AFFECT DYSREGULATION IN BORDERLINE PERSONALITY DISORDER AND SOMATOFORM DISORDER: DIFFERENTIATING UNDER- AND OVER-REGULATION

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Although affect dysregulation is considered a core component of borderline personality disorder (BPD) and somatoform disorders (SoD), remarkably little research has focused on prevalence and nature of affect dysregulation in these disorders. BPD and SoD diagnoses were confirmed or ruled out in 472 psychiatric inpatients using clinical interviews. Three qualitatively different forms of affect dysregulation were identified: under-regulation, over-regulation of affect and combined under- and over-regulation of affect. BPD was associated with under-regulation of affect, and SoD was associated with over-regulation of affect. However, one in five patients with BPD also reported substantial over-regulation, and one in six patients with SoD reported clinically significant under-regulation, and the comorbid BPD and SoD group reported more frequently both over- and under-regulation than patients diagnosed with BPD or SoD alone or those with other psychiatric disorders.

Affect or emotion dysregulation is considered a core component in borderline personality disorder (BPD; Berlin, Rolls, & Iversen, 2005; Donegan et al., 2003; Ebner-Priemer et al., 2005; Harned, Banawan, & Lynch, 2006; McMain, Korman, & Dimeff, 2001; Silbersweig et al., 2007; Zittel Conklin, & Westen, 2005) and somatoform disorder (SoD; Burba et al., 2000; Koolman, Bolk, Brand, Trijsburg, & Rooijmans, 2000; Waller & Scheidt, 2004, 2006). Some authors even consider BPD (Linehan, 1993) and SoD (Waller & Scheidt, 2004, 2006) to be primarily disorders of affect dysregulation.

However, affect dysregulation has been defined in two distinct ways. In BPD studies addressing affect dysregulation the focus was mainly on a deficiency in the capacity to modulate affect such that persons become
over-aroused and emotions become uncontrolled, expressed in intense and unmodified forms, and overwhelm reasoning and behavioral self-regulation (Koeningberg et al., 2002; Zittel Conklin & Westen, 2005; Zittel Conklin, Bradley, & Westen, 2006). In the SoD literature, affect dysregulation has been referred to as involving: (1) emotional numbing and inhibition of emotion awareness; (2) impairments in insight into emotions; (3) difficulty verbalizing emotions; and (4) difficulty analyzing emotions; also known as alexithymia (Waller & Scheidt, 2004, 2006).

In an attempt to clarify the concept of affect dysregulation, Van Dijke (2008), in line with Fonagy, Gergely, Jurist, and Target (2002), and Paivio and Laurent (2001), proposed that affect dysregulation may take two forms: “under-regulation” as observed in states of unmodulated emotional distress, and “over-regulation” as observed with alexithymia. Under-regulation refers to impairment in modulation of affect (i.e., maintaining mid-range rather than extremely high or low levels of affective intensity) and in recovery from extreme states of affective intensity. Over-regulation refers to suppression or repression of affective awareness or expression. Although the process of refining the concept of affect dysregulation is considered work-in-progress, by distinguishing the two forms it is proposed that there may be two different mechanisms that can occur separately or potentially together.

Two studies have provided quantitative descriptions of affect dysregulation in BPD (Zittel Conklin, Bradley, & Westen, 2006; Yen, Zlotnick, & Costello, 2002). Using the Affect Regulation and Experience Q-sort-Questionnaire Version to assess affect dysregulation, Zittel Conklin and colleagues found that BPD patients are characterized by both negative affect and affect dysregulation, which appear to be distinct constructs. Using the Affect Intensity Measure and Affect Control Scale to assess dimensions of affect regulation, Yen and colleagues concluded that persons with BPD traits experience emotions more intensely and have greater difficulty in controlling their affective responses than do other individuals. The findings of both studies are consistent with the hypothesis that BPD involves under-regulation of emotions; however, neither study investigated the possibility of over-regulation of affect in BPD. Although under-regulation of affect (i.e., failure to modulate intense emotion states) has been emphasized in clinical (Linehan, 1993) and scientific (Johnson, Hurley, Benkelfat, Herpertz, & Taber 2003; Silbersweig et al., 2007) studies of BPD, evidence consistent with the possibility of problems with over-regulation also has been reported in studies of BPD (e.g., dissociation, Johnson et al., 2003; emotional numbing and associated substance use problems, Perry & Herman, 1993). A study of adult female psychiatric patients with BPD found that they and their family members had higher levels of alexithymia on the Toronto Alexithymia Scale-20 (TAS-20; Bagby, Parker, & Taylor, 1994) than did nonclinical controls and their family members (Guttman & Laporte, 2002). No other studies that examined alexithymia and BPD could be located.
The results from studies on affect dysregulation in SoD patients are inconclusive. Some found evidence of a relationship between affect dysregulation (in the form of alexithymia on the TAS-20) and SoD (Burba et al., 2006; Kooiman, Bolk, Brand, Trijsburg, & Rooijmans, 2000; Waller & Scheidt, 2004, 2006), while other studies did not find alexithymia and SoD or somatization to be related (Bankier, Aigner, & Bach, 2001; Cohen, Auld, & Brooker, 1994; Duddu, Isaac, & Chaturvedi, 2003).

Although both BPD and SoD have been considered to be disorders of affect regulation, to our knowledge, no empirical studies that systematically assess the presence of both forms of affect dysregulation in BPD or SoD appear in the literature.

Therefore, in this study both under-regulation and over-regulation of affect were assessed in patients who were diagnosed either with BPD, SoD, comorbid BPD+SoD, or other psychiatric disorders (psychiatric comparison group, PC). If BPD and SoD are disorders of affect dysregulation, it was hypothesized that all participants diagnosed with BPD should report clinical levels of under-regulation, and all participants with SoD should report clinical levels of over-regulation of affect. For patients diagnosed with comorbid BPD and SoD it was hypothesized that they will report clinical levels of both under-regulation and over-regulation, that is: being over-aroused accompanied by inhibited emotion related cognitions and inhibited emotion related cognitive functions (Bermond, Moormann, Albach, & Van Dijke, 2008). For the psychiatric comparison group it was hypothesized that affect dysregulation should be of lesser severity in both under- and over-regulation than for the patients with BPD or SoD or both.

**METHOD**

**PARTICIPANTS**

Participants were 472 consecutive admissions to two adult inpatient psychiatric treatment centers, Eikenboom Center for Psychosomatic Medicine, Altrecht Utrecht (N = 117) and De Waard, Centre for Personality Disorders, Delta Psychiatric Center, Rotterdam (N = 355) who participated in the multi-center project “Clinical Assessment of Trauma-Related Self and Affect Dysregulation” (Van Dijke, 2008).

Next to intake according to the DSM-IV criteria, diagnosis of BPD and SoD (i.e., somatization disorder, undifferentiated somatoform disorder, severe conversion and pain disorder) were confirmed by clinical interviewers (e.g. general health psychologists and master students in clinical psychology who were trained and supervised by AvD, certified clinical psychologist/psychotherapist). The diagnosis of SoD additionally was confirmed by a psychiatrist with somatic experience, a specialist in internal medicine, or a general practitioner with psychiatric experience. Where possible, general practice and former hospital records were obtained (with patient’s consent).
and studied by the interviewer in addition to using 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 were 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, 58 met criteria for SoD only, and 64 did not meet criteria for BPD or SoD and 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 sex, and level of education on the dependent variables.

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

MEASURES

The CIDI (Composite International Diagnostic Interview section C; World Health Organization, WHO, 1997; Dutch version Smitten, Smeets, & Van den Brink, 1998) is a comprehensive, standardized instrument for assessing mental disorders according to the definitions and diagnostic criteria of DSM-IV and ICD-10. The CIDI has been shown to have good reliability and validity (Andrews & Peters, 1998). The BPDSI (Borderline Personality Disorder Severity Index; Weaver & Clum, 1993; Dutch version IV, Arntz, 1999) is a semi-structured 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, for ex-

| TABLE 1. Demographic Characteristics of the Study Groups and the Total Sample |
|---------------------------------|--------|--------|--------|--------|--------|
|                                | 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) |
| Social N                      | 30.8 % | 45.3%  | 40.3%  | 28.1%  | 37.9%  |
| T                             | 60.8   | 41.5   | 47.3   | 56.3   | 50.0   |
| S                             | 8.3    | 13.2   | 12.4   | 15.6   | 12.1   |
| Educ L                        | 24.2%  | 22.6%  | 27.1%  | 23.4%  | 24.4%  |
| M                             | 35.8   | 45.9   | 37.2   | 46.9   | 41.1   |
| H                             | 40     | 31.4   | 35.7   | 29.7   | 34.5   |

Note. BPD, borderline personality disorder; SoD, somatoform disorder; BPD+SoD, borderline personality disorder and somatoform disorder; PC, psychiatric comparison group; Social, primary relationship status; N, no primary partner; T, living together; S, separated by death or divorce; Educ, highest level of education attained; L, primary and low-level secondary education; M, middle level secondary education; H, high-level secondary education.
ample, “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 using a 10-point scale, indicating how often the event happened during the last three months. An average score was calculated for each section, total scores were calculated by summing the section scores. The BPDSI has been shown to have good validity and reliability (Arntz et al., 2003); for inclusion a cut-off score of 20 was used (personal communication Arntz, October 2003).

In order to assess under-regulation of affect, each subject completed the Dutch self-report version of the Structured Interview for Disorders of Extreme Stress Not Otherwise Specified, Revised (SIDES-rev; Ford & Kidd, 1998), an adaptation of the interview which provides a sub-scale for dysregulated affect (Ford & Kidd, 1998; Dutch translation Van Dijke & Van der Hart, 2002). The SIDES-rev was translated into Dutch and retranslated by a near-native speaker. The SIDES self-report version has not been validated in a BPD or SoD population; therefore, we performed reliability analysis and found that the affect dysregulation sub-scale was reliable in this sample (Cronbach’s $\alpha = .75$). The criterion for presence of pathological under-regulation of affect was adopted from the SIDES scoring manual (Ford & Kidd, 1998; from criterion I.a. “affect dysregulation:” 2 out of 3 items $\geq 2$). The items include: (1) often getting quite upset over daily matters, (2) being unable to get over the upset for hours or not being able to stop thinking about it, and (3) having to stop everything to calm down and it took all your energy or getting drunk, using drugs, or harming yourself to cope with emotional distress. Thus, the measure addresses the core components of under-regulation of affect, i.e., frequent/intense distress, inability to modulate or recover from distress, and use of self-defeating coping to deal with distress.

In order to assess over-regulation of affect, each subject completed the Bermond Vorst Alexithymia Questionnaire (BVAQ; Vorst & Bermond, 2001), which is a Dutch forty-item questionnaire with good psychometric qualities (Vorst & Bermond, 2001), encapsulating two distinct second order factor groupings: cognitive dimensions (diminished ability to verbalize, identify, and analyze emotions) and affective dimensions (diminished ability to emotionalize and fantasize). High scores represent stronger alexithymic tendencies. The reliability for the total scale and its subscales is good and varies between .75 and .85 (Vorst & Bermond, 2001). A reliability analysis was performed for the whole sample and the BVAQ proved to be reliable for our purposes (Cronbach’s $\alpha = .88$). 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 (TAS-20; Bagby, Parker, & Taylor, 1994; $r = .80$). The cut off score for pathological alexithymia/over-regulation of affect was adopted from the TAS-20 study (Taylor, Bagby, & Parker, 1997) and applied to the BVAQ cognitive factor by Vorst (personal communication, September 2002).
DATA ANALYSIS

All statistical analyses were performed using SPSS, version 16 (SPSS Chicago). Associations between under-regulated and over-regulated forms of affect dysregulation (SIDES-rev I.a.; BVAQ-cognitive factor) were explored using Pearson correlations (two-tailed). Group means for the continuous affect dysregulation scores (under-regulation and over-regulation) were compared using multivariate analyses of variance (MANOVAs) with diagnosis as dependent variable. Logistic regression analyses with contrasts: PC groups versus all others, BPD versus SoD, BPD versus BPD+SOD and SoD versus BPD+SOD were conducted with membership in each diagnostic group as the dependent variable and under-regulation and over-regulation of affect scores as independent variables, in order to determine the relative strength of the association between affect dysregulation with diagnostic subgroup membership. Finally, cross tabulations with Chi-square tests were used to determine whether the distinct forms of affect dysregulation were represented differently among all diagnostic groups. Standard residuals are a way of contrast testing. Standard residual values less than −2 or greater than 2 are statistically important. A negative value denoted “less frequent than expected”; a positive value denoted “more frequent than expected” compared to all other groups.

RESULTS

When considering the sample as a whole, under-regulation and over-regulation of affect were weakly related ($r = .11$, $p < .017$). The correlations within each sub-group ranged from .02 for BPD, to .04 for BPD+SOD, to .09 for SoD, and .05 for PC and all were not significant ($p = .27–.80$).

MANOVA was conducted to explore group differences in affect dysregulation. There was a statistically significant difference between all diagnostic groups: $F(6, 930) = 14.55$, $p < .001$; Wilks’ Lambda = .84; partial eta squared = .09. When the results for the independent variables were considered separately, between group differences were found for affect dysregulation, with a large effect size for under-regulation of affect (over-regulation of affect $F(3, 465) = 4.9$; partial eta-squared = .03; under-regulation of affect $F(3, 465) = 26.26$; partial eta-squared = .14).

Table 2 displays the means of the continuous scores for affect dysregulation for the BPD, SoD, BPD+SOD, and psychiatric control groups. BPD participants (and especially those diagnosed with both BPD+SOD) were most likely to report both and more under-regulation and over-regulation of affect. Figure 1 shows direction of differences for over-regulation and under-regulation of affect separately for the study groups.

Regression analyses were performed using contrast testing between groups. The results are presented in Table 3. The results present profiles for each disorder suggested using contrasting that PC was inversely associated with over-regulation of affect. BPD was associated with under-regu-
TABLE 2. Affect Dysregulation Means and Continuous Scores for Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean (SD) of affect</th>
<th>Mean (SD) of affect</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPD</td>
<td>119</td>
<td>8.29 (1.84)</td>
<td>77.06 (17.89)</td>
</tr>
<tr>
<td>SoD</td>
<td>159</td>
<td>6.64 (2.02)</td>
<td>72.63 (17.54)</td>
</tr>
<tr>
<td>BPD + SoD</td>
<td>129</td>
<td>8.44 (1.83)</td>
<td>79.26 (17.90)</td>
</tr>
<tr>
<td>PC</td>
<td>63</td>
<td>7.19 (2.30)</td>
<td>70.70 (19.55)</td>
</tr>
</tbody>
</table>

Note. BPD, borderline personality disorder; SoD, somatoform disorder; BPD + SoD, borderline personality disorder and somatoform disorder; PC, psychiatric comparison group.

ulation of affect and comorbid BPD and SoD was associated with both under-regulation and over-regulation of affect. For all contrasts, the inclusion of the two independent variables improved the fit of the model significantly except for BPD versus BPD + SoD (PC versus all others: $\chi^2 = 6.89, df = 2, p < 0.03$; BPD versus SoD: $\chi^2 = 47.80, df = 2, p < 0.000$; BPD versus BPD + SoD: $\chi^2 = 1.35, df = 2, p < 0.51$; SoD versus BPD + SoD: $\chi^2 = 62.89, df = 2, p = .000$). The Hosmer-Lemeshow test revealed that for all contrasts the model fits the data well (PC versus all others: $\chi^2 = 6.43, df = 8, p = 0.60$; BPD versus SoD: $\chi^2 = 13.07, df = 8, p = 0.11$; BPD versus BPD + SoD: $\chi^2 = 6.48, df = 8, p = 0.59$; SoD versus BPD + SoD: $\chi^2 = 12.40, df = 8, p = 0.13$).

Using the described cut-off scores for clinical-level affect dysregulation, 28.2% of the total sample reported clinically significant high levels of under- and over-regulation only, 19.3% reported clinically significant high levels of over-regulation only, and 30.5% reported nonclinical levels of both under- and over-regulation. Figure 2 presents results concerning the presence of affect dysregulation for the BPD, SoD, BPD + SoD, and the psychiatric comparison groups. Significant differences between all groups were found ($\chi^2 = 67.59, df = 9, p < .001$). The SoD group significantly more frequently reported nonclinical levels of affect dysregulation (standard residual value = 3.8) and less frequently reported clinical levels of under-regulation (standard residual value = −2.2) or both under-regulation and over-regulation (standard residual value = −3.6) than the other groups. Participants diagnosed with comorbid BPD and SoD significantly less frequently reported nonclinical levels of affect dysregulation (standard residual value = −3.6) and more frequently reported clinical levels of both under-regulation and over-regulation of affect (standard residual value = 3.3) than the other groups.

DISCUSSION

Although all patients reported some symptoms of affect dysregulation, clinical levels of affect dysregulation do not appear to be present in all BPD or SoD patients. Moreover, under-regulation of affect was not exclusively
FIGURE 1. Group differences for under-regulation and over-regulation of affect
present in BPD and over-regulation was not exclusively present in SoD patients. The results suggest that while BPD and SoD often involve affect dysregulation (Linehan, 1993; Waller & Scheidt, 2004, 2006), there is a spectrum of both under-regulation and over-regulation of affect present in patients diagnosed with BPD and/or SoD. Still, BPD was associated with a greater likelihood of clinical and higher levels of affect dysregulation than SoD. In line with previous studies and consistent with study hypotheses, affect dysregulation, specifically under-regulation of affect, appears to be an important component of borderline personality pathology (Koeningsberg et al., 2002; Linehan, 1993; McMain et al., 2001; Zittel Conklin & Westen, 2005) but is not present in every patient.

Also consistent with study hypotheses, patients with BPD+SoD reported both significantly higher levels of under-regulation of affect and reported more frequently clinical levels of combined over- and under-regulation than the other groups. SoD was not consistently associated with reports of clinical levels of under- or over-regulation, except when comorbid with BPD. However, when SoD occurred without BPD, under-regulation was particularly uncommon and clinical levels of over-regulation were reported more often than for any of the other diagnostic groups (including BPD+SoD). Thus, there is partial support for the study hypothesis that SoD would be particularly associated with over-regulation. This finding is consistent with prior research and clinical observations about alexithymia in SoD (Waller & Scheidt, 2004, 2006), and further suggests that only a sub-set of SoD patients experience clinical levels of over-regulation of affect.

This study provided evidence that two qualitatively different forms of affect dysregulation do exist. Over-regulation and under-regulation of affect
DIFFERENTIATING UNDER-REGULATION AND OVER-REGULATION

FIGURE 2. Distribution of study groups for clinical levels of under-regulation and over-regulation of affect

proved to be related yet were largely distinct. Fewer than one in three patients reported experiencing both under- and over-regulation, suggesting that this combination of affect dysregulation does occur but is not typical in patients with BPD or SoD. These findings are in line with those of Paivio and Laurent (2001), who observed two forms of affect dysregulation in their patients when working with emotions in psychotherapy.

Our findings extend this work by suggesting that there may be a third form: combined over- and under-regulation of affect and that under- and over-regulation are most likely to co-occur among patients with BPD although only in a sub-set of these patients: particularly those with comorbid SoD. Approaches to affect regulation have been developed for patients with severe psychiatric disorders (Wolfsdorf & Zlotnick, 2001), and several psychotherapy models that have shown evidence of efficacy over one- to five-year treatment periods with patients diagnosed with borderline personality disorder incorporate emotion regulation interventions designed to address both under- and over-regulation. Dialectical Behavior Therapy teaches skills for mindfulness in order to facilitate emotion awareness and distress tolerance and emotion regulation in order to enhance the modulation of extreme emotion states (Linehan et al., 2006). Transference Fo-
cused Psychotherapy (Levy et al., 2006) assists patients in using the patient-therapist relationship and transference (re)enactments in order to recognize, modulate, and develop new relational schemas with regard to states of emotional emptiness as well as distress. Mentalization Based Treatment (Bateman & Fonagy, 2008) similarly focuses on the patient-therapist relationship to assist patients in becoming aware of their moment-to-moment state of mind (including enhanced emotion awareness) and collaboratively developing alternative ways of understanding themselves, others, and their relationships (which can be considered examples of increasing the capacity for emotion modulation). The present findings suggest that treatments such as these which address over- as well as under-regulation with patients diagnosed with BPD may particularly warrant testing when SoD or clinically significant somatoform symptoms also are present. Also, for BPD patients, especially those with comorbid SoD, who report emotional blindness addressing the different facets of over-regulation (e.g., difficulty differentiating emotions, difficulty analyzing emotions, and difficulty verbalizing emotions) by means of emotion recognition training (Ekman, 2003) or sensory motor therapy (Ogden, Minton, & Pain, 2006) could also contribute to the process of emotional awareness and emotional growth.

Clinically, these results indicate that there are distinct sub-groups with different types and degrees of affect dysregulation within the broad diagnostic cohorts defined by BPD and SoD and their combination. Although under-regulation was most associated with BPD and over-regulation with SoD, (a) one in five patients with BPD also reported substantial over-regulation, and one in six patients with SoD reported clinically significant under-regulation, and (b) under-regulation was most severe when BPD occurred in combination with SoD (almost one in four patients with SoD reported clinically significant under-regulation when BPD was also present). Therefore, patients with BPD should be assessed for over-regulation, particularly when SoD is comorbid. Similarly, patients with SoD should be assessed for under-regulation, particularly when BPD is comorbid.

We found that patients with SoD reported little affect dysregulation and if so, as expected, they tended to report over-regulation of affect unless BPD was comorbid. SoD patients tend to attribute burden to physical complaints as opposed to psychological distress. Moreover, in order to self-report symptoms of affect dysregulation, patients must be aware of psychological burden and be somewhat psychologically minded. Patients with SoD are often described as bodily focused; they show little psychological mindedness, and their cognitive style has been described as operative thinking (Marty & M'Uzan; cited in Clayton, 2004).

LIMITATIONS

This study took place in a clinical environment (as opposed to a laboratory or an academic environment). Due to limitations considering the burden
participants could be taken upon complementary clinical interviews; e.g., Kernberg’s (1984) structural interview for BPD or a structured alexithymia interview (TSIA; Bagby, Taylor, Parker, & Dickens, 2006), or the interview for complex PTSD/ DESNOS (SIDES; Pelcovitz, Van der Kolk, Roth, Mandel, Kaplan, & Resick, 1997) had to be removed. The data were collected during an incorporated clinical assessment procedure (Van Dijke, 2008) in a treatment-as-usual program for patients with persistent BPD or SoD. The results served two goals: to help direct clinical diagnosis and therapy and to provide empirical data for long-term research projects.

This study explored the relatively new research area of affect regulation and dysregulation. We attempted to quantify clinical observations and theoretical aspects of affect dysregulation using empirical data. No standard instrument that assesses both under- and over-regulation of affect was available, therefore, independent instruments were used to assess each form of affect dysregulation. Affect dysregulation was considered to be different from affective instability: mood swings between neutral-anxious or neutral-angry or neutral-depressive.

Self-report measures were used to assess affect dysregulation. The severity of the psychopathology could have interfered with the validity of the self-assessment. This might be especially true for over-regulation of affect, because vague or diminished affective experience might be more difficult to report. This could be a particular problem for patients with SoD, because they tend to attribute burden to physical complaints as opposed to psychological distress. Clinical observations or (semi) structured interviews that assess affect dysregulation could provide complementary information.

FUTURE DIRECTIONS

To overcome the limitations of using self-reports and two different measures to assess under-regulation and over-regulation of affect, one measure encompassing features of both forms of affect dysregulation should provide additional information. Moreover, the results from this study call for the development of a structured interview addressing affect dysregulation and associated phenomena.

Various hypotheses about the etiology of affect dysregulation and associations with other phenomena have been described. Affect dysregulation has been associated with psychological trauma and complex posttraumatic stress disorder (CPTSD) or disorders of extreme stress not otherwise specified (DESNOS; Herman, 1992; McLean, Toner, Desrocher, Jackson, & Stuckless, 2006; Pelcovitz et al., 1997; Roth, Newman, Pelcovitz, Van der Kolk, & Mandel, 1997; Van der Kolk et al., 1996). Although emotional numbing is a hallmark symptom of PTSD (Litz, Kaloupek, Orsillo, & Weathers, 2000), most conceptual models of PTSD and CPTSD emphasize under-regulation as the primary form of affect dysregulation. Our findings are consistent with prior calls for more systematic attention to over-regul-
tion in PTSD and CPTSD research, assessment, and treatment (Krystal et al., 2000). The interrelationships and characteristics of under- and over-regulation of affect in the traumatic stress disorders remain to be explored.

The ability to experience emotions while maintaining a sense of agency and mastery facilitates reflective function, and has been associated with affect- and self-regulation (Fonagy, Gergely, Jurist, & Target, 2002). Because some BPD and SoD patients experience significant difficulty with affect regulation, including a reduced ability to identify and verbalize feelings, it is important that future studies assess whether these impairments interfere with their reflective awareness abilities and with their broader information processing (Ford, 2005), social cognition (Lynch et al., 2006), and competencies critical to sociovocational functioning and independent living. Consistent with this possibility, BPD patients have been found to have altered brain development and function, specifically in the orbitofrontal cortex area that is associated with the processing of emotionally-valenced information (Berlin, Rolls, & Iversen, 2005; Donegan et al., 2003; Schore, 2001).

CONCLUSION
By differentiating affect dysregulation into under-regulation and over-regulation of affect, this study revealed three qualitatively different forms of affect dysregulation in patients with BPD and SoD: under-regulation, over-regulation, and combined under- and over-regulation of affect. The results of this study suggest that considering BPD and SoD as disorders of affect regulation might be an oversimplification. Studying affect dysregulation in terms of under- and over-regulation can provide information about the mechanisms of dysregulation in these and other diagnostic cohorts of psychiatric patients. Our findings are consistent with treatment models that emphasize affect identification and modulation for patients diagnosed with BPD and facilitating emotional experiencing in patients with SoD.

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