ORIGINAL ARTICLE

Psychological dissociation in obsessive-compulsive disorder is associated with anxiety level but not with severity of obsessive-compulsive symptoms

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Abstract

OBJECTIVE: According to recent findings, clinical symptoms in patients with obsessive-compulsive disorder (OCD) seem be related with dissociation. The aim of the present study was to evaluate the relationship of psychological dissociation and clinical characteristics in OCD.

METHODS: The study sample comprised of 49 patients with OCD (55.1% females) and 45 healthy controls (66.7% females). All participants were assessed with the Yale-Brown Obsessive-Compulsive Scale, the Beck Depression Inventory-II, and the Beck Anxiety Inventory. Dissociation was quantified by the Dissociative Experiences Scale (DES).

RESULTS: Psychological dissociation assessed with the DES was associated with the severity of anxiety symptoms (β=0.49, t=3.89, df=47, p<0.001), but not with the level of OCD symptoms. Patients had higher level of dissociation than healthy controls.

CONCLUSION: Our results suggest that the level of psychological dissociation is associated with the severity of anxiety symptoms rather than with OCD symptoms. Further investigation of association between dissociative and anxiety states is needed.

INTRODUCTION

Dissociation is characterized by disruption in the usually integrated functions of consciousness, memory, identity, and perception of the environment (APA, 1994). Several studies have pointed at the possible association between obsessive-compulsive disorder (OCD) and dissociation. A case history of an OCD patient who developed dissociative symptoms during exposure treatment had initiated further research (Bartlett and Drummond, 1990). The case report suggested that dissociative experiences may have prevented desensitization in this patient during exposure therapy. In the study conducted by Goff (Goff *et al.* 1992) patients who scored 20 or higher on the Dissociative Experience

Scale – (DES; Bernstein and Putnam, 1986)had significantly more severe OCD and depressive symptoms than OCD patients with the DES score < 20. High-dissociative (DES ≥ 20) OCD patients tended to report a more frequent history of affective illness (depressive disorder, bipolar disorder, dysthymia) and checking compulsions as compared to low-dissociative OCD patients.

Other research on dissociation in OCD showed that more severe OCD symptoms after cognitive-behavior therapy were associated with higher DES scores at baseline, and treatment non-responders had significantly higher baseline DES scores compared to responders (Rufer *et al.* 2006b).

OCD has been consistently reported to have high rates of comorbid depression and anxiety, which, in turn, can be associated with higher frequency of dissociative experiences (Steketee *et al.* 1999). Several studies confirmed the close association between depressive symptoms and dissociation (Bob *et al.* 2005; Greenes *et al.* 1993; Lipsanen *et al.* 2004; Maaranen *et al.* 2005;). High prevalence of depersonalization and derealization symptoms as manifestation of dissociation in anxiety disorders such as panic disorder, social phobia, post-traumatic stress disorder is apparent (Hunter *et al.* 2004). These findings pointed to the significant connection between dissociation and depressive, as well as anxiety symptoms.

Watson *et al*. (2004) mentioned the possibility of dissociative experiences being nonspecifically related to various types of anxiety symptoms and not having any specific association with OCD symptoms. They examined this hypothesis on undergraduate and university students and psychiatric outpatients and revealed that the association between dissociation assessed by the DES and obsessive thoughts and checking compulsions remained substantial even after controlling for different anxiety symptoms. There was a moderate correlation between general anxiety and dissociation.

The only study which investigated the relationship between dissociation, anxiety, depressive and OCD symptoms in patients with OCD and social anxiety disorder was done by Fontenelle *et al*. (2007). They revealed that only the severity of OCD symptoms predicted the variance of the DES score, even after controlling for the effect of severity of depressive symptoms measured by the BDI and anxiety assessed with the BAI, in OCD patients.

With respect to previous studies, dissociation would be clinically highly relevant predictor to treatment outcome in OCD. However it is not clear how is dissociation associated with depressive, anxiety and specific OCD symptoms. Two studies pointed at independent relation of OCD symptoms to dissociation (Fontenelle *et al.* 2007, Watson *et al.* 2004) and only one study included an assessment of both depressive and anxiety symptoms (Fontenelle *et al.* 2007). Other studies assessing this association did not find any correlation between the frequency of dissociative experiences and severity of OCD symptoms. Hence, the primary aim of the present study was to explore the relation of psychological dissociative experiences in OCD patients to obsessive-compulsive, anxiety and depressive symptoms.

METHODOLOGY

Participants

Sixty-one OCD patients from the outpatient and inpatient departments of the Prague Psychiatric Centre were recruited for this study. The patients were aged between 18 and 60 years. The diagnosis of OCD was assessed by two independent psychiatrists according to the Mini-International Neuropsychiatric Interview for DSM-IV axis I disorders. The exclusion criteria were comorbid psychiatric disorder on axis I with the exception of other anxiety disorders and depressive disorder in last 6 months, organic brain disorder, substance abuse or dependency, and severe somatic disorder. We included patients with Y-BOCS total scores ≥ 12 which indicate at least mild severity of OCD. Twelve patients who initially had met OCD criteria were excluded according to the exclusion criteria. Forty-nine OCD patients (27 females, 55.1%) of mean age 32.0 ± 9.7 were finally included to the study. Twenty-three patients (46.9 %) had a comorbid psychiatric disorder: 6 generalized anxiety disorder, 9 social phobia, 1 both social phobia and generalized anxiety disorder, 1 both panic disorder and generalized anxiety disorder and 6 major depression. The majority of patients used psychotropic medication: serotonin reuptake inhibitors (SRI's) (n=22), other types of antidepressants (n=7), combinations of an antidepressant and a low dose of an antipsychotic (n=11), or a low dose of an antipsychotic only (n=2). Five patients were without any medication.

Forty-five healthy controls (30 females, 66.7%) without any lifetime axis I diagnosis were recruited through local advertisement. The controls were aged between 19 and 60 years (the mean age 33.9 ± 12.1 years). Their mental health status was determined by the Mini-International Neuropsychiatric Interview for DSM-IV axis I disorders. All participants signed an informed consent before entering the study and the study was approved by a medical ethics committee.

Assessment of psychopathology

Anxiety symptoms were evaluated with a self-administered 21-item scale – the Beck Anxiety Inventory (BAI; Beck *et al.* 1988)). The level of depressive symptoms was rated using the self-administered 21-item Beck Depression Inventory-II (BDI-II; (Beck AT *et al.* 1996)). Finally, the severity of obsessive-compulsive symptoms was rated by the clinician-evaluated 10-item Yale-Brown Obsessive-Compulsive Scale (Y-BOCS; Goodman WK *et al.* 1989).

Psychological dissociative symptoms were examined using the Dissociative Experiences Scale (DES; (Carlson and Putnam, 1993). The DES is a self-administered

28-item inventory of psychological dissociation, where participants are asked to indicate on a visual analog scale how often they experience the dissociative symptoms (in percentage of time). The Czech version of the scale is comparable to the original version in terms of its reliability (Cronbach's alpha = 0.92), test-retest reliability after 6–8 weeks (r=0.84), validity and factor structure (Ptacek *et al.* 2007). Factor analysis of this scale identified three independent subscales that correspond to amnestic dissociation, absorption/imaginative involvement and depersonalization/derealization experiences (Carlson *et al.* 1991).

Data analyses

Normal distribution of the demographic and clinical variables was determined by the Shapiro-Wilk W test, with exception of DES and DES subscales. A logarithmic transformation of the DES total scores was performed to reach normal distribution and to allow linear regression. Differences between patients with OCD and healthy controls were analyzed using t-tests for independent groups, the Mann-Whitney test, and chi-square tests. The Bonferroni correction was employed on comparisons of DES subscales ($p<0.017$). The relationships between variables were calculated using Pearson correlation analysis. Multiple regression analyses with the transformed DES score as dependent variable and BDI, BAI and Y-BOCS scores as independent variables, controlling for age and gender were carried out to identify the principal clinical variables which influence the severity of dissociative symptoms in OCD patients. The level of significance was set at $p<0.05$. All analyses were conducted using STATISTICA 7.0 software.

RESULTS

Comparisons of sociodemographic and clinical variables and the frequency of dissociative experiences bfetween OCD patients and healthy controls

Comparisons of the sociodemographic and clinical characteristics of OCD patients and healthy controls with the severity of OCD according to Y-BOCS scores are shown in Table 1. No significant age- and/or gender-specific differences were found between the groups. Patients had more frequent psychological dissociative states and more severe anxiety and depressive symptoms then controls. Four patients (8.2%) and none of the healthy participants scored 30 or higher on the DES scale, which is cut-off point for severe dissociation (Carlson *et al.* 1993). Differences on DES subscales between the OCD and control group are presented in Figure 1. Scores on the DES subscales in the OCD group were as follows: amnestic dissociation 6.0 ± 7.5, absorption/imaginative involvement 15.6 ± 15.8, depersonalization/derealization 6.0 ± 10.7. The difference between patients and controls after the Bonferroni correction for 3 comparisons remained significant for all three subscales of the DES.

Correlation analyses in OCD group

Pearson correlations between the variables in OCD patients are depicted in Table 2. DES scores did not correlate with the severity of OCD symptoms, but correlated positively with the BAI and BDI scores. Significant positive correlations between Y-BOCS total, obsession and compulsion scores on the one side and BAI and BDI scores on the other side was observed. The strongest association has been detected between the level of obsessions, BAI and BDI scores.

Tab. 2. Pearson's correlation coefficients between Y-BOCS, DES, BAI, BDI and other variables in OCD group.

	BAI	BDI	DES
BAI	X	0.61***	0.49***
BDI	0.61**	x	0.46***
Y-BOCS score			
total	0.43**	0.44**	0.28
obsessions	0.50***	0.51***	0.28
compulsions	0.32*	0.33*	0.25

*$p<0.05$; **$p<0.01$; ***$p<0.001$

Tab. 1. Comparison of sociodemographic and clinical characteristics of subjects with OCD and healthy subjects.

	OCD patients n=49	Controls n=45	statistical significance
Age, years	32.0 ± 9.7	33.9 ± 12.1	NS [2]
Male / female	22 / 27	15 / 30	NS [1]
Age at onset, years	17.3 ± 8.9		n.a.
Duration of illness, years	14.7 ± 9.2		n.a.
DES (average)	12.8 ± 13.5	3.5 ± 2.8	$p<0.001$, t=4.50 [2]
DES (range)	0 – 48.9	0.4 – 11.8	n.a.
BAI	16.2 ± 10.7	5.4 ± 4.3	$p<0.001$, t=6.31 [2]
BDI-II	13.8 ± 9.3	3.4 ± 3.7	$p<0.001$, t=7.00 [2]
Y-BOCS score			
total	22.3 ± 6.6		n.a.
obsessions	11.0 ± 3.4		n.a.
compulsions	11.4 ± 3.6		n.a.

Results are reported as account or mean ± SD.
DES – Dissociative Experiences Scale, BAI – Beck Anxiety Inventory, BDI-II – Beck Depressive Inventory-II, Y-BOCS -Yale-Brown Obsessive-Compulsive Scale, NS – non significant, n.a. – non aplicable,
[1] Pearson's chi-squared test
[2] Unpaired t-test
[3] Mann-Whitney U-test.

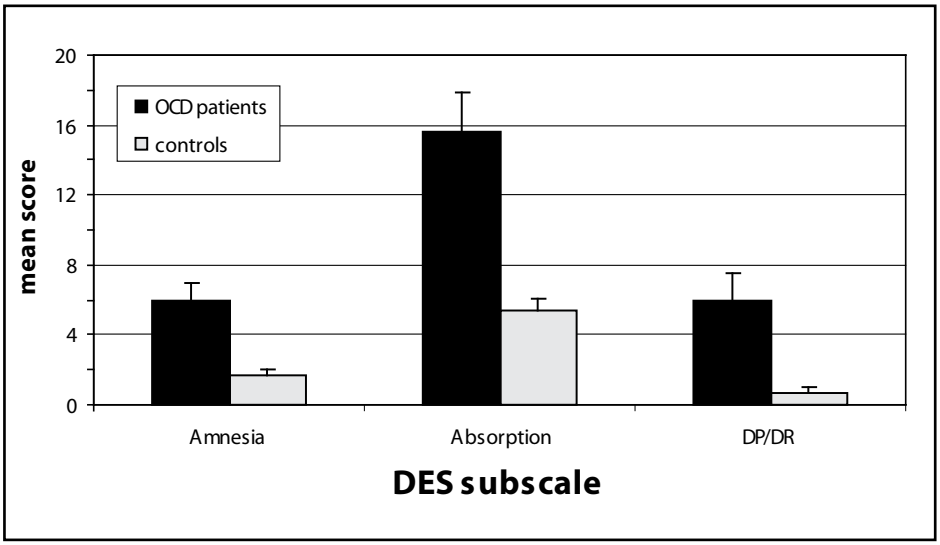

Fig. 1. Comparison of DES subscales scores between OCD patients and healthy controls.
Abbreviations: Amnesia – Amnestic dissociation; Absorption – Absorption/Imaginative involvement; DP/DR – Depersonalization and derealization. Results are depicted as mean ± SE.
Between-group comparison using Mann-Whitney U-test:
After Bonferroni correction for 3 comparisons (p<0.017) all 3 DES subscales scores remained significantly higher in OCD group in comparison with controls.
Amnestic dissociation – adjusted z=3.07, p=0.0022
Absorption/Imaginative involvement – adjusted z=4.47, p<0.001
Depersonalization/derealization – adjusted z=3.50, p=0.0018

Regression analyses in OCD group

For patients with OCD, multiple regression analysis was performed to examine the influence of depression, anxiety and OCD symptoms on the severity of psychological dissociation, as evaluated by the DES, controlling for age and gender. Only a higher level of anxiety predicted a higher DES score in OCD patients ($\beta = 0.49$, $t = 3.89$, $df = 47$, adjusted $R^2 = 0.23$, p<0.001).

DISCUSSION

Psychological dissociation assessed with the DES scale was predicted by the severity of anxiety symptoms, but there was no association of the DES with the level of OCD symptoms in patients with OCD. Patients were experiencing psychological dissociative symptoms more frequently than healthy controls.

The patients with OCD reached levels of psychological dissociation assessed by the DES comparable to those found by Rufer *et al.* (2006c), even though the mean Y-BOCS score in their study was higher than the mean score presented here. The absence of significant correlation between the DES score and Y-BOCS score is in agreement with 2 previous studies (Goff *et al.* 1992; Rufer *et al.* 2006b), but in discordance with study conducted by Fontenelle *et al.* (2007).

The main finding of our study is that only the anxiety symptoms predicted the severity of dissociation in OCD patients Anxiety as a predictor of dissociative symptoms was described in patients with social anxiety disorder, but not in patients with OCD, in the study of Fontenelle *et al.* (2007). They revealed, in contrast with our study, that the severity of OCD symptoms predicted the level of dissociation measured by the DES in the OCD group. The difference could be explained by the use of different scale to measure the intensity of OCD symptoms. It could be also due to different subtypes of OCD patients involved to studies. There could be less "checkers" in our study who tend to have more dissociative experiences (Goff *et al.* 1992). The evidence for high prevalence of depersonalization/derealization during life-threatening situations (Noyes *et al.* 1977), in panic disorder and posttraumatic stress disorder (Hunter *et al.* 2004) indicates that dissociation is associated with anxiety states. The main hypothesis is that dissociation is a coping strategy to deal with anxiety states. The question whether dissociative states, like depersonalization and derealization, are components of anxiety or have to be treated as an independent construct is now discussed (Hunter *et al.* 2004; Hunter *et al.* 2003; Lambert *et al.* 2001). Our results showed that dissociation is closely related to anxiety in OCD patients. The factor analysis of the BAI and the exploration of relation of factors to dissociative scales in patients with anxiety disorders may bring more understanding of this problem.

There was a positive correlation between psychological dissociation and depressive symptoms. This is in agreement with previous studies of OCD (Goff *et al.* 1992; Rufer *et al.* 2006a; Rufer *et al.* 2006c). There is evidence of a close relationship between dissociation and depressive symptoms. Stable high dissociation was associated with an increase in the BDI score and

recovery from high dissociation was associated with a decline in the BDI score at 3-year follow-up (Maaranen *et al.* 2008). The comparison of dissociative symptoms in depressive and OCD patients and deeper exploration of association between depressive symptoms and dissociation in different diagnostic groups is recommended.

Our study has substantial limitations that should be considered. To assess the level of dissociation, we used self-report questionnaires. On the other hand, the DES is widely used questionnaire used in other comparable studies in this topic. Future research should corroborate this questionnaire with clinician-rated instruments. A further limitation of our study is the relatively small sample size, which made impossible the evaluation of different subgroups of OCD. Patients, in contrast to controls, were medicated and possible side-effects could explain part of the differences between patients with OCD and healthy controls.

In conclusion, our findings show the close relation of dissociative states with the level of anxiety in OCD, but there is no direct relation of specific OCD symptoms to dissociation. We are in need of further research to explore the role of dissociation in other anxiety disorders and their relation to emotion regulation, biological factors and therapy outcome.

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