

Dissociation as a Predictor of Cognitive Behavior Therapy Outcome in Patients with Obsessive-Compulsive Disorder

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Key Words

Dissociation · Obsessive-compulsive disorder · Cognitive behavior therapy · Exposure therapy · Outcome predictors

Abstract

Background: Previous studies have found a strong association between dissociation and obsessive-compulsive disorder (OCD). The purpose of the present study was to evaluate whether dissociation is a predictor of cognitive behavior therapy (CBT) outcome in patients with OCD. **Methods:** Fifty-two patients with OCD were assessed using the Dissociative Experience Scale (DES), the Yale-Brown Obsessive-Compulsive Scale and the Beck Depression Inventory. CBT lasted on average 9.5 weeks and included exposure therapy. **Results:** Patients who dropped out due to noncompliance had higher baseline DES scores and depression scores compared to the 43 patients (83%) who completed the study. Significant OCD symptom reduction at posttreatment was observed in study completers with a large effect size ($d = 1.7$). More severe OCD symptoms at posttreatment were associated with higher DES scores at baseline, and treatment nonresponders had significantly higher baseline DES scores compared to responders. These associations with outcome were mainly due to the DES subfactor ab-

sorption-imaginative involvement. In regression analyses, higher absorption-imaginative involvement scores at baseline predicted poorer CBT outcome, even after controlling for depressive symptoms, comorbid axis I disorders and concomitant psychotropic drugs. **Conclusions:** Results from this preliminary study suggest that higher levels of dissociation (particularly absorption-imaginative involvement) in patients with OCD might predict poorer CBT outcome. If our results can be replicated, treatment outcome might be improved by additional interventions for those patients with OCD who indicate high levels of dissociation, for example by using interventions aimed at improving coping with emotionally stressful situations.

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Introduction

Dissociation has been defined by Bernstein and Putnam [1] as lack of integration of thoughts, feelings, and experiences into the stream of consciousness. Compared to healthy controls, elevated levels of dissociation have been reported in patients with a wide variety of psychiatric disorders such as posttraumatic stress disorders (PTSD) [2], panic disorders [3], somatization and conversion disorders [4–6], eating disorders [7, 8], borderline

personality disorders [9], and dissociative identity disorders [10]. Several investigations have established that high levels of dissociation are related to a history of antecedent traumatic events (overview, e.g. in Putnam et al. [11]). A higher rate and greater severity of childhood trauma than that seen in healthy controls has also been found to be associated, along with other mental disorders, with obsessive-compulsive disorder (OCD) [12–14]. Despite this relationship, only a few studies have systematically explored the association between OCD and dissociation. One recent study [15] found a strong link between dissociation, assessed by the Dissociative Experience Scale (DES) [1], and obsessive-compulsive symptoms. However, the study examined nonclinical individuals and psychiatric outpatients without the diagnosis of OCD. In their evaluation of 100 patients with OCD, Goff et al. [16] reported higher DES scores compared to normal controls from a previous study [1], comparable to patients with phobic anxiety disorders. Patients with higher DES scores had more severe OCD symptoms, as measured by the Maudsley Obsessional Compulsive Inventory [17] [however, DES scores did not significantly correlate with scores on the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) [18]], and were more depressed than patients with lower dissociation scores. In a further study, reported by Merckelbach and Wessel [19], 19 outpatients with OCD showed significantly higher DES scores than nonpatient controls. Clinical and epidemiological studies showed that OCD is remarkably heterogeneous in its clinical presentation [20, 21], and some studies evaluated the association of dissociation with different subtypes of OCD symptoms: higher DES scores were found to be associated with ‘checking’ [15, 16, 22], ‘symmetry and ordering’ [22], and ‘obsessive intrusions’ [15] categories.

These previous findings of an association between OCD and dissociation raise the question of whether dissociative symptomatology in OCD may interfere with treatments of this disorder, especially cognitive behavior therapy (CBT). A negative impact of dissociation on CBT outcome was reported in one retrospective study of 89 patients with agoraphobia and panic attacks which found an association between elevations in dissociation levels and poorer CBT outcome [23]. CBT including exposure and response management is the most effective psychological treatment currently available for OCD; its effectiveness has been demonstrated in numerous controlled studies and meta-analyses [24–28]. However, 20–50% of patients fail to sufficiently improve, a situation which is associated with substantial impairment for these patients [29–32]. The lack of adequate response to CBT might be

explained in some cases by the presence of dissociative symptoms which possibly inhibit the regulation of emotional arousal that is essential for effective exposure *in vivo* and *in sensu*. Bartlett and Drummond [33] described a case history of a patient with OCD who developed dissociative symptoms during exposure treatment and failed to respond to this treatment. A recent study [34] of 55 inpatients with OCD treated with multimodal CBT reported that dissociative personality traits at baseline were associated with worse treatment outcome. However, only a self-rated screening inventory for personality traits [35] was used, not a specific instrument for quantifying dissociation. To the best of our knowledge, no study is available that systematically evaluates the impact of dissociation on CBT outcome in patients with OCD by using a specific instrument for assessing dissociative symptoms.

Therefore, the present prospective, longitudinal study examined the prevalence of dissociative symptoms and its relationship to sociodemographic and psychopathologic characteristics in 52 adult patients with OCD before they were treated with CBT including exposure and response management. The main goal was to evaluate whether dissociation, as measured with the DES, might be a predictor of CBT outcome in patients with OCD. Because of the assumption that elevated levels of dissociation might interfere negatively with exposure therapy, we hypothesized that higher dissociation scores at baseline would be predictive of poorer CBT outcome.

Methods

Sample

Participants in the study included 52 adult patients with the primary diagnosis of OCD (meeting DSM-IV criteria) who were treated specifically for OCD in the Behavior Therapy Unit at the University Hospital of Hamburg. All patients were treated with CBT including exposure and response management, either as outpatients [18 patients (35%)] or as inpatients [34 patients (65%)]. Exposure was started with therapist-assisted sessions, based on the concept of exposure and response management by Hand [29], followed by self-exposure and self-imposed response management without the therapist [36, 37]. The mean treatment duration of the two settings was comparable (10.0 weeks and 9.2 weeks, respectively). Twenty-nine patients (56%) were concomitantly treated with psychotropic drugs, mostly selective serotonin reuptake inhibitors. To be included in the study, patients had to be between 18 and 65 years old and had to have a score of at least 16 on the Y-BOCS. Exclusion criteria were current or previous psychosis, current substance abuse or dependency, acute risk of suicide, and organic brain disorders. All patients gave written informed consent to participate in the study.

Posttreatment data were collected for 43 of the 52 patients (83%). Noncompleters either finished treatment but refused to participate in posttreatment assessment (2 patients) or dropped out of treatment due to noncompliance (7 patients). The 7 patients (13%) who dropped out due to noncompliance had higher baseline DES total scores [17.1 (SD = 12.8) and 9.6 (SD = 7.5), respectively; $t = -2.20$, d.f. = 48, $p = 0.03$] and Beck Depression Inventory (BDI) scores [27.6 (SD = 10.1) and 18.2 (SD = 9.2), respectively; $t = -2.44$, d.f. = 44, $p = 0.02$] compared to those who finished treatment. No significant differences were found in baseline Y-BOCS scores ($t = -1.24$, d.f. = 48, $p = 0.22$) and sociodemographic variables (all $p > 0.1$).

Assessments

All clinician ratings were conducted by experienced and trained raters who were not involved in the treatment process. At baseline, all patients were interviewed with the German version [38] of the Mini International Neuropsychiatric Interview for DSM-IV axis I disorders, a reliable and valid diagnostic structured interview [39, 40].

OCD severity was rated at baseline and after treatment by the clinician-rated 10-item Y-BOCS [18] (German version [41]). Dissociative symptoms were assessed at baseline by the authorized German translation [42] of the self-rated DES [1]. The German version and the original version of the DES are widely used instruments which are highly correlated ($r = 0.97$) and have been found to be comparably valid and reliable measures to quantify dissociative experiences [42–44]. The DES total score ranges from 0 to 100 and represents the mean of all 28 item scores. A high total score indicates a high level of dissociative experiences. Through factor-analytic studies of the DES, three subscales have been consistently found: amnesic dissociations, absorption-imaginative involvement, and depersonalization/derealization experiences [45]. Depressive symptoms were assessed at baseline by the self-rated 21-item BDI [46] (German version [47]). Five patients did not complete the BDI; therefore, these patients were excluded from analyses of the BDI scores. In order to examine whether patients with higher DES scores were more anxious at baseline (a factor that could interfere with exposure therapy), the Symptom Checklist-90-Revised [48] (German version [49]) subscales for anxiety and phobic anxiety were used.

Data Analyses

The relationship between dissociative symptoms and patient characteristics at baseline was calculated using Pearson correlations and independent t tests. Statistical significance of changes in OCD symptoms during treatment was calculated with dependent t tests, effect sizes with Cohen's d [50] with the formula ' $d = (\text{mean pre} - \text{mean post}) / \text{SD pre}$ '. To examine the relationship of baseline DES scores with OCD symptom severity after treatment, Pearson correlations were used. Treatment responders (defined as at least a 35% decrease on the Y-BOCS scores from baseline to posttreatment) and nonresponders were compared with respect to pretreatment DES scores and subscores by using independent t tests. Regression analyses were performed to determine the contribution of dissociation scores at baseline to predicting treatment outcome. In all analyses, the level of significance was set at $p < 0.05$ (two-sided). The Statistical Package for Social Sciences (SPSS), version 11.5, was used for all calculations.

Results

Prevalence of Dissociative Symptoms and Its Relationship to Patient Characteristics at Baseline

The mean DES score of the entire sample ($n = 52$) was 10.8 (SD = 8.8), with a range from 0.0 to 36.1 and a median of 8.0. Thirty-four patients (65%) were female; dissociation scores were unrelated to gender: the mean DES scores were 12.2 (SD = 9.1) in females and 8.1 (SD = 7.3) in males ($t = -1.62$, d.f. = 50, $p = 0.11$). The mean age of patients was 34.5 years (SD = 8.0), length of school education 11.4 years (SD = 1.5), and duration of OCD before treatment 9.5 years (SD = 8.1). These variables were unrelated to dissociation scores (all r between -0.15 and 0.15 , all $p > 0.29$).

Twenty-eight patients (54%) met DSM-IV criteria for a current comorbid axis I disorder. Twenty-three patients (44%) had a comorbid major depression, two of these in combination with social phobia and one in combination with generalized anxiety disorder. Four patients (8%) were codiagnosed with dysthymia, and one patient displayed comorbid agoraphobia. Dissociation scores did not differ significantly between patients with and without comorbid axis I disorders ($t = -1.57$, d.f. = 50, $p = 0.12$).

Patients with higher dissociation scores were more depressed ($r = 0.53$, $p < 0.001$) but did not have significantly higher Y-BOCS scores ($r = 0.19$, $p = 0.17$), anxiety scores ($r = 0.10$, $p = 0.57$), or phobic anxiety scores ($r = 0.03$, $p = 0.84$).

Association between Dissociation and Treatment Outcome

At baseline, the 43 patients who completed the trial showed severe OCD symptoms with a mean Y-BOCS score of 25.5 (SD = 4.9). During treatment, which lasted 9.5 weeks on average (SD = 26 days), the mean Y-BOCS score declined to 17.4 (SD = 6.6), i.e. a mean reduction of 32%. This OCD symptom reduction was highly significant ($t = 7.62$, d.f. = 42, $p < 0.001$). The effect size was large (Cohen's $d = 1.67$), indicating that the improvement may be considered a clinically important change.

In order to examine the possible impact of dissociation on CBT outcome, two outcome criteria were examined: (a) severity of obsessive-compulsive symptoms after treatment, as assessed by posttreatment Y-BOCS scores, and (b) treatment response, which was defined, in accordance with several previous studies [31, 32, 51, 52], as at least a 35% decrease on the Y-BOCS score from baseline to posttreatment.

Regarding the first outcome criterion, we found a significant positive correlation between baseline DES total scores and posttreatment Y-BOCS scores ($r = 0.32$, $p = 0.03$; but not with baseline Y-BOCS scores: $r = 0.22$, $p = 0.16$). On DES subscales, patients with higher baseline scores on the absorption-imaginative involvement subscale had higher Y-BOCS scores after treatment ($r = 0.33$, $p = 0.03$; but not higher Y-BOCS scores at baseline: $r = 0.14$, $p = 0.36$). In contrast, neither 'amnesic dissociation' ($r = 0.11$, $p = 0.47$) nor 'depersonalization/derealization experiences' ($r = 0.19$, $p = 0.24$) baseline scores were associated with posttreatment Y-BOCS scores.

Regarding the second outcome criterion, treatment nonresponders had significantly higher baseline DES total scores compared to responders [11.7 (SD = 8.5) and 7.1 (SD = 5.6), respectively; $t = 2.07$, d.f. = 41, $p = 0.04$]. DES subscores of absorption-imaginative involvement were significantly higher in nonresponders than in responders [17.7 (SD = 12.5) and 10.6 (SD = 6.7), respectively; $t = 2.27$, d.f. = 41, $p = 0.03$], whereas no significant differences occurred on the other two subscores 'amnesic dissociation' ($t = 0.80$, d.f. = 41, $p = 0.43$) and 'depersonalization/derealization experiences' ($t = 0.90$, d.f. = 41, $p = 0.37$). In order to examine the possible impact of depressive symptoms, comorbid axis I disorders, and concomitant psychotropic drugs on treatment response, we calculated differences between responders and nonresponders with respect to these variables. None of these variables was significantly related to treatment response: mean BDI scores at baseline were comparable in treatment responders and nonresponders: 17.4 (SD = 8.3) and 18.7 (SD = 10.0), respectively ($t = 0.50$, d.f. = 37, $p = 0.62$); patients with and without comorbid axis I disorders showed no significant differences in treatment response rates ($\chi^2 = 0.64$, d.f. = 1, $p = 0.43$), and concomitant drug treatment was not significantly related to treatment response/nonresponse either ($\chi^2 = 2.87$, d.f. = 1, $p = 0.09$).

Afterwards, regression analyses were computed to elucidate the predictive power of dissociation scores for treatment outcome. The two outcome criteria (posttreatment Y-BOCS scores and treatment response) served as dependent variables, baseline DES subscores as independent (predictor) variables. The DES total score was not used in conjunction with the DES subscores to preclude redundancy of the data analyses.

Stepwise multiple regression analyses with posttreatment Y-BOCS scores as the dependent variable revealed that posttreatment Y-BOCS scores were significantly predicted by the DES subscores of absorption-imaginative involvement ($R^2 = 0.12$, $\beta = -0.34$, $p = 0.03$). Subscores

of amnesic dissociation and depersonalization/derealization experiences failed to reach significance and did not enter into the equation. Because of the possible influence of depressive symptoms, comorbid axis I disorders and use of psychotropic drugs on treatment outcome, the regression analysis was repeated by controlling for these variables. We also included baseline BDI scores, comorbid diagnoses (no diagnosis = 0; present diagnosis = 1), and psychotropic drugs during treatment (no drugs = 0; concomitant drugs = 1) as independent variables in the regression analysis. Again, only the DES subscores of absorption-imaginative involvement significantly predicted posttreatment Y-BOCS scores ($R^2 = 0.12$, $\beta = -0.35$, $p = 0.03$). All other variables did not reach significance and did not enter into the equation.

Comparable results emerged in the binary logistic regression analysis with treatment response/nonresponse as the dependent variable and baseline DES subscores as independent variables: only higher scores of absorption-imaginative involvement predicted nonresponse ($\chi^2 = 5.46$, d.f. = 1, $p = 0.02$, 62% of subjects classified correctly). Controlling for baseline BDI scores, comorbid diagnoses, and medication during treatment did not substantially change this result.

Discussion

The mean DES score of 10.8 for patients with OCD in the present study was lower than mean DES scores previously found in some other mental disorders such as multiple personality disorder (44.6), PTSD (31.5), borderline personality disorder (21.6), and eating disorders (17.0) (overview in Putnam et al. [11]). However, the level of dissociation in patients with OCD seen in our study was higher than previously found in normal adults (mean DES score of 8.3) [11], patients with pathological gambling (7.7) [53] and neurological disorders (9.2) [11], and was comparable to patients with phobic anxiety disorders (11.0) [11]. Our finding of elevated DES scores in patients with OCD is in agreement with other studies of dissociation in OCD [16, 19].

Consistent with previous research, we found no significant association of dissociation scores with Y-BOCS scores at baseline [16, 22] and with sociodemographic variables such as gender or age [16] (however, some studies reported that DES scores were negatively correlated with age [10]). The result of a significant association between dissociation and comorbid depressive symptoms at baseline is in agreement with previous studies of OCD

[16] and other mental disorders such as eating disorders [8] and multiple personality disorder [54–56].

The main aim of the present study was to evaluate the predictive value of dissociation for CBT outcome. Our results indicated that higher dissociation scores at baseline (particularly absorption-imaginative involvement) were able to predict (1) more severe obsessive-compulsive symptoms after treatment and (2) nonresponse to CBT even after controlling for baseline depression, comorbid axis I disorders and concomitant psychotropic medication. Moreover, patients with higher levels of dissociation at baseline were more likely to drop out of the treatment program, denoting treatment failure. However, these patients also had more severe depressive symptoms, which could be another explanation for their dropping out.

One possible explanation for our finding of a link between greater dissociation and poorer CBT outcome concerns the exposure therapy that all patients received. Patients with higher dissociation levels might have become dissociative as a result of high levels of affect during exposure, inhibiting reality testing, regulation of emotional arousal and habituation. As a consequence, these patients were probably less likely to achieve significant treatment success or dropped out of the treatment program because of their negative experiences during exposure. This interpretation is supported by retrospective findings of Michelson et al. [23] who reported that elevations in dissociation were predictive of greater psychopathology following CBT treatment including exposure techniques in patients with panic disorder with agoraphobia.

Our finding that dissociative symptoms of absorption-imaginative involvement are linked to poorer CBT outcome in patients with OCD seems to be plausible. The process of absorption or imaginative involvement means that the consciousness is focused on the point of absorption. In the face of high emotional arousal, as is seen during exposure, both environmental and personal contact may be detached and accompanied by narrowed attention and an altered sense of reality [57]. Patients with OCD who are experiencing these dissociative symptoms may possibly be unable to take full advantage of the treatment. However, these are theoretical assumptions. In contrast to our results, Michelson et al. [23] reported that in panic disorder with agoraphobia, the subfactor of amnesia (but not absorption-imaginative involvement) was positively associated with poorer CBT outcome. Further research is clearly needed to elucidate the impact of different dissociative symptoms on CBT including exposure techniques in patients with OCD.

Our results raise the question of an association between dissociative symptoms in patients with OCD and antecedent traumatic experiences. A growing body of data suggests the importance of antecedent childhood trauma as a risk factor in the pathogenesis of adult dissociative psychopathology [12, 58–61] (see, however, Kooiman et al. [62] and Elzinga et al. [63]). Previous studies suggest that trauma may also play an etiological role in some cases of OCD [12–14]. Gershuny et al. [64] found a negative impact of PTSD on OCD behavior therapy outcome. However, none of our patients with OCD had a comorbid diagnosis of PTSD. Future research should investigate the relationship between OCD and dissociative and traumatic experiences in order to gain greater understanding of OCD treatment.

There are several limitations to this study that should be taken into account. Firstly, patients were treated in two different settings, as outpatients or inpatients. Despite the mean treatment duration of the two settings being comparable and all treatments consisting of CBT including exposure in vivo and in sensu, patients who were treated as inpatients received additional interventions (such as social skills training). Secondly, no axis II diagnostic interview was performed; no information regarding personality disorders was available for our sample. Thirdly, our assessment of dissociation was based only on patients' self-ratings. It would be interesting to corroborate our findings using a clinician-rated instrument. Moreover, a scale measuring the intensity of episodic dissociative symptoms might better reflect the experiences of patients with OCD during exposure therapy.

In conclusion, despite these limitations, the results from the present preliminary study suggest that greater dissociation (particularly absorption-imaginative involvement) in patients with OCD might be a negative predictor of CBT outcome. If our findings can be replicated, it would have important clinical implications. For those patients who report greater dissociation before treatment, modified or additional interventions could be used to improve CBT outcome. For example, clinicians might attempt to improve strategies for coping with emotionally stressful situations before exposure begins and could use more graduated exposure techniques, monitoring carefully the extent to which the patient is successfully coping with emotional arousal.

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