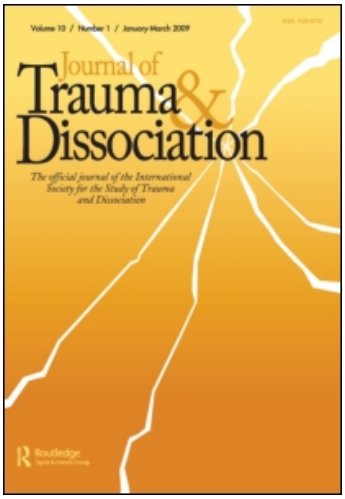

Journal of Trauma & Dissociation
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t792306919

Affect Dysregulation and Dissociation in Borderline Personality Disorder and Somatoform Disorder: Differentiating Inhibitory and Excitatory Experiencing States

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Online publication date: 11 October 2010

To cite this Article van Dijke, Annemiek , van der Hart, Onno , Ford, Julian D. , van Son, Maarten , van der Heijden, Peter and Bühring, Martina(2010) 'Affect Dysregulation and Dissociation in Borderline Personality Disorder and Somatoform Disorder: Differentiating Inhibitory and Excitatory Experiencing States', Journal of Trauma & Dissociation, 11: 4, 424 — 443
To link to this Article: DOI: 10.1080/15299732.2010.496140
URL: http://dx.doi.org/10.1080/15299732.2010.496140

Journal of Trauma & Dissociation, 11:424–443, 2010

ISSN: 1529-9732 print/1529-9740 online
DOI: 10.1080/15299732.2010.496140

Routledge
Taylor & Francis Group

Affect Dysregulation and Dissociation in Borderline Personality Disorder and Somatoform Disorder: Differentiating Inhibitory and Excitatory Experiencing States

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Affect dysregulation and dissociation may be associated with borderline personality disorder (BPD) and somatoform disorder (SoD). In this study, both under-regulation and over-regulation of affect and positive and negative somatoform and psychoform dissociative experiences were assessed. BPD and SoD diagnoses were confirmed or ruled out in 472 psychiatric inpatients using

Received 4 August 2008; accepted 29 July 2009.
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clinical interviews and clinical multidisciplinary consensus. Affect dysregulation and dissociation were measured using self-reports. Under-regulation (but not over-regulation) of affect was moderately related to positive and negative psychoform and somatoform dissociative experiences. Although both BPD and SoD can involve dissociation, there is a wide range of intensity of both somatoform and psychoform dissociative phenomena in patients with these diagnoses. Compared with other groups, SoD patients more often reported low levels of dissociative experiences and reported fewer psychoform (with or without somatoform) dissociative experiences. Compared with the other groups, patients with both BPD and SoD reported more psychoform (with or without somatoform) dissociative experiences. Evidence was found for the existence of 3 qualitatively different forms of experiencing states. Over-regulation of affect and negative psychoform dissociation, commonly occurring in SoD, can be understood as inhibitory experiencing states. Under-regulation of affect and positive psychoform dissociation, commonly occurring in BPD, can be understood as excitatory experiencing states. The combination of inhibitory and excitatory experiencing states commonly occurred in comorbid BPD + SoD. Distinguishing inhibitory versus excitatory states of experiencing may help to clarify differences in dissociation and affect dysregulation between and within BPD and SoD patients.

KEYWORDS dissociation, psychoform dissociation, somatoform dissociation, affect regulation, somatization disorder, borderline personality disorder

Despite apparent similarities between affect dysregulation and dissociation, surprisingly little is known about the specific interrelations between these two psychopathological phenomena (e.g., Briere, 2006). Both affect dysregulation and dissociation encapsulate (sets of) mental states representing inhibitory and excitatory experiencing (Clayton, 2004; Nijenhuis, 2004; Van Dijke, 2008). Mental states associated with inhibited experiencing are consistent with over-regulation of affect and with the negative symptoms of dissociation, including appearing emotionally constricted, expressionless, machine-like, and frozen and being unable to establish close ties with others. Mental states associated with excitatory experiencing are consistent with under-regulation of affect and with the positive symptoms of dissociation, including a feeling of being overwhelmed, seizures, fugue states, hyperalertness, self-harm, impulsivity, and difficulty handling intense emotion states.

Affect dysregulation in severe psychiatric disorders has been defined in two distinct ways (e.g., Van Dijke, 2008). In the borderline personality

disorder (BPD) literature, affect dysregulation refers to "under-regulation": a deficiency in the capacity to modulate excitatory states of affect such that emotions become uncontrolled, are expressed in intense and unmodified forms, and overwhelm reasoning (Koenigsberg et al., 2002; Zittel Conklin, Bradley, & Westen, 2006; Zittel Conklin & Westen, 2005). In the literature on somatoform disorder (SoD), affect dysregulation has been referred to as *alexithymia* (Waller & Scheidt, 2004, 2006), that is, an inhibition of the ability to recognize and articulate affect that can be considered a form of "over-regulation" of emotion.

Dissociation involves two parallel types of manifestations. Positive symptoms of dissociation involve intrusion symptoms (e.g., stemming from dissociative parts reexperiencing trauma). Negative symptoms of dissociation refer to apparent losses—apparent because experiences that tend not to be available to one dissociative part of the personality may actually be available to another part (Van der Hart, Nijenhuis, & Steele, 2006; Van der Hart, Nijenhuis, Steele, & Brown, 2004). In line with Janet's original research, Nijenhuis and colleagues (Nijenhuis, 2004; Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1996; Nijenhuis, Spinhoven, Vanderlinden, Van Dyck, & Van der Hart, 1998) further subdivided dissociative symptoms into somatoform and psychoform dissociation. Somatoform dissociation includes negative symptoms (e.g., anesthesia) and positive symptoms (e.g., pain; Nijenhuis, 2004; Van der Hart et al., 2006; Van der Hart, Van Dijke, Van Son, & Steele, 2000). Psychoform dissociation (Nijenhuis, 2004; Van der Hart et al., 2000, 2006) involves negative (e.g., amnesia) and positive (e.g., intrusions) symptoms. Clinically speaking, over-regulation of affect, negative somatoform experiences, or psychoform dissociative experiences appear to reflect inhibitory experiencing, whereas under-regulation of affect, positive somatoform experiences, or psychoform dissociative experiences appear to reflect excitatory experiencing. However, no study has systematically assessed the relationship of affect dysregulation (including both its excitatory [under-regulated] and inhibitory [over-regulated] features) and dissociation (including its positive and negative somatoform and psychoform features).

Both the under-regulated/excitatory and over-regulated/inhibitory distinction and the psychoform–somatoform distinction are particularly relevant to the two severe psychiatric disorders that are the focus of the present study. Conceptually and clinically speaking, excitatory or under-regulated affect and psychoform dissociation appear to be prominent in BPD. Similarly, inhibitory or over-regulated affect and somatoform dissociation appear central to the symptom features of SoD. Research suggesting that these phenomena may help to characterize the psychopathology underlying BPD and SoD, and help to distinguish the two disorders, is sparse and preliminary. Therefore, we investigated the presence and relationship between inhibitory and excitatory phenomena in patients with either BPD, SoD, comorbid BPD and SoD, or other psychiatric disorders.

In reviewing the literature, we found that three studies provided quantitative information on the relationship between affect dysregulation and dissociation in patients with BPD. Dissociation is rarely rigorously defined in the BPD literature and has not been systematically explored as a contributor to the instabilities thought to underlie BPD (Şar, Akyuz, Kugu, Öztürk, & Ertem-Vehid, 2006). Bohus et al. (2000) evaluated inpatient dialectical-behavioral therapy for BPD and found that when patients developed skills for distress tolerance and under-regulation of affect, they reported less psychoform dissociative phenomena. Kemperman, Russ, and Shearin (1997) studied self-injurious behavior and mood regulation in BPD patients and compared BPD patients who experienced pain during self-injury with those who did not. For both groups, mood elevation and decreased dissociation followed self-injury. Ratings of psychoform dissociation were found to be higher in the non-pain group than in the pain group. Stiglmayr, Shapiro, Stieglitz, Limberger, and Bohus (2001) studied the experience of tension and dissociation in female BPD patients and found a strong correlation between duration and intensity of tension and experience of dissociative features, both somatoform and psychoform. Stiglmayr and colleagues concluded that aversive tension in BPD induces stress-related dissociative features. Overall, the results of these studies suggest a relationship between under-regulation of affect and dissociative phenomena. However, neither over-regulation of affect nor the differentiation of negative and positive dissociative experiences has been studied in relation to each other or in relation to under-regulated affect.

Two studies have quantified the relationship between affect dysregulation and dissociation with regard to SoD. McLean, Toner, Jackson, Desrocher, and Stuckless (2006) studied the relationship between affect dysregulation and dissociation in patients with reported histories of childhood sexual abuse. Their results showed that under- and over-regulation of affect were correlated with psychoform dissociation and somatization. In the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM–IV*) field trial for posttraumatic stress disorder (PTSD), Van der Kolk et al. (1996) found that under-regulation of affect, somatization, and psychoform dissociation was highly interrelated. This study also suggested a relationship between affect dysregulation and dissociation, but this relationship was not directly addressed. One study has explored the interrelatedness of over-regulation and somatoform and psychoform dissociation in a nonclinical population (Clayton, 2004). The results suggested a tentative link between somatoform dissociation and over-regulation of affect.

In the present study, it is hypothesized that under-regulation of affect will be more associated with positive dissociative phenomena and over-regulation will be more associated with negative dissociative phenomena.

BPD and SoD have been found to be associated with affect dysregulation and dissociation (Brown, Schrag, & Trimble, 2005; Ebner-Priemer et al.,

2005), although not specifically in relation to the positive as well as negative features of somatoform and psychoform dissociation. In the present study, it is hypothesized that positive and negative types of somatoform dissociation will be particularly prominent in SoD, whereas positive and negative forms of psychoform dissociation will be particularly prominent in BPD.

Taken together, these hypotheses suggest that BPD will primarily involve under-regulation of affect and positive psychoform dissociation, whereas SoD will primarily involve over-regulation of affect and negative symptoms of somatoform dissociation. These questions were addressed in a large inpatient sample diagnosed with either BPD, SoD, comorbid BPD and SoD, or other psychiatric disorders.

METHOD

Participants and Procedure

Study participants were 472 consecutive admissions to two adult inpatient psychiatric treatment centers: the Eikenboom Center for Psychosomatic Medicine, Utrecht, The Netherlands ($n = 117$) and the De Waard clinic for personality disorders, Delta Psychiatric Center, Rotterdam, The Netherlands ($n = 355$). Patients participated in the multicenter project "Clinical Assessment of Trauma-Related Self and Affect Dysregulation" (Van Dijke, 2008).

Following intake according to *DSM–IV* criteria, diagnosis of BPD or SoD (i.e., somatization disorder, undifferentiated SoD, severe conversion and pain disorder) was confirmed by clinical interviewers (i.e., general health psychologists and master's students in clinical psychology who were trained and supervised by Annemiek van Dijke, a certified clinical psychologist/psychotherapist). The diagnosis of SoD was also confirmed by a psychiatrist with somatic expertise, a specialist in internal medicine, or a general practitioner with psychiatric experience. When possible, general practice and former hospital records were obtained (with the patient's consent); the interviewer used these records in addition to the results of the structured interviews in order to ascertain diagnoses. All participants had a well-documented history of somatic and/or psychiatric symptoms. All had received previous inpatient or outpatient treatment at psychiatric or somatic hospitals and had been referred for specialized treatment.

All patients in the Eikenboom group met criteria for SoD, and 16 also met criteria for BPD. In the De Waard group, 120 patients met criteria for BPD only, 113 met criteria for both BPD and SoD, and 58 met criteria for SoD only; 64 did not meet criteria for BPD or SoD and thus were included as a psychiatric comparison group. Table 1 presents the demographic characteristics of the four study groups and the total sample. No significant effects were found for gender or level of education on the dependent variables.

TABLE 1 Demographic Characteristics of the Study Groups and the Total Sample

Characteristic	BPD	SoD	BPD + SoD	PC	Total
N	120	159	129	64	472
Male	40	47	30	28	145
Female	80	112	99	36	327
Age, *M* (*SD*)	29.9 (8.8)	38.3 (10.5)	33.6 (9.1)	36.8 (9.9)	34.7 (10.1)
Primary relationship (%)					
No partner	30.8	45.3	40.3	28.1	37.9
Living together	60.8	41.5	47.3	56.3	50.0
Widowed/divorced	8.3	13.2	12.4	15.6	12.1
Education (%)					
Primary/low-level secondary	24.2	22.6	27.1	23.4	24.4
Middle-level secondary	35.8	45.9	37.2	46.9	41.1
High-level secondary	40	31.4	35.7	29.7	34.5

Notes: BPD = borderline personality disorder; SoD = somatoform disorder; PC = psychiatric comparison group.

This study was approved by the local ethics committee. After receiving a complete description of the study and procedure, participants provided written informed consent to participate, according to the Declaration of Helsinki.

Measures

The Composite International Diagnostic Interview (Section C; World Health Organization, 1990; Dutch version, Ter Smitten, Smeets, & Van den Brink, 1998) is a comprehensive, standardized instrument for assessing mental disorders according to the definitions and diagnostic criteria of the *DSM–IV* and *International Classification of Diseases–10*. The Composite International Diagnostic Interview has been shown to have good reliability and validity (Andrews & Peters, 1998).

The Borderline Personality Disorder Severity Index (Weaver & Clum, 1993; Dutch Version IV, Arntz, 1999) is a semistructured interview that contains nine sections (abandonment, relationships, self-image, impulsivity, parasuicide, affect, emptiness, anger, and dissociation and paranoia) corresponding to the symptom clusters of BPD. Each section contains items asking about events (e.g., "Did you, during the last three months, ever become desperate when you thought that someone you cared for was going to leave you?"). The items are scored by the interviewer on a 10-point scale indicating how often the event happened during the past 3 months. An average score was calculated for each section, and total scores were calculated by summing the section scores. The Borderline Personality Disorder Severity Index has been shown to have good validity and reliability (Arntz et al., 2003); a cutoff score of 20 was used for inclusion in the study (A. Arntz, personal communication, October 2003).

For the assessment of under-regulation of affect, each participant completed the self-report version of the Structured Interview for Disorders of Extreme Stress Not Otherwise Specified–Revised (SIDES-Rev; Ford & Kidd, 1998; Dutch version, Van Dijke & Van der Hart, 2002). The SIDES-Rev is an adaptation of the interview consisting of items formulating the sequelae of complex trauma, which include dysregulated affect, impulses, and bodily integrity; dissociation; somatization; and fundamentally altered self-perceptions, relationships, and sustaining beliefs (Ford & Kidd, 1998; Van der Kolk, 1996). Reliability analysis proved this instrument reliable for use with these populations (Cronbach's $\alpha = .91$). The criterion for the presence of pathological under-regulation of affect was adopted from the SIDES scoring manual (Ford & Kidd, 1998; from criterion I "affect and impulse dysregulation," a: affect dysregulation two out of three items ≥ 2).

For the assessment of over-regulation of affect, participants completed the Bermond-Vorst Alexithymia Questionnaire (BVAQ; Vorst & Bermond, 2001). The BVAQ is a 40-item Dutch questionnaire with good psychometric qualities (Vorst & Bermond, 2001) that encapsulates two distinct second-order factor groupings: cognitive dimensions (difficulty verbalizing, identifying, and analyzing emotions) and affective dimensions (difficulty emotionalizing and fantasizing). High scores represent stronger alexithymic tendencies: "diminished ability to . . ." The reliability for the total scale and its subscales is good and varies between 0.75 and 0.85 (Vorst & Bermond, 2001). Reliability analysis proved the BVAQ reliable for use with these populations (Cronbach's $\alpha = .88$). Only the cognitive factor of the BVAQ was used to assess over-regulation in order to enable comparison with previous studies (Waller & Scheidt, 2004, 2006). The cognitive factor of the BVAQ is highly correlated with the Toronto Alexithymia Scale ($r = .80$; Bagby, Parker, & Taylor, 1994). The cutoff score for pathological alexithymia/over-regulation of affect was adopted from the Toronto Alexithymia Scale study (Taylor, Bagby, & Parker, 1997) and applied to the BVAQ cognitive factor by H. C. M. Vorst (personal communication, September 16, 2002).

Psychoform dissociation was measured with the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986; Dutch version, Ensink & Van Otterloo, 1989), a 28-item self-report questionnaire that surveys the frequency of various experiences of dissociative phenomena in the daily life of the respondents. Total scores were calculated by averaging the 28 item scores. In order to differentiate clinically significant scores of psychoform dissociation from normal dissociative experiences, we used a cutoff score of 35 for inpatients (Boon & Draijer, 1995). The DES is a widely used instrument with good reliability (Cronbach's $\alpha = .95$, test–retest reliability = 0.79–0.96) and clinical validity (Ensink & Van Otterloo, 1989; Frischholz et al., 1990).

Somatoform dissociation was measured using the Somatoform Dissociation Questionnaire (SDQ-20; Dutch version, Nijenhuis et al., 1996), a 20-item self-report questionnaire that uses 5-point Likert scales to indicate

the extent to which statements are applicable. The total score is the sum of the 20 item scores and ranges from 20 to 100. In order to differentiate clinically significant somatoform dissociation from normal dissociative experiences, we used a cutoff score of 8, based on the SDQ-5 scores. The scale has high reliability (Cronbach's $\alpha = .96$) and good construct validity (Nijenhuis et al., 1996, 1998).

We know of no measure that specifically assesses positive and negative dissociation. The items from the DES and SDQ-20 were evaluated by three experts in the positive and negative dissociative symptoms field (Onno van der Hart, Ellert Nijenhuis, and Annemiek van Dijke). Total positive dissociation items were Items 7, 14, 15, 18, 22, 23, 27 (DES) and 2, 4, 6, 7, 9, 10, 17 (SDQ-20). Reliability analysis revealed a Cronbach's alpha of .76. Total negative dissociation items were Items 3, 4, 5, 6, 8, 10, 11, 12, 13, 16, 17, 25, 26 (DES) and 3, 5, 8, 11, 12, 13, 15, 16, 18, 19, 20 (SDQ-20). Reliability analysis revealed a Cronbach's alpha of .88. Although both the positive and negative symptoms generated reliable scales, we consider the research on positive and negative dissociative symptoms a work in progress.

Statistical Analysis

All statistical analyses were performed using SPSS Version 16 (SPSS, Chicago, IL). Because of the nonnormal distribution of the dissociation variables, we performed square root transformations (Stevens, 2002). Associations between under-regulated and over-regulated forms of affect dysregulation (SIDES-Rev, BVAQ) and positive and negative dissociation (DES, SDQ) were explored using Pearson correlations (two-tailed). Group means for the continuous dissociation scores were compared using multivariate analysis of variance with diagnosis as the dependent variable. Sequential regression analyses were conducted. The following contrasts were tested: PC versus the rest, BPD versus SoD, BPD + SoD versus BPD, and BPD + SoD versus SoD. We entered under-regulation and over-regulation (Model 1) and Model 1 plus positive and negative somatoform and psychoform scores (Model 2). Finally, cross-tabulations with chi-square tests were used to determine whether the distinct forms of dissociation were represented differently among the diagnostic groups. Standard residuals can be used for contrast testing. Standard residual values (SRVs) less than −2 or greater than +2 are statistically important. A negative value denotes "less frequent than expected"; a positive value denotes "more frequent than expected."

RESULTS

When we considered the sample as a whole (BPD, SoD, BPD + SoD, and PC), we found that under-regulation of affect was moderately to strongly

TABLE 2 Pearson Correlations on Transformed Negative and Positive Dissociation Scores

Variable	1	2	3	4
1. Negative somatoform dissociation	—	.99	.52	.42
2. Positive somatoform dissociation		—	.43	.39
3. Negative psychoform dissociation			—	.82
4. Positive psychoform dissociation				—

Notes: $N = 471$ for analyses with psychoform dissociation because of one case with missing data. Two-tailed Pearson correlations, all statistically significant at $p < .001$.

related to psychoform ($r = .37$, $p < .000$) and somatoform ($r = .26$, $p < .001$) dissociation. Over-regulation was weakly related to psychoform ($r = .19$, $p < .001$) and somatoform ($r = .16$, $p < .002$) dissociation. Under-regulation and over-regulation were weakly related to each other ($r = .11$, $p < .017$). More specifically, under-regulation was moderately to strongly related to positive psychoform ($r = .46$, $p < .001$) and negative psychoform ($r = .42$, $p < .001$) dissociation. Over-regulation was weakly related to positive psychoform ($r = .15$, $p < .001$) and negative psychoform ($r = .15$, $p < .002$) dissociation. Under- and over-regulation were unrelated ($p > .05$) to positive and negative somatoform dissociation. Table 2 shows the Pearson product moment correlations between negative and positive somatoform and psychoform dissociative phenomena, demonstrating that the positive and negative forms of both somatoform and psychoform dissociation were almost perfectly correlated (rs = .82–.99) and that all forms of somatoform and psychoform dissociation were moderately interrelated across the two types of dissociation (rs = .39–.52).

Multivariate analysis of variance was conducted to explore group differences in dimensions of inhibitory and excitatory experiencing (positive and negative dissociation and affect dysregulation). There was a statistically significant difference between all diagnostic groups: $F(18, 1302) = 8.91$, $p = .001$; Wilks's $\Lambda = 0.72$; partial $\eta^2 = 0.10$. BPD participants (and especially those diagnosed with BPD + SoD) were most likely to report inhibitory and excitatory states of experiencing, as presented in Figures 1 through 4. When we considered the results for the independent variables separately, we found between-group differences for all forms of dissociation and affect dysregulation (see Table 3), with large effect sizes for under-regulation of affect and negative and positive psychoform dissociation. Table 4 displays the means of the continuous scores on the measures of positive and negative dissociation and affect dysregulation (DES, SDQ-20, and SDQ-5) for the BPD, SoD, BPD + SoD, and psychiatric comparison groups.

Sequential regression analyses were performed using contrasts to assess the relative strength of inhibitory and excitatory experiencing phenomena with the presence of BPD, SoD, BPD + SoD, or other psychiatric disorders. The results are presented in Table 5. For all contrasts except for BPD versus

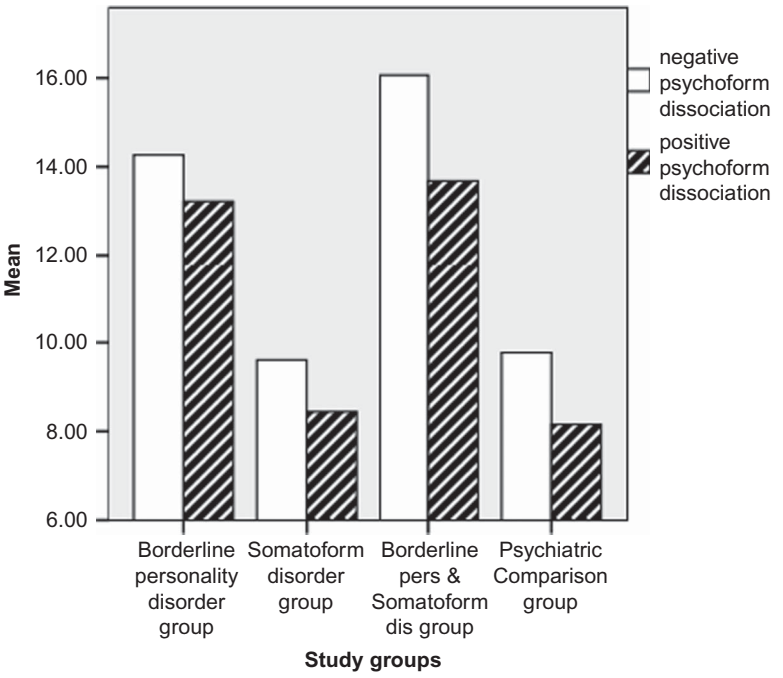

FIGURE 1 Group differences for inhibitory and excitatory experiencing for psychoform dissociation. Pers = personality; dis = disorder.

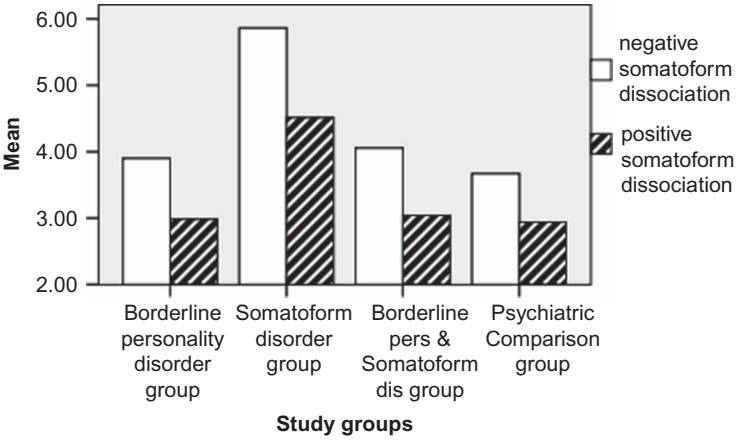

FIGURE 2 Group differences for inhibitory and excitatory experiencing for somatoform dissociation. Pers = personality; dis = disorder.

BPD + SoD, the inclusion of all inhibitory and excitatory experiencing phenomena (Model 2) improved the fit of the model significantly: PC ↔ the rest: $\chi^2 = 32.54$, $df = 6$, $n = 469$, $p < .000$; BPD ↔ SoD: $\chi^2 = 75.78$, $df = 6$, $n = 277$, $p < .000$; BPD ↔ BPD + SoD: $\chi^2 = 7.88$, $df = 6$, $n = 248$, $p < .25$; SoD

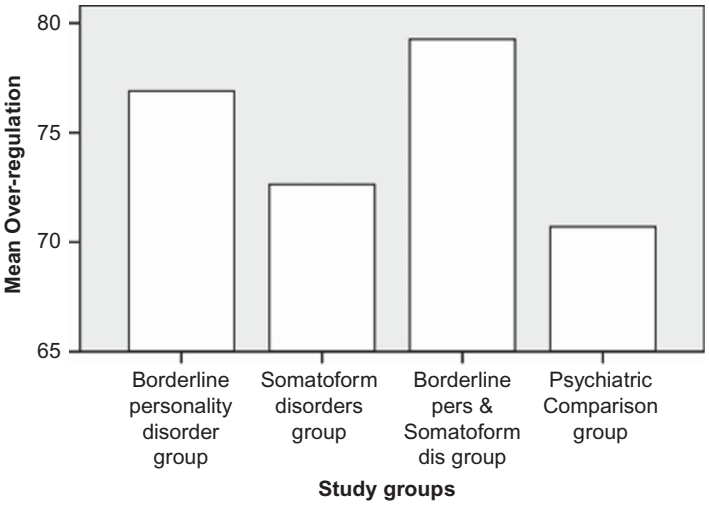

FIGURE 3 Group differences for inhibitory experiencing for affect dysregulation. Pers = personality; dis = disorder.

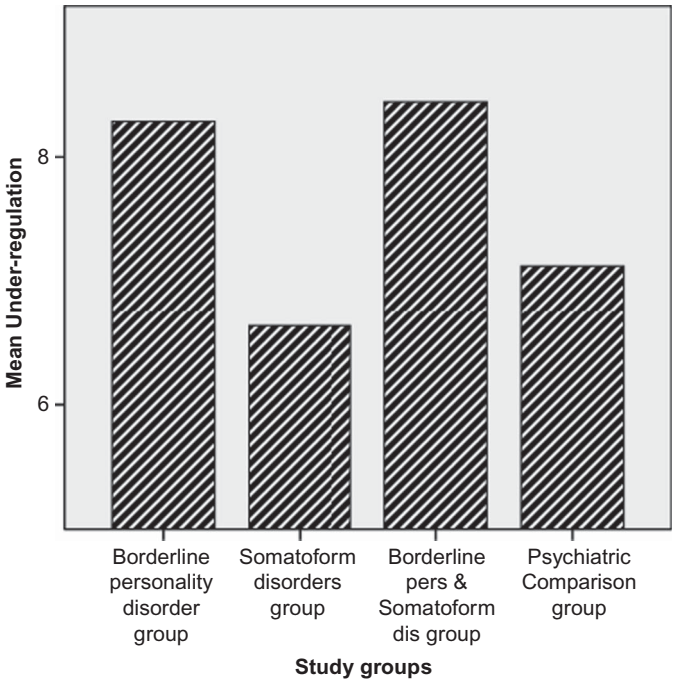

FIGURE 4 Group differences for excitatory experiencing for affect dysregulation. Pers = personality; dis = disorder.

TABLE 3 Between-Group Differences for Dissociation and Affect Dysregulation

Variable	$F(3, 465)$	Partial η^2
Negative psychoform dissociation	24.3	.14
Negative somatoform dissociation	5.12	.03
Positive psychoform dissociation	33.43	.18
Positive somatoform dissociation	4.47	.03
Over-regulation of affect	4.9	.03
Under-regulation of affect	26.16	.14

$\leftrightarrow$ BPD + SoD: $\chi^2 = 96.81$, $df = 6$, $n = 288$, $p < .000$. No significant differences were found for inhibitory and excitatory regulation strategies between the BPD group and the BPD + SoD group. The Hosmer-Lemeshow test revealed that for all dependent variables, Model 2 fit the data well: PC $\leftrightarrow$ the rest: $\chi^2 = 10.86$, $df = 8$, $n = 469$, $p = .21$; BPD $\leftrightarrow$ SoD: $\chi^2 = 8.72$, $df = 8$, $n = 277$, $p = .37$; BPD $\leftrightarrow$ BPD + SoD: $\chi^2 = 11.42$, $df = 8$, $n = 248$, $p = .18$; SoD $\leftrightarrow$ BPD + SoD: $\chi^2 = 17.23$, $df = 8$, $n = 288$, $p = .03$.

Using the described cutoff scores, we found that 9.7% of the total sample reported high levels of psychoform *and* somatoform dissociation, 16.3% reported somatoform dissociation only, 5.7% reported psychoform dissociation only, and 68.2% reported low levels of both psychoform or somatoform dissociation. Figure 5 presents the distribution of cases reporting psychoform and somatoform dissociation for the BPD, SoD, BPD + SoD, and psychiatric comparison groups. There were significant differences among the groups ($\chi^2 = 57.16$, $df = 9$, $n = 469$, $p < .01$). The SoD group was significantly more likely to report low levels of dissociation (SRV = 2.3), less likely to report high levels of psychoform dissociation (SRV = −2.4), and less likely to report high levels of both psychoform and somatoform dissociation (SRV = −3.4) than were the BPD, BPD + SoD, and psychiatric comparison groups. Participants diagnosed with BPD + SoD were significantly less likely to report low levels of dissociation (SRV = −2.5) and were more likely to report high levels of both psychoform and somatoform dissociation (SRV = 3.2) or high levels of psychoform dissociation only (SRV = 2.8) than were the other groups.

DISCUSSION

In line with previous studies and consistent with study hypotheses, BPD was found to involve substantial positive psychoform dissociation and under-regulation of affect (Zittel Conklin & Westen 2005; Zittel Conklin et al., 2006). Thus, psychoform dissociation may play a greater role in BPD than

TABLE 4 Means (*SD*) for Positive and Negative Dissociation and Affect Dysregulation and DES, SDQ-20, and SDQ-5 Scores for Study Groups

Group	Negative psychoform dissociation	Negative somatoform dissociation	Positive psychoform dissociation	Positive somatoform dissociation	Over-regulation of affect	Under-regulation of affect	Psychoform dissociation (DES)	Somatoform dissociation (SDQ-20)	Somatoform dissociation (SDQ-5)
BPD ($n = 119$)	14.38 (1.16)	24.33 (9.41)	27.40 (1.54)	13.28 (8.57)	77.06 (17.89)	8.29 (1.84)	24.04 (15.71)	27.00 (8.62)	6.83 (2.68)
SoD ($n = 158$)	7.38 (1.01)	1.37 (8.19)	13.49 (1.34)	10.32 (7.46)	72.77 (17.51)	6.64 (2.02)	10.79 (8.99)	24.82 (5.95)	6.10 (1.91)
BPD + SoD ($n = 129$)	17.61 (1.12)	8.56 (9.04)	30.84 (1.48)	1.32 (8.23)	79.26 (17.90)	8.44 (1.83)	27.25 (14.74)	30.25 (10.11)	7.56 (3.25)
PC ($n = 63$)	7.81 (1.60)	1.26 (5.94)	13.18 (2.12)	1.27 (11.77)	70.70 (19.55)	7.19 (2.30)	11.78 (11.37)	24.98 (8.22)	6.27 (2.86)

Notes: Numbers are not transformed. DES = Dissociative Experiences Scale; SDQ = Somatoform Dissociation Questionnaire; BPD = borderline personality disorder; SoD = somatoform disorder; PC = psychiatric comparison group.

TABLE 5 Sequential Regression Analyses for Inhibitory and Excitatory Experiencing Phenomena Using Contrast Testing for Model 2 ($N = 469$)

		95% CI	
Variable	Odds ratio	Lower	Upper
PC versus the rest			
Over-regulation of affect	0.99	0.97	1.00
Under-regulation of affect	1.05	0.91	1.22
Negative psychoform dissociation	1.02	0.94	1.11
Negative somatoform dissociation	*0.42**	*0.21*	*0.86*
Positive psychoform dissociation	*0.87***	*0.79*	*0.96*
Positive somatoform dissociation	*3.89***	*1.53*	*9.86*
BPD versus SoD			
Over-regulation of affect	1.01	0.99	1.02
Under-regulation of affect	1.39***	1.181	1.63
Negative psychoform dissociation	1.02	0.95	1.10
Negative somatoform dissociation	*0.53**	*0.29*	*0.96*
Positive psychoform dissociation	1.15**	1.052	1.25
Positive somatoform dissociation	1.46	0.56	3.77
BPD versus BPD + SoD			
Over-regulation of affect	0.99	0.98	1.01
Under-regulation of affect	0.99	0.85	1.15
Negative psychoform dissociation	0.93	0.87	1.00
Negative somatoform dissociation	0.92	0.56	1.49
Positive psychoform dissociation	1.07	0.98	1.17
Positive somatoform dissociation	0.97	0.44	2.11
SoD versus BPD + SoD			
Over-regulation of affect	0.99***	0.97	1.00
Under-regulation of affect	*0.71**	*0.60*	*0.83*
Negative psychoform dissociation	*0.91**	*0.84*	*0.98*
Negative somatoform dissociation	1.74	1.00	3.03
Positive psychoform dissociation	0.94	0.85	1.03
Positive somatoform dissociation	0.76	0.30	1.90

Notes: Inverse relations are in italics. CI = confidence interval; PC = psychiatric comparison group; BPD = borderline personality disorder; SoD = somatoform disorder.
*$p < .05$; **$p < .01$; ***$p < .001$.

represented in the *DSM–IV*'s single feature of "severe" but "transient, stress-related" dissociation linked to "paranoid ideation" (American Psychiatric Association, 1994, p. 648). Although the chronicity and periodicity of dissociation were not assessed in the present study, the pathological levels of psychoform dissociation endorsed by patients with BPD suggest that psychoform dissociation may be more than transient.

For SoD, psychoform dissociation was uncommon and somatoform dissociation was more often reported, consistent with study hypotheses and prior research and clinical observations (Nijenhuis, 2004). However, it appears that only a subset of SoD patients, primarily those with comorbid BPD, reported severe somatoform dissociation. Infrequent reports of dissociation by SoD patients may reflect under-reporting consistent with the clinical presentation of *la belle indifférence*. As SoD patients become more aware of

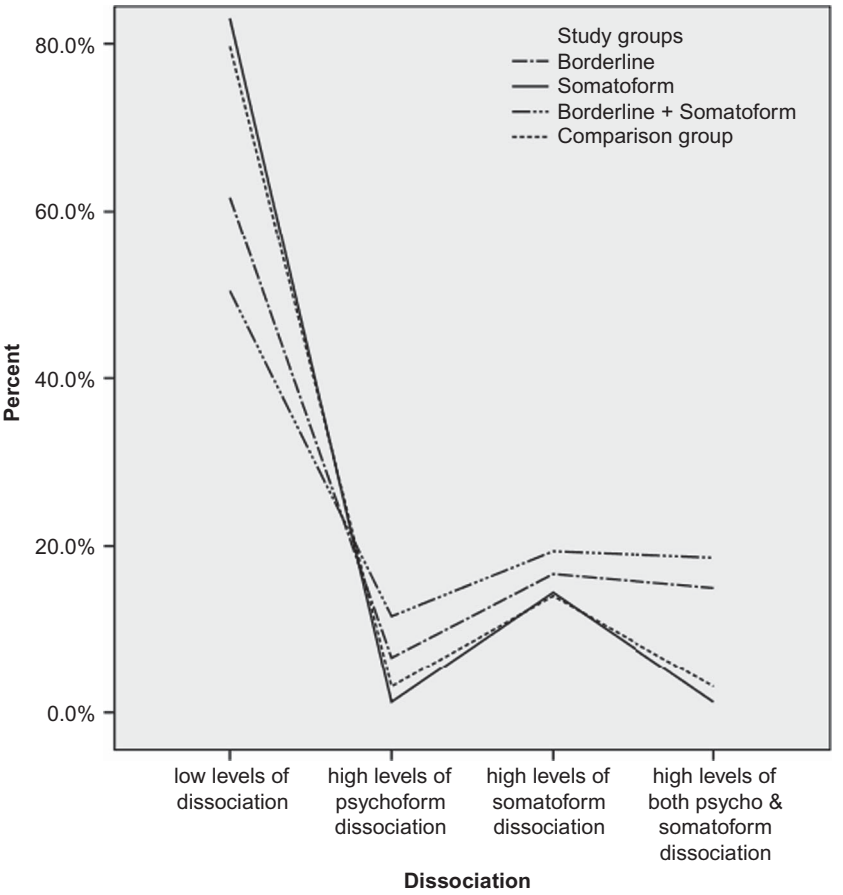

FIGURE 5 Distribution of levels of psychoform and/or somatoform dissociation for study groups.

their somatosensory and emotional experiences in psychotherapy, they may become more able to report dissociative symptoms.

For comorbid BPD and SoD, psychoform *and* somatoform dissociation were frequently reported. Van Dijke and colleagues (2010) found that comorbid BPD and SoD was also associated with both over-regulation *and* under-regulation of affect. The constellation of somatoform dissociation and over-regulation of affect may be a feature of the more complex SoD+BPD comorbidity rather than a characteristic of SoD per se. As hypothesized, SoD in the absence of BPD was most strongly associated with negative somatoform dissociation and was inversely associated with under-regulation of affect, suggesting that negative somatoform symptoms—and not positive somatoform symptoms, psychoform dissociation, or affect dysregulation—may be a hallmark of SoD distinct from the dysregulated states involved in BPD.

Positive somatoform dissociation best characterized psychiatric patients with neither BPD nor SoD. Physical health complaints consistent with positive somatoform dissociation are common co-occurrences in the presentation of psychiatric disorders, potentially reflecting either generalized distress or the adverse health impact associated with chronic poor mental health rather than dissociative pathology specifically.

The study findings suggest that two qualitatively different forms of psychoform and somatoform dissociation do exist (Nijenhuis, Van der Hart, Kruger, & Steele, 2004; Van der Hart et al., 2000, 2004, 2006). Our data provide more support for the hypothesis that positive (excitatory) states of dissociation are associated with BPD, whereas both positive and negative (inhibitory) forms of dissociation are associated with BPD when comorbid with SoD.

Limitations

A primary limitation of this study is that comorbid dissociative disorder and/or (complex) PTSD cannot be ruled out for the BPD + SoD subgroup that reported high levels of both psychoform and somatoform dissociation. This is because interviews assessing PTSD and/or dissociative disorders were not included in order to minimize participant burden.

Another limitation is that self-report measures were used to assess affect dysregulation and dissociation. It is possible that the diminished capacity to self-reflect resulted in decreased scores on, and interrelations in, the inhibitory dimension (over-regulation and negative dissociative experiences). In particular, at the beginning of treatment patients with SoD are less able to self-reflect and tend to attribute psychological burden to physical complaints. Therefore, clinical observations or (semi)structured interviews that assess affect dysregulation and dissociation could provide complementary information.

Future Directions

Affect dysregulation and dissociation have been associated with psychological trauma and complex PTSD (Herman, 1992; McLean et al., 2006; Pelcovitz, Van der Kolk, Roth, Mandel, & Resick, 1997; Roth, Newman, Pelcovitz, Van der Kolk, & Mandel, 1997; Van der Hart, Nijenhuis, & Steele, 2005; Van der Kolk et al., 1996; Zlotnick et al., 1996). Our findings contribute to the growing body of research suggesting a need for more systematic differentiation between under-regulation and over-regulation of affect (Van Dijke, 2008) and more systematic differentiation between psychoform and somatoform dissociation (e.g., Nijenhuis et al., 2004; Van der Hart et al., 2006). The interrelations and characteristics of under-regulation and over-regulation of affect and psychoform and somatoform dissociation in traumatic stress–related

disorders (Scoboria, Ford, Lin, & Frisman, 2008) and *DSM–IV* dissociative disorders remain to be explored.

Dissociation is rarely rigorously defined in the BPD literature and has not been systematically explored as a contributor to the instabilities thought to underlie BPD. In the dissociative disorders literature, BPD traits in patients with severe dissociative disorders have been viewed either as a comorbidity (Şar et al., 2006) or, alternatively, as a relatively nonspecific set of instabilities that result from more and more severe exposure to psychological trauma or more activated dissociative symptoms (Ross, 1997). Therefore, assessing inhibitory and excitatory experiencing in relation to trauma history among individuals with BPD, dissociative disorders, and PTSD, and their comorbid combinations, is a critical next step.

CONCLUSION

We have found evidence for the existence of three qualitatively different forms of dissociative dysregulation: inhibitory, excitatory, and combined inhibitory and excitatory states. Although both BPD and SoD can involve dissociation (Bohus et al., 2000; Stiglmayr et al., 2001), there is a wide range of intensity of both somatoform and psychoform dissociative phenomena in patients with these diagnoses. Over-regulation of affect and negative psychoform dissociation, commonly occurring in SoD, can be understood as inhibitory dissociative states. Under-regulation of affect and positive psychoform dissociation, commonly occurring in BPD, can be understood as excitatory dissociative states. The combination of inhibitory and excitatory dissociative states commonly occurs in comorbid BPD + SoD. Thus, assessment of positive and negative somatoform and psychoform dissociation may have utility in characterizing clinical and phenomenological features of BPD and SoD.

REFERENCES

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Andrews, G., & Peters, L. (1998). The psychometric properties of the Composite International Diagnostic Interview. *Social Psychiatry and Psychiatric Epidemiology, 33*, 80–88.

Arntz, A. (1999). *BPDSI Borderline Personality Disorder Severity Index* (Dutch version IV). Department of Medical, Clinical and Experimental Psychology, Maastricht University, The Netherlands.

Arntz, A., Van den Hoorn, M., Cornelis, J., Verheul, R., Van den Bosch, W., & De Bie, A. J. H. T. (2003). Reliability and validity of the Borderline Personality Severity Index. *Journal of Personality Disorders, 17*, 45–59.

Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1994). The Twenty-Item Toronto Alexithymia Scale–I: Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research, 38*, 23–32.

Bernstein, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease, 174*, 727–735.

Bohus, M., Haaf, B., Stiglmayr, C., Pohl, U., Bohme, R., & Linehan, M. (2000). Evaluation of inpatient dialectical-behavioural therapy for borderline personality disorder: A prospective study. *Behaviour Research and Therapy, 38*, 875–997.

Boon, S., & Draijer, N. (1995). *Screening en diagnostiek van dissociatieve stoornissen* [Screening and diagnostics of dissociative disorders]. Lisse, The Netherlands: Swets & Zeitlinger.

Briere, J. (2006). Dissociative symptoms and trauma exposure: Specificity, affect dysregulation, and posttraumatic stress. *Journal of Nervous and Mental Disease, 194*, 78–82.

Brown, R. J., Schrag, A., & Trimble, M. R. (2005). Dissociation, childhood interpersonal trauma, and family functioning in patients with somatization disorder. *American Journal of Psychiatry, 162*, 899–905.

Clayton, K. (2004). The interrelatedness of disconnection: The relationship between dissociative tendencies and alexithymia. *Journal of Trauma & Dissociation, 5*(1), 77–101.

Ebner-Priemer, U. W., Badeck, S., Beckmann, C., Wagner, A., Feige, B., Weiss, I., . . . Bohus, M. (2005). Affective dysregulation and dissociative experience in female patients with borderline personality disorder: A startle response study. *Journal of Psychiatric Research, 39*, 85–92.

Ensink, B. J., & Van Otterloo, D. (1989). A validation study of the DES in The Netherlands. *Dissociation, 2*, 221–223.

Ford, J. D., & Kidd, P. (1998). Early childhood trauma and disorders of extreme stress as predictors of treatment outcome with chronic posttraumatic stress disorder. *Journal of Traumatic Stress, 11*, 743–761.

Frischholz, E. J., Braun, B. G., Sachs, G. R., Hopkins, L., Schaeffer, D. M., Lewis, J., . . . Schwartz, D. R. (1990). The Dissociative Experiences Scale: Further replication and validation. *Dissociation, 3*, 151–153.

Herman, J. L. (1992). Complex PTSD: A syndrome in survivors of prolonged and repeated trauma. *Journal of Traumatic Stress, 5*, 377–391.

Kemperman, I., Russ, M. J., & Shearin, E. (1997). Self-injurious behaviour and mood regulation in borderline patients. *Journal of Personality Disorders, 11*, 146–157.

Koenigsberg, H. W., Harvey, P. D., Mitropoulou, V., Schmeidler, J., New, A. S., Goodman, M., . . . Siever, L. J. (2002). Characterizing affective instability in borderline personality disorder. *American Journal of Psychiatry, 159*, 784–788.

McLean, L. M., Toner, B., Jackson, J., Desrocher, M., & Stuckless, N. (2006). The relationship between childhood sexual abuse, complex traumatic stress disorder and alexithymia in two outpatient samples: Examination of women treated in community and institutional clinics. *Journal of Child Sexual Abuse, 15*(3), 1–17.

Nijenhuis, E. R. S. (2004). *Somatoform dissociation: Phenomena, measurement and theoretical issues*. New York, NY: Norton.

Nijenhuis, E. R. S., Spinhoven, P., Van Dyck, R., Van der Hart, O., & Vanderlinden, J. (1996). The development and psychometric characteristics of the Somatoform Dissociation Questionnaire (SDQ-20). *Journal of Nervous and Mental Disease, 184*, 688–694.

Nijenhuis, E. R. S., Spinhoven, P., Vanderlinden, J., Van Dyck, R., & Van der Hart, O. (1998). Somatoform dissociative symptoms as related to animal defensive reactions to predatory imminence and injury. *Journal of Abnormal Psychology, 107*, 63–73.

Nijenhuis, E. R. S., Van der Hart, O., Kruger, K., & Steele, K. (2004). Somatoform dissociation, reported abuse and animal defence-like reactions. *Australian and New Zealand Journal of Psychiatry, 38*, 678–686.

Pelcovitz, D., Van der Kolk, B., Roth, S. Mandel, F. & Resick, P. (1997). Development of a criteria set and a Structured Interview for Disorders of Extreme Stress (SIDES). *Journal of Traumatic Stress*, *10*, 3–16.

Ross, C. A. (1997). *Dissociative identity disorder: Diagnosis, clinical features, and treatment of multiple personality*. New York, NY: Wiley.

Roth, S., Newman, E., Pelcovitz, D., Van der Kolk, B. & Mandel, F. S. (1997). Complex PTSD in victims exposed to sexual and physical abuse: Results from the DSM-IV field trial for Posttraumatic Stress Disorder. *Journal of Traumatic Stress*, *10*, 539–555.

Şar, V., Akyuz, G., Kugu, N., Öztürk, E., & Ertem-Vehid, H. (2006). Axis I dissociative disorder comorbidity in borderline personality disorder and reports of childhood trauma. *Journal of Clinical Psychiatry, 67*, 1583–1590.

Scoboria, A., Ford, J. D., Lin, H., & Frisman, L. (2008). Exploratory and confirmatory factor analyses of the Structured Interview for Disorders of Extreme Stress. *Assessment, 15*, 404–425.

Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Mahwah, NJ: Erlbaum.

Stiglmayr, C. E., Shapiro, D. A., Stieglitz, R. D. Limberger, M. F., & Bohus, M. (2001). Experience of aversive tension and dissociation in female patients with borderline personality disorder: A controlled study. *Journal of Psychiatric Research, 35*, 111–118.

Taylor, G. K., Bagby, R. M., & Parker, J. D. A. (1997). *Disorders of affect regulation: Alexithymia in medical and psychiatric illness*. Cambridge, England: Cambridge University Press.

Ter Smitten, M. H., Smeets, R. M. W., & Van den Brink, W. (1998). *Composite International Diagnostic Interview (CIDI), version 2.1, 12 months*. Amsterdam, The Netherlands: World Health Organization.

Van der Hart, O., Nijenhuis, E., & Steele, K. (2005). Dissociation: An insufficiently recognized major feature of complex posttraumatic stress disorder. *Journal of Traumatic Stress, 18*, 413–423.

Van der Hart, O., Nijenhuis, E., & Steele, K. (2006). *The haunted self: Structural dissociation and the treatment of chronic traumatization*. New York, NY: Norton.

Van der Hart, O., Nijenhuis, E., Steele, K., & Brown, D. (2004). Trauma-related dissociation: Conceptual clarity lost and found. *Australian and New Zealand Journal of Psychiatry, 38*, 906–914.

Van der Hart, O., Van Dijke, A., Van Son, M. J. M., & Steele, K. (2000). Somatoform dissociation in traumatized World War I combat soldiers: A neglected clinical heritage. *Journal of Trauma & Dissociation, 1*(4), 33–66.

Van der Kolk, B. A. (1996). The complexity of adaptation to trauma: Self-regulation, stimulus discrimination, and characterological development. In Van der Kolk, B. A., McFarlane, A. C. & Weisaeth, L. (Eds), *Traumatic stress: The effects of overwhelming experience on mind, body, and society* (pp. 182–213). New York: Guilford Press.

Van der Kolk, B. A., Pelcovitz, M. D., Roth, S., Mandel, F. S., McFarlane, A., & Herman, J. L. (1996). Dissociation, somatization and affect dysregulation: The complexity of adaptation to trauma. *American Journal of Psychiatry, 153*, 83–93.

Van Dijke, A. (2008). The clinical assessment and treatment of trauma-related self- and affect dysregulation. In A. Vingerhoets, I. Nyklicek, & J. Denollet (Eds.), *Emotion regulation: Conceptual and clinical issues* (pp. 150–169). New York, NY: Springer.

Van Dijke, A., Ford, J. D., Van der Hart, Van Son, M., van der Heijden, P., & Bühring, M. (2010). Affect dysregulation in borderline personality disorder and somatoform disorder: Differentiating under- and over-regulation. *Journal of Personality Disorders*, *24*, 296–311.

Van Dijke, A., & Van der Hart, O. (2002). *The Dutch self report version of the Structured Interview for Disorders of Extreme Stress-Revised (SIDES-Revised)*. Unpublished manual, Utrecht University, Utrecht, The Netherlands.

Vorst, H. C. M., & Bermond, B. (2001). Validity and reliability of the Bermond-Vorst Alexithymia Questionnaire. *Personality and Individual Differences, 30*, 413–434.

Waller, E., & Scheidt, C. E. (2004). Somatoform disorders as disorders of affect regulation: A study comparing the TAS-20 with non-self-report measures of alexithymia. *Journal of Psychosomatic Research, 57*, 239–247.

Waller, E., & Scheidt, C. E. (2006). Somatoform disorders as disorders of affect regulation: A development perspective. *International Review of Psychiatry, 18*, 13–24.

Weaver, T. L., & Clum, G. A. (1993). Early family environments and traumatic experiences associated with borderline personality disorder. *Journal of Consulting & Clinical Psychology, 61*, 1068–1075.

World Health Organization. (1990). *Composite International Diagnostic Interview (CIDI)* (Version 1.0). Geneva, Switzerland: Author.

Zittel Conklin, C., Bradley, R., & Westen, D. (2006). Affect regulation in borderline personality disorder. *Journal of Nervous and Mental Disease, 194*, 69–77.

Zittel Conklin, C., & Westen, D. (2005). Borderline personality disorder in clinical practice. *American Journal of Psychiatry, 162*, 867–875.

Zlotnick, C., Zakriski, A. L., Shea, M. T., Costello, E., Begin, A., Pearlstein, T., & Simpson, E. (1996). The long-term sequelae of sexual abuse: Support for a complex posttraumatic stress disorder. *Journal of Traumatic Stress, 9*, 195–205.