onset single or repeated interpersonal trauma,” “late-onset interpersonal trauma,” and finally “noninterpersonal trauma.” For example, a participant who had experienced a single sexual assault at the age of 10 and a hurricane for example, a participant who had experienced several traumatic events that belonged to different categories, a hierarchy was used with “early-onset chronic interpersonal trauma” at the top, followed by “early-onset single or repeated interpersonal trauma,” “late-onset interpersonal trauma,” and finally “noninterpersonal trauma.” For example, a participant who had experienced a single sexual assault at the age of 10 and a hurricane for example, a participant who had experienced several traumatic events that belonged to different categories, a hierarchy was used with “early-onset chronic interpersonal trauma” at the top, followed by “early-onset single or repeated interpersonal trauma,” “late-onset interpersonal trauma,” and finally “noninterpersonal trauma.”

**Questionnaires**

**Trauma History**

Participants’ trauma history was assessed with the Trauma History Questionnaire (THQ; Green, 1996), which inquires about 24 different traumatic events. For each event, participants are asked to indicate whether they have experienced it, and if so, the number of times and approximate age(s) of occurrence. In addition, they are asked to write down a brief description of the event that has happened to them.

**PTSD Symptom Severity**

The Impact of Event Scale–Revised (IES-R; Weiss & Marmar, 1997) was used to assess the severity of PTSD symptoms. Participants are asked to rate 22 items representing trauma-related symptoms (e.g., “Pictures about it popped into my mind”; “I had trouble falling asleep”) on a scale from 0 (not at all) to 4 (extremely). The IES-R has extensively been used in clinical and nonclinical populations and shows good psychometric properties (Creamer, Bell, & Failla, 2003; Weiss, 2004). Based on an explicit decision by the test authors (see Weiss, 2004), no norms or clinical cutoff scores are available for the IES-R. However, the test authors suggest comparing mean scores to the anchor points of the response scale (e.g., 0=not at all; 2=moderate; 4=extremely) when interpreting the IES-R results.

**Characteristics of Emotion Regulation**

A number of questionnaires were used to assess characteristics of emotion regulation.

Self-reported emotion regulation difficulties were assessed with the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2003). Six subscale scores can be computed from the 36 items: Nonacceptance of Emotions (6 items; e.g., “When I’m upset, I feel guilty for feeling that way”; α=.90); Difficulties Engaging in Goal-Directed Behavior When Distressed (5 items; e.g., “When I’m upset, I have difficulty getting work done”; α=.91); Impulse Control Difficulties (6 items; e.g., “When I’m upset, I become out of control”; α=.91); Lack of Emotional Awareness (6 items; e.g., “I pay attention to how I feel” [reversed]; α=.82); Limited Access to Emotion Regulation Strategies’ (8 items; “When I’m upset, I believe that there is nothing I can do to make myself feel better.”; α=.93); and Lack of Emotional Clarity (5 items; “I am confused about how I feel”; α=.90). Participants rate each item on a scale from 1 (almost never, 0 – 10%) to 5 (almost always, 91 – 100%). Earlier research has shown good psychometric properties for the scale (Gratz & Roemer, 2004).

In addition, participants filled in the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The ERQ assesses the typical use of emotion suppression (4 items, e.g., “I keep my emotions to myself”) and reappraisal (6 items, e.g., “When I want to feel less negative emotion, I change the way I think about the situation”). Each item is rated on a scale from 1 (strongly disagree) to 7 (strongly agree). The scale has been shown to possess good psychometric properties (Gross & John, 2003). Internal consistencies in the current study were good (emotion suppression: α=.81; reappraisal: α=.87). There is correlational as well as experimental evidence supporting the classification of emotion suppression as a primarily dysfunctional emotion regulation strategy and reappraisal as a primarily functional one (Gross, 2002; Gross & John, 2003).

Experiential avoidance was assessed with the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004). The 9-item self-report
questionnaire measures the tendency to negatively evaluate unpleasant feelings, thoughts and sensations, and unwillingness to tolerate these private events and attempts to suppress or escape them (example items: “Anxiety is bad”; “If I could magically remove all the painful experiences I’ve had in my life, I would do so”). Participants are asked to rate each item on a scale from 1 (never true) to 7 (always true). Acceptable to good psychometric properties have been found in earlier research using the measure (Hayes et al., 2004; α in this sample: .71).

PROCEDURE
The study was conducted by means of a web-based, secured and encrypted survey, using the Unipark platform (www.unipark.com). When following the link to the study, participants accessed a welcome page. On this page, respondents were briefed about the survey (Title: “Dealing with Emotions”). They were told that the study aimed to investigate how people deal with their emotions and how this is related to negative life experiences. They were informed that part of the questionnaire would be about traumatic experiences they may have had, and it was emphasized that participation was voluntary, that they could stop filling in the survey at any point and that the data would remain anonymous. At the end of the welcome page, participants were explicitly asked to indicate whether they wanted to participate in the study or not. Participants could give their informed consent by clicking on “yes.”

The questionnaires were then presented in the following order: AAQ, DERS, ERQ, THQ, IES-R, and a questionnaire asking participants to provide demographic data. The closing page of the survey thanked participants and gave them the opportunity to leave a comment for the investigators. In addition, the first author’s contact details were provided in case participants had further questions or comments related to the study or felt distressed by it.

STATISTICAL ANALYSES
The emotion regulation variables assessed were divided into four groups, following Gratz and Roemer’s (2004) model: (a) awareness and clarity (DERS subscales: Lack of Emotional Awareness and Lack of Clarity); (b) acceptance (DERS subscale: Nonacceptance; AAQ total score; ERQ subscale: Emotion Suppression); (c) difficulties with goal-directed behavior and impulse control (DERS subscales: Difficulties Engaging in Goal-Directed Behavior and Impulse Control Difficulties); and (d) strategy use (DERS subscale: Limited Access to Strategies; ERQ subscale: Reappraisal).

Associations between emotion regulation difficulties and PTSD symptom severity (Hypothesis 1) were assessed using Pearson product-moment correlations. In order to test differences in emotion regulation between the different trauma groups (Hypothesis 2), separate MANOVAs were carried out for each of the four groups of emotion regulation variables. Significant main effects of trauma type were then followed up by separate ANOVAs for each variable and planned simple contrasts comparing each trauma group with the early chronic interpersonal group. Similarly, MANCOVAs with the IES-R score as the covariate were conducted to test Hypothesis 3, followed by ANCOVAs and simple contrasts.

Power analyses for the MANOVAs and follow-up ANOVAs based on α = .05 and N = 616 participants revealed high power (> .99) to detect a moderate effect size (f² = .25).

Results
PRELIMINARY ANALYSIS: GROUP DIFFERENCES ON DEMOGRAPHIC VARIABLES
Before testing the hypotheses, we first checked whether the groups differed on any demographic variables. As shown in Table 1, no difference in age, marital status, or employment between the groups emerged. However, the rate of female participants was higher in the interpersonal trauma groups than the noninterpersonal trauma group. As would be expected, the groups also differed regarding the severity of PTSD symptoms assessed with the IES-R. Survivors of early chronic interpersonal trauma showed the highest IES-R mean scores (between anchor points quite a bit and extremely), followed by early single interpersonal and late interpersonal trauma survivors (between anchor points moderately and quite a bit), and noninterpersonal trauma survivors showed the lowest scores (between anchor points a little bit and moderately).

HYPOTHESIS 1: RELATIONSHIP BETWEEN EMOTION REGULATION DIFFICULTIES AND PTSD SYMPTOM SEVERITY
Correlations between the different emotion regulation scores and PTSD symptom severity are shown in Table 2. In line with Hypothesis 1, IES-R scores showed significant correlations with all indices of emotion regulation difficulties in the expected direction.

HYPOTHESIS 2: DIFFERENCES IN EMOTION REGULATION ACCORDING TO TRAUMA TYPE
As shown in Table 3, results of MANOVAs showed significant main effects of trauma type for all four groups of emotion regulation variables. Follow-up
Table 2
Pearson Correlations between PTSD Symptom Severity and Characteristics of Emotion Regulation

<table>
<thead>
<tr>
<th>Variable</th>
<th>1.</th>
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<th>10.</th>
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<tbody>
<tr>
<td>Awareness and Clarity</td>
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<tr>
<td>2. DERS – lack of awareness</td>
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<td>3. DERS – lack of clarity</td>
<td>.48**</td>
<td>.55**</td>
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<td>Acceptance</td>
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<td>4. DERS – non-acceptance</td>
<td>.48**</td>
<td>.40**</td>
<td>.61**</td>
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<td>5. AAQ – experiential avoidance</td>
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<td>.41**</td>
<td>.62**</td>
<td>.61**</td>
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<td>6. ERQ – emotion suppression</td>
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<td>Difficulties with goal-directed behavior and impulse control</td>
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<tr>
<td>6. DERS – goal-directed behavior</td>
<td>.49**</td>
<td>.34**</td>
<td>.59**</td>
<td>.57**</td>
<td>.70**</td>
<td>.33**</td>
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<td>7. DERS – impulse control difficulties</td>
<td>.49**</td>
<td>.36**</td>
<td>.60**</td>
<td>.58**</td>
<td>.65**</td>
<td>.28**</td>
<td>.76**</td>
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<td>Strategy Use</td>
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<tr>
<td>8. DERS – limited access to strategies</td>
<td>.52**</td>
<td>.42**</td>
<td>.66**</td>
<td>.72**</td>
<td>.74**</td>
<td>.42**</td>
<td>.77**</td>
<td>.74**</td>
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<tr>
<td>10. ERQ – reappraisal</td>
<td>-.23**</td>
<td>-.38**</td>
<td>-.39**</td>
<td>-.25**</td>
<td>-.45**</td>
<td>-.15**</td>
<td>-.44**</td>
<td>-.42**</td>
<td>-.50**</td>
<td></td>
</tr>
</tbody>
</table>

Note: IES-R = Impact of Event Scale–Revised; DERS = Difficulties in Emotion Regulation Scale; ERQ = Emotion Regulation Questionnaire; AAQ = Acceptance and Action Questionnaire.

Table 3
Characteristics of Emotion Regulation by Trauma Type

<table>
<thead>
<tr>
<th>Trauma Type</th>
<th>Non-interpersonal</th>
<th>Late interpersonal</th>
<th>Early single interpersonal</th>
<th>Early chronic interpersonal</th>
<th>(M)ANOVA (M)ANCOVA</th>
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<tr>
<td></td>
<td>(n=135)</td>
<td>(n=211)</td>
<td>(n=101)</td>
<td>(n=169)</td>
<td>F(6, 1224) or F(3, 612)</td>
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<tr>
<td>Awareness and Clarity</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERS – lack of awareness</td>
<td>16.33 (4.50)c</td>
<td>17.32 (5.20)c</td>
<td>17.51 (5.49)c</td>
<td>19.53 (5.54)</td>
<td>16.23** .07 3.93** .02</td>
</tr>
<tr>
<td>DERS – lack of clarity</td>
<td>11.40 (4.79)c</td>
<td>13.52 (5.18)b</td>
<td>13.99 (6.12)b</td>
<td>17.24 (5.16)</td>
<td>35.08** .15 7.69** .04</td>
</tr>
<tr>
<td>Acceptance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERS – non-acceptance</td>
<td>13.78 (5.88)c</td>
<td>16.76 (6.66)c</td>
<td>17.31 (6.65)c</td>
<td>19.83 (6.51)</td>
<td>22.21** .10 N/A</td>
</tr>
<tr>
<td>AAQ – experiential avoidance</td>
<td>35.60 (7.74)c</td>
<td>37.96 (8.63)c</td>
<td>39.43 (7.82)c</td>
<td>42.54 (7.72)</td>
<td>20.10** .09 N/A</td>
</tr>
<tr>
<td>ERQ – emotion suppression</td>
<td>13.24 (5.69)c</td>
<td>14.33 (6.34)c</td>
<td>14.40 (6.75)c</td>
<td>16.57 (6.20)</td>
<td>7.86** .04 N/A</td>
</tr>
<tr>
<td>Difficulties with goal-directed behavior and impulse control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERS – goal-directed behavior</td>
<td>13.72 (5.13)c</td>
<td>15.35 (5.61)c</td>
<td>16.98 (5.03)c</td>
<td>18.75 (4.96)</td>
<td>26.08** .11 4.09** .02</td>
</tr>
<tr>
<td>DERS – impulse control difficulties</td>
<td>12.65 (5.56)c</td>
<td>14.98 (6.20)c</td>
<td>16.05 (6.22)c</td>
<td>18.67 (6.85)</td>
<td>24.41** .11 2.51** .01</td>
</tr>
<tr>
<td>Strategy Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERS – limited access to strategies</td>
<td>18.81 (8.31)c</td>
<td>23.05 (8.75)c</td>
<td>25.35 (9.29)c</td>
<td>27.43 (7.37)</td>
<td>28.11** .12 N/A</td>
</tr>
<tr>
<td>ERQ – reappraisal</td>
<td>25.86 (7.37)c</td>
<td>24.24 (8.07)c</td>
<td>23.14 (8.23)</td>
<td>22.04 (8.30)</td>
<td>6.14** .03 N/A</td>
</tr>
</tbody>
</table>

PANAS = Positive and Negative Affect Schedule; DERS = Difficulties in Emotion Regulation Scale; AAQ = Acceptance and Action Questionnaire; ERQ = Emotion Regulation Questionnaire.

* Pillai’s Trace; N/A: ANCOVA not computed because of nonsignificant MANCOVA.

** Significant contrast between this group and early-onset chronic interpersonal trauma group in both ANOVA and ANCOVA controlling for IES-R scores.

† Significant contrast between this group and early-onset chronic interpersonal trauma group in ANOVA, but not significant in ANCOVA controlling for IES-R scores.

p < .01.

** p < .001.
ANOVA revealed significant main effects of trauma type on all emotion regulation variables. In line with Hypothesis 2, simple contrasts comparing all groups to the last one showed that survivors of early-onset chronic interpersonal trauma reported significantly higher emotion regulation difficulties than all other groups for almost all variables. Only one contrast was nonsignificant, showing that survivors of early-onset chronic interpersonal trauma did not differ from survivors of early-onset single interpersonal traumas regarding their reappraisal scores.

**HYPOTHESIS 3: GROUP DIFFERENCES WHEN CONTROLLING FOR PTSD SYMPTOM SEVERITY**

According to Hypothesis 3, we expected that survivors of early-onset interpersonal trauma would still show higher scores on measures of emotion regulation difficulties when PTSD symptom severity is controlled for. In contrast to the hypothesis, two of the four MANCOVAs conducted were nonsignificant, indicating that the different groups of trauma survivors did not differ regarding their acceptance of negative emotions as well as strategy use when symptom levels of PTSD were controlled. However, significant main effects remained in the MANOVAs for Awareness and Clarity and Difficulties With Goal-Directed Behavior and Impulse Control. Follow-up ANCOVAs showed that the DERS subscale Lack of Clarity was the only emotion regulation variable for which survivors of early chronic interpersonal trauma remained to show higher scores than all other trauma groups. On the DERS subscale Difficulties Engaging in Goal-Directed Behavior, survivors of early chronic interpersonal trauma still reported higher levels than survivors of noninterpersonal and late-onset interpersonal traumas, but did not differ from early-onset single interpersonal trauma survivors.

**TESTING THE ROBUSTNESS OF THE FINDINGS**

In order to test the robustness of the findings, we repeated the analyses with slight variations. First, we combined all survivors of early-onset interpersonal trauma to one group, regardless of whether the event met criteria for chronic trauma or not. This did not change the results.

Second, as the proportion of females was significantly higher for the early-onset groups than the late-onset groups, we reran all analyses for female participants only. All correlations between emotion regulation variables and PTSD symptom severity remained significant. In addition, the same pattern of group differences were found as in the total sample, although some simple contrasts failed to reach significance. As the trauma groups still significantly differed regarding their IES-R scores, the (M)ANCOVAs controlling for PTSD symptom severity were also repeated for female participants only. When controlling for IES-R scores, the remaining variable for which significant group differences were found.

**DISCUSSION**

A set of t tests was conducted comparing participants with complete data \((n = 616)\) with those who did not complete the whole online questionnaire. Data for the latter group were available for the AAQ \((n = 800)\), the DERS \((396 < n < 745)\) for the different subscales) and the ERQ \((n = 308)\). Participants with complete data reported significantly higher emotion regulation difficulties on the AAQ and the DERS than participants who dropped out, all \(t > 2.3\), all \(p < .01\). No significant difference emerged for the ERQ subscales, both \(t < 1.7\), both \(p > .09\).

The aim of the current study was to investigate the role of trauma type and PTSD symptom severity in emotion regulation difficulties experienced by trauma survivors. In line with the first hypothesis, significant correlations between all emotion regulation variables and PTSD symptom severity were found. Symptom levels of PTSD were related to (a) reduced levels of clarity and awareness of emotion; (b) low levels of acceptance of negative emotions, higher levels of experiential avoidance, and higher levels of emotion suppression; (c) difficulties engaging in goal-directed behavior when distressed and high levels of impulse control difficulties; and (d) impaired use of functional emotion regulation strategies, including low levels of reappraisal. These findings were found to be robust and still held when looking at female participants only. The results replicate a series of earlier findings (e.g., Morina et al., 2008; Moore et al., 2008; Tull, Barrett, et al., 2007) and are consistent with the view that successful recovery from trauma requires adaptive emotion regulation and that therefore difficulties in emotion regulation are a risk factor for the development and/or maintenance of the disorder. However, in the absence of prospective studies, the causal nature of the association remains unclear as self-reported difficulties to regulate one’s
emotions could also be the consequence of having the disorder.

It has been suggested that emotion regulation difficulties are particularly prominent in survivors of early-onset chronic interpersonal trauma, such as childhood sexual or physical abuse by caregivers. The second aim of this study was to test this hypothesis by comparing survivors of early-onset chronic interpersonal trauma with survivors of late-onset, noninterpersonal and/or nonchronic traumas. In line with our second hypothesis, significant group differences emerged for all variables assessing characteristics of emotion regulation. Simple contrasts confirmed the expected pattern of group differences for all variables. Survivors of early-onset chronic interpersonal trauma did not only report higher emotion regulation difficulties than nontraumatized controls, but also higher difficulties than survivors of late-onset traumas, early-onset noninterpersonal traumas, and nonchronic early-onset interpersonal traumas. This finding is in line with a small number of earlier studies (Briere & Rickards, 2007; Cloitre et al., 1997; van der Kolk et al., 1996). It can be seen as support for the idea that high levels of emotion regulation difficulties are specific for survivors of early-onset chronic interpersonal trauma and are part of the complex pattern of posttrauma sequelae found in this population (see Cloitre et al., 2005; van der Kolk, 2005; van der Kolk et al., 1996).

However, because of the strong association between PTSD symptom severity and emotion regulation difficulties, this finding could also simply be due to higher levels of PTSD in survivors of early-onset chronic interpersonal trauma. It therefore appears important to test whether the group differences hold when controlling for symptom levels of PTSD. Our results showed that the expected group differences only remained significant for two variables: Lack of Emotional Clarity and Difficulties Engaging in Goal-Directed Behavior. However, group differences for the latter variable ceased to be significant when looking at female participants only.

The finding that group differences disappeared for most emotion regulation variables when controlling for levels of PTSD may be interpreted as evidence against the idea that emotion regulation difficulties are a specific feature of early-onset chronic interpersonal trauma. According to this interpretation, the fact that survivors of early-onset chronic interpersonal trauma showed higher scores on emotion regulation variables than survivors of other types of traumatic events could be seen as primarily the consequence of higher levels of PTSD in this group. The two variables ‘lack of emotional clarity’ and ‘difficulties engaging in goal-directed behavior’ form an interesting exception as survivors of early-onset chronic interpersonal trauma showed heightened scores on these variables independent of levels of PTSD.

However, alternative explanations for this pattern of findings are also conceivable. First, if early chronic interpersonal trauma leads to impaired emotion regulation and if emotion regulation difficulties in turn are a risk factor for PTSD, one would expect PTSD symptom severity as well as emotion regulation difficulties to be highest in the early chronic interpersonal trauma group as found in the current study. A strong association between all three variables may then conceal a true association between trauma type and emotion regulation difficulties when controlling for PTSD. Second, there may be some construct overlap between the measures of PTSD symptom severity and emotion regulation difficulties, such as avoidance of negative affect and lack of ability to self-soothe, which may have artificially increased the effect of the IES-R as a covariate. Third, the results may suggest that rather than being part of a syndrome of complex PTSD, emotion regulation difficulties could be a common feature of PTSD following any type of traumatic event.

The design of the current study does not allow a decision between these alternative explanations. However, the findings suggest a number of promising avenues for future research. First, the simultaneous consideration of trauma type and PTSD symptom severity are a strength of the current study. Our results suggest that it is necessary to also measure PTSD symptom severity when investigating the influence of trauma type on emotion regulation and vice versa. Using groups matched by PTSD symptom severity or, ideally, a prospective longitudinal design could then help to directly test the different ideas presented above.

Second, emotion regulation is a very broad concept and has been operationalized in very different ways in past research. Results of the current study, in which different facets of the concept were assessed, showed that PTSD symptom severity was broadly related to all emotion regulation variables and this remained significant when controlling for type of trauma. On the other hand, a specific association between early-onset chronic interpersonal trauma and emotion regulation was only found for emotional clarity and difficulties engaging in goal-directed behavior when controlling for levels of PTSD. In future research, theory-driven predictions should be tested as to which specific aspects of emotion regulation are expected to be impaired as a consequence of early-onset
chronic interpersonal trauma rather than treating emotion regulation as a unitary phenomenon. As in most earlier research, only self-report measures of emotion regulation were included in the current study, which is a clear limitation. Future research should include more objective measures of emotion regulation and/or experimental designs.

Third, the strong and robust association with PTSD symptom severity raises the question as to whether emotion regulation difficulties reported by trauma survivors should best be conceptualized as broad deficits of regulating negative emotional states in general or as specific deficits in regulating negative emotions triggered by trauma reminders as reflected in the PTSD diagnostic criteria. These alternative hypotheses could best be tested in experimental designs using emotion-eliciting stimuli that differ regarding their trauma-relatedness.

Fourth, it is unclear whether different types of early-onset chronic interpersonal trauma are differently associated with emotion regulation difficulties. Future research investigating this issue should not only focus on physical and sexual abuse but also include emotional abuse and neglect, which were not assessed in the current study but have been found to be related to emotion regulation difficulties and symptom levels of PTSD in recent research (e.g., Briere & Rickards, 2007).

Fifth, the relationship between type of trauma, PTSD, and emotion regulation difficulties is not only of theoretical interest, but may also have important clinical implications if replicated in future research. Based on the view that pronounced emotion regulation difficulties are a specific feature of complex symptoms that develop after early-onset chronic interpersonal trauma, a number of authors have suggested that these emotion regulation difficulties should be addressed in treatment before using trauma-focused strategies such as prolonged imaginal exposure (Cloitre et al., 2002; Wolfsdorf & Zlotnick, 2001). However, it remains controversial whether this phase-based approach is indeed necessary (for a discussion of this issue, see Cahill, Zoellner, Feeny, & Riggs, 2004; Cloitre, Stovall-McClough, & Levitt, 2004). The design of the current study does not allow drawing conclusions regarding this issue. Instead, research directly examining the effects of skill-based versus trauma-focused techniques on emotion regulation and PTSD symptom severity in survivors of early-onset chronic interpersonal trauma is needed to resolve this controversy. In addition, future research should also test the idea that emotion regulation difficulties may be a feature of PTSD in general and that individuals with this disorder following all types of traumatic events may benefit from the integration of emotion regulation interventions into standard treatment.

Finally, a number of methodological limitations of the current study bear noting. Some of these limitations are related to the fact that all measures were assessed via a web-based survey. Web-based studies are related to reduced control over who participates and how participants fill in the measures. However, it is reassuring that studies directly comparing web-based versus paper-and-pencil surveys found both types of research to be equally reliable (Fortson et al., 2006; Nosek et al., 2002). Nevertheless, the high number of participants not completing the survey is an important challenge in web-based research. Given the population and topic of the current study, a high dropout rate was predictable. Only 40% of participants agreeing to take part completed all questionnaires and results of dropout analyses showed that completers showed higher levels of emotion regulation difficulties than noncompleters. As the high dropout may limit the generalizability of the findings, future studies should take measures aiming to reduce dropout and should ideally test representative samples of trauma survivors.

An additional limitation of the current study concerns the fact that a nonclinical sample was tested and we did not assess how many participants were in need of treatment for their symptoms and/or had already received treatment. Furthermore, PTSD was assessed with a self-report questionnaire only, which did not allow establishing a diagnosis of PTSD. In addition, comorbid symptoms or diagnoses were not measured. The characterization of the current sample in terms of symptom severity is complicated by the fact that no norms or clinical cutoff scores are available for the IES-R (Weiss, 2004). However, IES-R scores for survivors of late-onset trauma are comparable to earlier studies testing community samples of Type-I trauma survivors (e.g., Beck et al., 2008; Creamer et al., 2003; King et al., 2009). Similarly, IES-R scores for survivors of early-onset interpersonal trauma are comparable to those reported in earlier studies on adult survivors of childhood abuse (e.g., Paivio, Holowaty, & Hall, 2004; Shakespeare-Finch & de Dassel, 2009). Nevertheless, future research is needed to investigate whether the findings can be replicated in clinical samples with diagnoses established by structured clinical interviews.

Despite these limitations, the results of the current study emphasize the need to simultaneously consider type of trauma and PTSD symptom severity when investigating emotion regulation in trauma survivors. The findings support a strong association between PTSD and emotion regulation difficulties and suggest new avenues for future research into...
emotion regulation deficits as specific sequelae of early-onset chronic interpersonal trauma.

References


