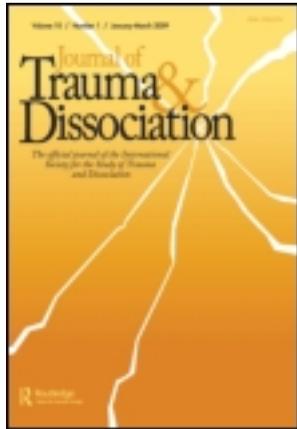


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## EDITORIAL

# How Can Self-Regulation Enhance Our Understanding of Trauma and Dissociation?

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More than a century ago, Pierre Janet noted that dissociation results not only from genetic vulnerability, illness, or fatigue but also from exposure to potentially traumatizing events (Nijenhuis & Van der Hart, 2011). How best to understand, assess, diagnose, and treat trauma-related dissociation has led to many informative lines of inquiry since. We know that trauma exposure increases the risk of acute (Bryant, 2007) and chronic (Carlson, Dalenberg, & McDade-Montez, 2012; Dalenberg et al., 2012) dissociative problems. We also know that alterations in brain activation (Lanius et al., 2010) and personality styles (Daniels, Frewen, McKinnon, & Lanius, 2011) could constitute a dissociative subtype of posttraumatic stress disorder (PTSD).

I would like to suggest an integrative conceptual framework for these investigations: self-regulation. Dissociation can be understood as the result of an involuntary shift from modes of self-regulation that facilitate biopsychosocial development to threat-related defensive modes (Ford, 2009). Severe dissociative symptoms have been conceptualized as involuntary and often unconscious posttraumatic adaptations that occur when a person cannot tolerate “traumatic memories, affects, sensations, beliefs, or behaviors” and as a result experiences a “fragmentation and encapsulation of traumatic experiences” (International Society for the Study of Trauma and Dissociation, 2011, p. 122). I believe this essentially describes fundamental alterations in self-regulation. More specifically, these posttraumatic dissociative symptoms and experiences could be understood as a shift in self-regulation from growth-focused psychobiological operations

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to survival-based hypervigilance (Ford, 2009), resulting in a reduced capacity to sustain an integrated and coherent set of mental representations of self and relationships.

Self-regulation is the deployment of psychobiological capacities to maintain the safety, integrity, development, well-being, and goal attainment of the individual and their core relationships. Emotion regulation, including the capacity to modulate (i.e., prevent, anticipate, and recover from) negative emotions and to experience positive emotions, is the subset of self-regulation that is most often studied in relation to trauma and dissociation (e.g., Barnow et al., 2012; Bottoms, Najdowski, Epstein, & Badanek, 2012). However, in the broader psychobiological literature, self-regulation is viewed as involving several domains, including bodily processes (McEwen, 2006), cognitive information processing (e.g., effortful self-control and executive functions; Hofmann, Schmeichel, & Baddeley, 2012), behavior (e.g., impulse inhibition, response selection; Kingston, Yates, & Firestone, 2012), interpersonal relatedness (Sbarra & Hazan, 2008), and self/identity organization (Bluhm et al., 2012). In this editorial I suggest how these domains of self-regulation can inform the study of trauma and dissociation.

## VIEWING TRAUMA AND DISSOCIATION THEORY THROUGH THE LENS OF SELF-REGULATION

Despite more than a century of philosophical, clinical, and scientific advancement in the theory and measurement of dissociation (Carlson et al., 2012; International Society for the Study of Trauma and Dissociation, 2011; Nijenhuis & Van der Hart, 2011; Putnam, 2009), we are far from a consensus definition of posttraumatic dissociation (e.g., Cardena, 2011; Dell, 2011). Three overarching conceptual models have been proposed to describe dissociation's relationship to trauma.

### The Structural Model of Dissociation

From a structural perspective,

dissociation in trauma entails a division of an individual's personality, that is, of the dynamic, biopsychosocial system as a whole that determines his or her characteristic mental and behavioral actions . . . [which] constitutes a core feature of trauma. It evolves when the individual lacks the capacity to integrate adverse experiences . . . [and] involves two or more insufficiently integrated dynamic but excessively stable subsystems . . . that is, dissociative part[s] of the personality [each of which] includes its own at least rudimentary first-person perspective. . . . Phenomenologically, this division of the personality manifests in dissociative symptoms that can be

categorized as negative (functional losses such as amnesia and paralysis) or positive (intrusions such as flashbacks or voices) and psychoform or somatoform. (Nijenhuis & Van der Hart, 2011, p. 418)

## Operational Models of Dissociation

Alternatively, dissociation may be conceptualized as

“an experienced loss of information or control over mental processes that, under normal circumstances, are available to conscious awareness, self-attribution, or control, in relation to the individual’s age and cognitive development” . . . that generally fall[s] into one of three domains: (1) loss of continuity in subjective experience accompanied by involuntary and unwanted intrusions into awareness or behavior; (2) an inability to access information or control mental functions that are normally amenable to such access or control; or (3) a sense of experiential disconnectedness that may include distortions in perceptions about the self or the environment. (Carlson et al., 2012, pp. 479–480)

## Betrayal Trauma Theory

A third theoretical framework describes dissociation as the result of psychological trauma involving betrayal by a primary caregiver (Goldsmith, Freyd, & DePrince, 2012). Betrayals such as child abuse are viewed as leading to self-protective adaptations in information processing that involve a fragmentation and encapsulation of memories of attachment insecurity in order to “allow for more normal maturation in other developmental areas” (International Society for the Study of Trauma and Dissociation, 2011, p. 122).

## Theoretical Controversies

These conceptual frameworks raise several key questions. For example, does dissociation require a “division of personality,” and is this is “a core feature of trauma” as Nijenhuis and Van der Hart’s (2011, p. 418) structural model asserts? Or is this “one split too many” (Cardena, 2011, p. 457), excluding alterations in consciousness and “intrusions into executive functioning and sense of self” (Dell, 2011, p. 462) that are truly dissociative?

From a self-regulation perspective, dissociation does involve disorganization of the self’s ability to maintain a unified repertoire of perceptions, emotions, and cognitions, consistent with structural theory (Ford, 2009). However, this loss of organized self-regulation may be associated with reductions in a sense of self-directed agency and self-coherence, which, consistent with operational (Carlson et al., 2012) and phenomenological (Cardena, 2011; Dell, 2011) theories, do not necessarily involve structural

splits in the personality. When, and if, this is a structural—versus a functional (operational) or perceived (phenomenological)—division of the self requires careful clinical observation and scientific study on a case-by-case basis (Cardena, 2011; Dell, 2011). One approach to this question would be to precisely identify the shifts that occur in each domain of self-regulation during involuntary loss of normal control of consciousness (i.e., psychoform dissociation) or bodily functioning (i.e., somatoform dissociation). Support for the structural model could be provided by evidence that self-regulatory functions are fundamentally different in different states of mind or body. If instead self-regulation is impaired consistently across different self-states, this would be more consistent with a phenomenological perspective.

Another question is whether the loss of a subjective sense of control over executive functions (i.e., the operational perspective) is sufficient to describe and explain posttraumatic dissociation. Dissociation in the wake of psychological trauma appears to be a compensatory self-protective adaptation to threat (International Society for the Study of Trauma and Dissociation, 2011), which can be understood as the involuntary substitution of survival-based hypervigilance (see Nijenhuis, 1999) for the executive functions that ordinarily monitor and direct self-regulation (Watkins, 2011). However, from a self-regulation perspective, dissociation is a shift to defensive modes of psychological operations rather than a loss or breakdown, and not only executive but all domains of self-regulation are involved. Such a cross-modal shift in self-regulation from exploratory/development-facilitating modes of modulated self-regulation to a state of defensive “overmodulation” is consistent with recent neuroimaging findings (Lanius et al., 2010). This suggests that executive functions are only one of several self-regulation domains that should be considered when conceptualizing or assessing trauma-related dissociative experiences.

A third question is whether betrayal is sufficient and necessary for posttraumatic dissociation? A large body of research consistent with this view has shown that traumatic disruptions of primary attachment bonds in early childhood are associated with dysregulation (Frewen & Lanius, 2006) across multiple biopsychosocial domains later in childhood (D’Andrea, Ford, Stolbach, Spinazzola, & van der Kolk, 2012) and adulthood (Van Dijke et al., 2010). Betrayal thus can be understood as depriving the developing individual of the security, trust, and hope needed in order to engage in the self-regulation required to develop internal (e.g., sense of self) and external (e.g., confidence in relationships) resources rather than to reactively focus instead on survival. A shift to defensive self-regulation following betrayal could lead to a subjective sense of loss of the familiar and trusted self and relationships that constitutes phenomenological dissociation, as well as a loss of a subjective sense of control over one’s own self-regulation consistent with operational models of dissociation—and potentially to fundamental structural splits in the self.

## ASSESSMENT OF TRAUMA AND DISSOCIATION

Although several sophisticated multidimensional psychometric measures of dissociation have been developed and shown to be sensitive to respondents' type, extent, and developmental epoch of trauma exposure (see Brand, Lanius, Vermetten, Loewenstein, & Spiegel, 2012, for an overview), most research reports in the trauma field rely on briefer measures using a commonly accepted list of dissociative symptoms (notably the Dissociative Experiences Scale). Most clinical case study reports of trauma- or dissociation-focused treatment rely on phenomenologically based descriptions of a similar set of dissociative symptoms. This can result in assessments of incomplete sets of dissociative symptoms that are highly variable in their form and definition, potentially leading to artifactual null findings of the role of dissociation as a posttraumatic sequela (Scoboria, Ford, Lin, & Frisman, 2008). Applying a self-regulation framework could provide clinicians and researchers with a conceptual structure to ensure that their symptom sets and assessments fully and accurately address dissociation.

A fundamental controversy in the field has centered on conflicting contentions about whether trauma-related dissociation is an actual phenomenon or an epiphenomenon caused by a tendency of fantasy-prone individuals to imagine having experienced "traumatic" events that never really occurred or that were not actually traumatic. Dalenberg and colleagues (2012) evaluated the clinical and scientific evidence for eight contrasting predictions related to these two views and found consistent support for the predicted temporal association between objectively assessed traumatic events and dissociation even after the effect of fantasy proneness was controlled. What is even more convincing—because it suggests a mechanism to explain how psychological trauma may lead to dissociation—is the evidence they cited that dissociation is a biologically based self-regulatory response to fear or other extreme emotions. This implies a need for further clinical and scientific study of how biological self-regulatory reaction leads to dissociation's cognitive, affective, behavioral, interpersonal, and self-identity alterations. Self-regulation in each of those domains could serve as a useful framework for pursuing these investigations.

Current theoretical models of dissociation are consistent in recognizing that even symptoms that do not have an explicit dissociative nature (e.g., dysphoria, anxiety, anger, withdrawal, aggression) may involve or be wholly or in part the product of dissociative divisions, alterations, intrusions, or diminutions of consciousness, personality, or the integrated self (e.g., Carlson et al., 2012; Dell, 2011; Nijenhuis & Van der Hart, 2011). A self-regulation perspective on posttraumatic dissociation could provide a framework for linking the full range of dissociative phenomena (Dell, 2006) with symptoms that reflect extreme threat-related defensive adaptations (D'Andrea et al., 2012; Ford et al., in press) but that typically are not considered in the assessment

of dissociation. Whether this would usefully expand the range of clinical and scientific indices of dissociation, or instead add excessive complication to the already complex task of operationalizing and assessing dissociation, is an empirical question.

## POSTTRAUMATIC DISSOCIATION AND DIAGNOSTIC NOSOLOGY

PTSD is increasingly viewed as a disorder of threat-related emotion dysregulation with biopsychosocial features that include but extend well beyond only anxiety and irritability. The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* Criterion C PTSD symptoms of dissociative amnesia, emotional numbing, social detachment, and anhedonia have been expanded to include a new emotion-related symptom: “Pervasive negative emotional state, for example, fear, horror, anger, guilt, or shame” (Friedman, Resick, Bryant, & Brewin, 2011, p. 759). Thus, as the result of a combination of definitional tightening of what constitutes the stressor (trauma) and a concomitant conceptual broadening of what constitutes problematic posttraumatic adaptations (PTSD symptoms), PTSD in the *DSM-5* has been reconstituted as a disorder of emotion regulation rather than only anxiety-based emotional avoidance, numbing, and hypervigilance.

Moreover, the changes proposed for the *DSM-5* PTSD diagnosis do not end there but also implicate impaired self-regulation in other domains, specifically self-regulation of behavior, interpersonal relatedness, and identity. In the behavioral domain, PTSD would no longer be limited to avoidance behavior. The *DSM-5* PTSD diagnosis modifies the *DSM-IV* Criterion D1 symptom from an emotion state of irritability or anger to the behavior problems associated with these emotion states. A new symptom also adds two forms of behavioral dysregulation (“reckless or self-destructive behavior”) that are associated with posttraumatic dissociation (Noll, Horowitz, Bonanno, Trickett, & Putnam, 2003). In regard to the self-regulation of interpersonal relatedness and identity, two new symptoms are proposed for the *DSM-5* PTSD diagnosis: “persistent and exaggerated negative beliefs or expectations about oneself, others, or the world” and “persistent, distorted blame of self or others about the cause or consequences of the traumatic event(s)” (Friedman et al., 2011, p. 759). Thus, relationship and self schemas consistent with both dissociation and the fundamental disruptions of primary attachment bonds that have been found to be associated with pathological dissociation (Van Dijke et al., 2010) are explicitly included in the *DSM-5* symptoms of PTSD.

However, the modified PTSD diagnosis in the *DSM-5* does not explicitly articulate the role of either dissociation or self-dysregulation. Two alternative approaches to refining the conceptual and diagnostic formulation

of PTSD have been proposed. The first is to define a complex variant of PTSD, alternatively named *complex PTSD* (Herman, 1992) or *disorders of extreme stress not otherwise specified* (DESNOS; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005) in adults and *developmental trauma disorder* (DTD) in children (Ford et al., in press). Complex PTSD or DESNOS are defined as persistent alterations in seven aspects of self-regulation and psychosocial functioning following exposure to interpersonal traumatic stressors: (a) affect and impulse regulation (i.e., difficulty modulating affects such as anger, fear, or shame; risky or self-harming behavior), (b) somatic self-regulation (e.g., pain or physical symptoms in excess of medically explainable pathology), (c) consciousness (i.e., dissociation), (d) perceptions of perpetrator(s) (e.g., idealization or preoccupation with revenge), (e) self-perception (e.g., self as damaged or ineffective, profound shame or guilt), (f) relationships (e.g., inability to trust, revictimization, avoidance of sexuality), and (g) systems of meaning (e.g., hopelessness, loss of faith). Dissociation is measured in the Structured Interview for Disorders of Extreme Stress (Pelcovitz et al., 1997) by five items that tap (a) amnesia for important periods in one's life that cannot be remembered at all (a broadened version of the PTSD psychogenic amnesia symptom), (b) derealization (including losing time, experiencing fugue states, and perceiving one's life or environment as unreal or dreamlike), and (c) depersonalization (including, but not limited to, having dissociative identity disorder (DID)-like alters or parts within oneself that are in competition or take control).

The second proposed approach to addressing posttraumatic dissociation in diagnostic nosology is to create a dissociative subtype of PTSD (PTSD-D; Lanius et al., 2010; Lanius, Brand, Vermetten, Frewen, & Spiegel, 2012). PTSD-D was identified initially by Ruth Lanius, Paul Frewen, and their colleagues based on neuroimaging studies showing that the classic PTSD reexperiencing and hyperarousal symptoms appear to reflect a kind of emotion *undermodulation* that is mediated by insufficient prefrontal cortical activation and failure to inhibit activation in limbic regions of the brain that are involved in preverbal emotional reactivity. They identified a contrasting pattern of symptoms reflecting emotion *overmodulation* that is mediated by intensive prefrontal inhibition of the same limbic regions. In a subsequent interview study, Lanius and colleagues (2012) replicated these findings using latent profile analyses to identify a subgroup of civilians diagnosed with PTSD characterized by prominent dissociative symptoms and severe histories of childhood abuse or neglect. They also used confirmatory factor analyses to show that dissociative symptoms were distinct from but strongly related to PTSD symptoms in this sample. An independent study by Wolf and colleagues (2012) replicated these findings with samples of male military combat veterans with PTSD and female military veterans with PTSD, identifying 15% and 30% subgroups in the male and female samples, respectively, reporting severe dissociative symptoms.

Support for a complex PTSD model can be found in studies showing that severe dissociative symptoms are associated with substantial psychiatric comorbidity consistent with multiple forms of bodily, emotion, cognitive, behavioral, and interpersonal self-dysregulation among children and adolescents (D'Andrea et al., 2012) and adults (Lanius et al., 2012; Wolf et al., 2012—although this was the case in the latter study only for women, not for men). Support for a PTSD dissociative subtype model can be found in studies showing that most individuals meeting criteria for DESNOS also met criteria for PTSD (van der Kolk et al., 2005), and that covariation of PTSD (overall and separately for each feature) and dissociation symptom frequency and intensity across assessments was obtained as frequently as every 4 hr (Carlson et al., 2012).

Many questions regarding how to diagnose posttraumatic dissociative disorders remain to be addressed. Most basically, what role does dissociation play in PTSD and DESNOS, on the level of both symptoms and syndromes? Evidence that dissociation items loaded on two of the five empirical factors identified in a study of DESNOS in adults (i.e., somatic distress, emotion dysregulation) rather than as a separate factor suggests that dissociation may not be a separate feature within DESNOS but instead a contributor to several or all of the DESNOS components (Scoboria et al., 2008). Similarly, dissociation may alter the neurobiology and clinical presentation of PTSD symptoms for the subset of individuals (Lanius et al., 2010, 2012). However, perhaps some “dissociative” symptoms in posttraumatic and other psychiatric disorders actually are a manifestation of particularly severe general psychopathology rather than dissociation per se (Rodewald, Dell, Wilhelm-Gossling, & Gast, 2011).

Given that the preponderance of adults exhibiting symptoms consistent with PTSD-D or DESNOS have histories of exposure to interpersonal trauma in childhood, it may be important to develop and evaluate the scientific validity and clinical utility of a corresponding PTSD-D or DESNOS diagnosis for children (D'Andrea et al., 2012). A DTD diagnosis for children has been proposed and found to have evidence of clinical utility based on an international survey of clinicians (Ford et al., in press). The DTD syndrome is explicitly structured to identify impairment in each of the domains of self-regulation. This opens up an opportunity for clinical and scientific study of the role that dissociation plays in childhood posttraumatic self-dysregulation, including an examination of how dissociation and self-dysregulation are associated with different kinds of trauma exposure occurring at different developmental epochs in infancy/toddlerhood, childhood, and adolescence.

For example, Dorrepaal et al. (2012) identified five personality-based subtypes of women with child abuse-related complex PTSD, most commonly those with nondissociative adaptive (33%) or aggressive (20%) personality styles, but also three other latent classes whose members were dissociative and “suffering” (30%), withdrawn (11%), or alienated (6%). However, they

did not find any differences in type or severity of trauma exposure between these subgroups. A study of pregnant women by Seng, D'Andrea, and Ford (in press) identified three subgroups with symptoms consistent with the self-regulatory impairments in DESNOS and histories of childhood exposure to interpersonal trauma. However, they also found a subgroup characterized by severe dissociative symptoms but not by self-reported exposure to trauma in childhood. Note that the dissociative women may not have reported trauma exposure as a result of dissociation (Goldsmith, Freyd, & DePrince, 2012). Baars and colleagues (2011) found evidence of overlap in experts' views of prognostic factors for treating DID and complex PTSD but also evidence suggesting that the syndromes were distinct. The divergence was due to unique prognostic factors for DID treatment prognosis that involved behavioral, self-identity, and interpersonal dysregulation (i.e., antisocial, dissociative self-fragmentation, attachment/dependency) and unique factors for complex PTSD prognosis based on interpersonal and cognitive dysregulation (i.e., distrust, litigiousness, limited socioeconomic and ego resources, self-blame, cognitive disorganization).

These findings suggest that there may be complex trajectories in the natural history of posttraumatic dissociation and its treatment that can be elucidated using self-regulation as a framework. They also raise the question of whether trajectories of dissociative symptoms are similar or different depending on their presence prior to trauma exposure, and whether there are cases in which what appear to be posttraumatic dissociative symptoms are an extension or exacerbation of preexisting dissociation rather than the product of trauma exposure per se.

## TREATMENT OF POSTTRAUMATIC DISSOCIATION

Ultimately, we need to learn whether either a PTSD-D or a complex PTSD (DESNOS, DTD) syndrome that includes dissociation—or both—can advance our ability to effectively treat children or adults who are experiencing posttraumatic dissociative impairment (Resick, Suvak, et al., 2012; Steuwe, Lanius, & Frewen, 2012; Wolf et al., 2012). We are just beginning to understand what constitutes effective treatment for posttraumatic dissociative problems, let alone how to select and stage the delivery of therapeutic approaches that focus on trauma memory processing or enhancing emotion regulation in order to effectively ameliorate trauma-related dissociation (Cloitre, Petkova, Wang, & Lu Lassell, 2012; Resick, Suvak, et al., 2012). Recent studies have shown that exposure-based trauma memory processing is relatively ineffective at achieving remission of PTSD or reducing PTSD symptom severity with highly dissociative adults (Cloitre et al., 2012; Hagenaars, van Minnen, & Hoogduin, 2010) compared to therapy focused on emotion and interpersonal regulation skills (Cloitre et al., 2012). These findings are consistent with a

self-regulation view, suggesting that enhancing self-regulatory capacities is crucial to effective treatment for severe dissociation.

Treatment guidelines for children with dissociative symptoms (International Society for the Study of Dissociation, 2004) and for adults with DID and dissociative disorder not otherwise specified (International Society for the Study of Trauma and Dissociation, 2011), as well as for acute stress disorder and PTSD (American Psychiatric Association, 2004), mirror these findings. In the DID treatment guidelines the role of childhood trauma exposure is explicit:

Severe and prolonged traumatic experiences can lead to the development of discrete, personified behavioral states (i.e., rudimentary alternate identities) in the child, which has the effect of encapsulating intolerable traumatic memories, affects, sensations, beliefs, or behaviors and mitigating their effects on the child's overall development. (International Society for the Study of Dissociation, 2004, p. 122)

A three-phase treatment approach is recommended for DID/dissociative disorder not otherwise specified (International Society for the Study of Trauma and Dissociation, 2011), for complex traumatic stress disorders (Cloitre et al., 2011; Courtois, Ford, & Cloitre, 2009), and by consensus surveys of dissociative disorder experts (Brand, 2012) and complex trauma and classic PTSD experts (Cloitre et al., 2011): first, establishing safety, stabilization, and symptom management; second, processing trauma memories (across dissociated alternate identities in DID); and third, working toward self and interpersonal reintegration. The recommended treatment for DID is "individual psychodynamically oriented psychotherapy, which often eclectically incorporates other techniques" such as cognitive behavior therapy, dialectical behavior therapy, eye-movement desensitization and reprocessing, ego-strengthening hypnosis, or sensorimotor psychotherapy (International Society for the Study of Trauma and Dissociation, 2011, p. 146).

Many questions remain to be addressed concerning treatment for posttraumatic dissociation. What are the core components or replicable processes of effective treatment of posttraumatic dissociation? How should trauma-related dissociation be assessed in order to accurately identify its presence, nature, and severity when one is conducting treatment process and outcome studies? What practice guidelines are warranted clinically and scientifically for the treatment of posttraumatic dissociative problems, and how should these be coordinated with or informed by guidelines for treating severe dissociative disorders? On all of these fronts, I suggest that using self-regulation as conceptual, clinical, and measurement framework can help us to come up with productive theoretical and empirical questions, conduct meaningful clinical and scientific studies, and thus substantively advance the study of trauma and dissociation.

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