Dissociative disorder and dissociation – comparison with healthy controls

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Abstract

OBJECTIVE: The aim of our study is to examine if the dissociation, can influence intensity of psychopathology in patients suffering with dissociative disorders compare the level of dissociation of the patients with the data of healthy subjects.
METHODS: 32 patients suffering with various types of dissociative disorder (9 males and 23 females) and 93 healthy controls (29 males and 64 females) were included into the study. The patients were psychiatrically assessed and the subjective intensity of symptoms was evaluated by Beck Anxiety Inventory and Beck Depression Inventory. All participants were assessed with the Dissociative Experiences Scale (DES).
RESULTS: The two groups didn't differ in demographic variables like age, gender and education. Level of the psychological dissociation assessed with the DES was correlated with the severity of subjective anxiety symptoms ($p<0.0001$), and with the severity of depression symptoms ($p<0.0001$). Patients had statistically significant higher mean score of DES than healthy controls ($p<0.0001$).
CONCLUSIONS: Our results suggest that the level of psychological dissociation in dissociative disorder patients is associated with the severity of anxiety and depressive symptoms.

INTRODUCTION

Dissociative disorders are a disturbance in the organization of identity, memory, perception, or consciousness that cannot be explained on a physical basis. The failure of integration of these functions seen in these disorders results in symptoms that illustrate fundamental problems in the organization of mental processes. Selected mental contents are removed or dissociated from conscious experiences; however, they continue to produce motor or sensory effects. The disturbance may have a sudden or gradual onset and may be temporary or chronic in its course. There are not among the most common psychiatric illnesses, but not rare. Typically they are underdiagnosed. Data from general population suggest lifetime prevalence of 1% (Ross *et al.* 1991). Women make up the majority of cases, accounting for over 90% of the cases, in some studies (Putman *et al.* 1986, Schultz

et al. 1989). Data from the research of Dominguez *et al.* (2004) suggested an association between physical and sexual abuse and high level of dissociation, particularly in subjects reporting a history of early childhood abuse and an increased prevalence of lifetime traumatic events. Dissociative disorder is a severe and often disabling condition. Several studies confirmed the close association between depressive symptoms and dissociation (Greenes *et al.* 1993, Lipsanen *et al.* 2004, Maaranen *et al.* 2005). Acute dissociation is associated with panic symptoms that occur during the traumatic experience (Bryant and Panasetis, 2005). Dissociation is seen as a coping strategy to deal with strong anxiety states. The level of dissociation can be one of the reasons for the treatment resistance in panic disorder patients (Ball *et al.* 1997, Segui *et al.* 2000, Gulsun *et al.* 2007), like among the patients suffering with OCD (Praško *et al.* 2008, Raszka *et al.* 2008, and Raszka *et al.* 2009).

<u>Goals:</u> The aim of our study is to examine if the dissociation is connected with the subjective severity of symptoms in patients suffering with dissociative disorder and if the intensity of dissociation is differ from the healthy controls.

<u>Hypotheses:</u> We hypothesized that the level of dissociation is generally higher in dissociative disorder patients compared with controls. Working hypothesis said that dissociative disorder patients suffer with higher level of dissociation, than healthy controls and that level of dissociation is associated with the subjective experienced severity of anxiety and depression.

METHODS

32 patients with dissociative disorder and 125 healthy controls were included into the study.

Including criteria

- ICD-10 research diagnostic criteria for dissociative disorder
- Age 17–60 years
- Male and female
- Excluding criteria:
- Depressive disorder (ICD-10 criteria for depressive disorder)
- Organic psychiatric disorder
- Psychotic disorder in history
- Substance dependence
- Serious somatic disease

Assessment

The intensity of the psychopathology was measured with BAI and BDI. 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 *et al.* 1996). Psychological dissociative symptoms were examined using the Dissociative Experiences

Scale (DES; Carlson & Putnam 1991; 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 test-retest reliability, validity and factor structure (Ptacek *et al.* 2007). Pathological DES was measured by a Dissociative Experiences Scale Taxon (DES-T) based on the items of DES number 3, 5, 7, 8, 12, 13, 22, 27 (Waller *et al.* 1996). These items measure identity alteration, depersonalization, derealization, discontinuation of awareness, dissociative amnesia, and auditory hallucinations.

Ethical issues

Investigation will be carried out in accordance with the latest version of the Declaration of Helsinki and ICH-GCP guidelines (International Conference on Harmonization, Good Clinical Practice) (EMEA 1997). The local ethics committee approved the study and informal consent.

Participants

32 patients with dissociative disorder with age between 20 and 60 years (9 males and 23 females; mean age 32.78 ± 12.00) from the Outpatient department Valašské Meziříčí and Psychiatric department of the University Hospital Olomouc Centre, were recruited for this study. All patients used psychotropic medication, mostly SSRIs. 93 healthy controls (29 males and 64 females) without any lifetime axis I diagnosis were recruited through local advertisement. The controls were aged between 17 and 60 years (the mean age 39.34 ± 10.97 years). All participants signed an informed consent before entering the study. The mean scores in DES, pathological DES, BAI and BDI are described in Table 1.

Data analysis

Patient's demographic and baseline clinical characteristics were analysed using column statistics. Normal distribution of the demographic and clinical variables was determined by the Shapiro-Wilk W test, with exception of DES. Differences between patients with dissociative disorder and healthy controls were analyzed using t-tests for independent groups and the Mann-Whitney test. The relationships between variables with normal distribution (age, BDI, BAI,) were calculated using Pearson correlation analysis, while Spearman correlation was used for variables with non-normal distribution of DES. Linear regression with the DES score as dependent variable and gender, BDI, BAI scores as independent variables were carried out to identify the principal clinical variables which influence the severity of dissociative symptoms in dissociative disorder patients. The same analyses with DES score as dependent variable and gender, mental health status (dissociative disorder/ control), as independent variables were performed to

Tab. 1. Mean demographic and clinical variables.

Patients variable	age	gender	education	DES	pat-DES	BAI	BDI
Number of values	32	32	32	32	32	32	32
Minimum	20	1	1	0.5	0	0	0
Maximum	60	2	3	141	37.5	58	48
Mean	38.78	1.719	2.063	53.83	11.58	24.16	21.06
Std. Deviation	12.00	0.4568	0.6189	39.71	10.54	13.85	13.31
Normality Test							
KS distance	0.1237	0.4497	0.3215	0.1775	0.136	0.1092	0.1269
P value	$p>0.10$	$p<0.0001$	$p=0.0027$	$p>0.10$	$p>0.10$	$p>0.10$	$p>0.10$
Passed normality test	Yes	No	No	Yes	Yes	Yes	Yes
Controls variable	**age**	**gender**	**education**	**DES**	**pat-DES**		
Number of values	93	93	93	93	93		
Minimum	17	1	1	0	0		
Maximum	60	2	3	94.5	20		
Mean	39.34	1.688	2.237	19.63	2.161		
Std. Deviation	10.97	0.4658	0.4754	18.06	3.394		
Normality Test							
KS distance	0.07223	0.4366	0.4325	0.1578	0.2621		
P value	$p>0.10$	$p<0.0001$	$p<0.0001$	$p=0.0195$	$p<0.0001$		
Passed normality test	Yes	No	No	No	No		

identify the principal clinical variables which influence dissociative symptoms in all participants. The level of significance was set at $p<0.05$. All analyses were conducted using STATISTICA 7.0 software.

RESULTS

Sociodemographic and clinical variables and the frequency of dissociative experiences between dissociative disorder patients and healthy controls

Comparisons of the sociodemographic and clinical characteristics of dissociative disorder patients and controls are shown in Table 2. No significant age- and/or gender-specific differences were found between the groups. The healthy control group had higher education level (Pearson's chi-squared test; $p<0.05$). Patients had higher mean score of DES than healthy controls (means: 53.83 ± 39.71 respective 19.63 ± 18.06; Mann Whitney test: $p<0.0001$); they had more frequent severe dissociative states: 20 patients and 17 of the healthy participants scored higher than 30 on the DES scale, which is cut-off point for severe dissociation (Fisher´s exact test; $p<0.0001$).

Correlation analyses and linear regression in dissociative disorder group

Spearman correlations are presented in Table 3. Relatively strong associations between level of anxiety and DES

Tab. 2. Comparison of sociodemographic and clinical characteristics of subjects with dissociative disorder and healthy subjects.

	Dissociative disorder (n=32)	Controls (n=93)	Statistical significance
Age (years)	32.78 ± 12.00	39.34 ± 10.97	ns [2]
Gender: male/female	9/23	29/64	ns [4]
Education (basic/secondary/university)	5/20/7	2/67/24	$p<0.05$ [1]
DES (average)	53.83 ± 39.71	19.63 ± 18.06	$p<0.0001$ [3]
Pathological DES (average)	11.58 ± 10.54	2.161 ± 3.394	$p<0.0001$ [3]
DES higher than 30	20	17	$p<0.0001$ [4]

Results are reported as account or mean ± SD.
Abbreviations: DES - Dissociative Experiences Scale,
ns - non significant, [1] - Pearson's chi-squared test, [2] - Unpaired t-test
[3] - Mann Whitney test, [4] - Fisher´s exact test

Tab. 3. Spearman's correlation coefficients between DES, pathological DES and BAI, BDI and age in panic disorder group.

	BAI	BDI	age
DES	0.4194*	0.4863**	0.3555*
Pathological DES	0.3501*	0.3257	−0.1109

* $p<0.05$, ** $p<0.005$
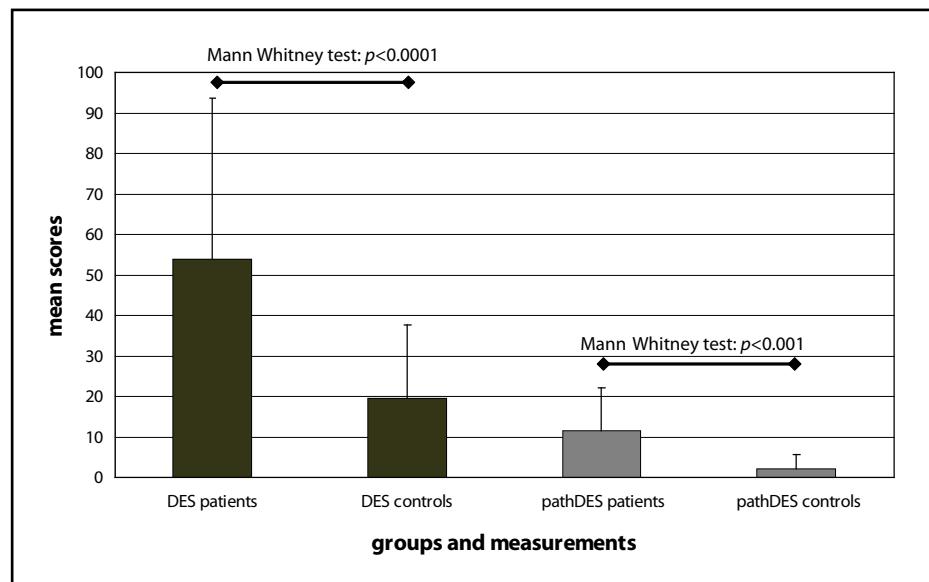
Fig. 1. Comparison of mean DES between patient and controls.
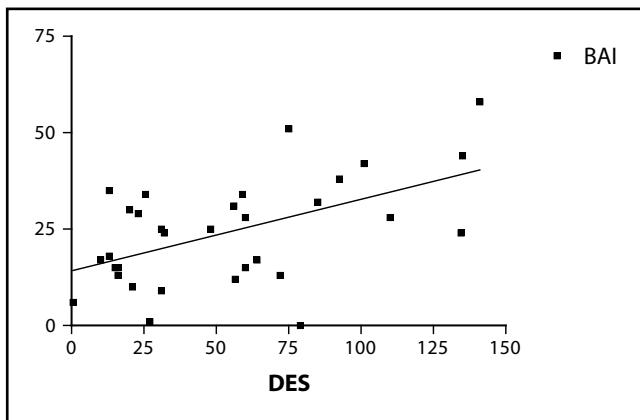

**Fig. 2.** Linear regressions of DES and BAI.
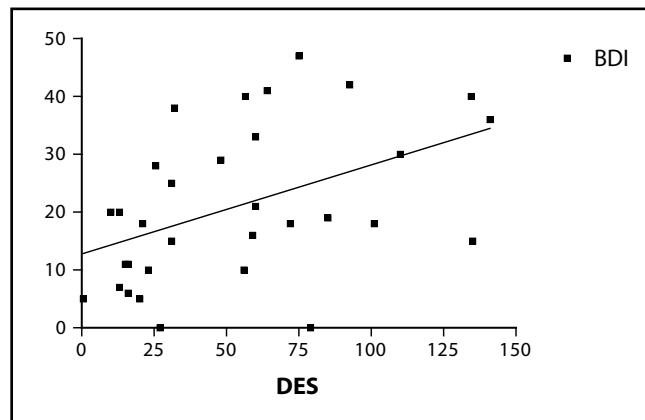
**Fig. 3.** Linear regression of mean DES and BDI.
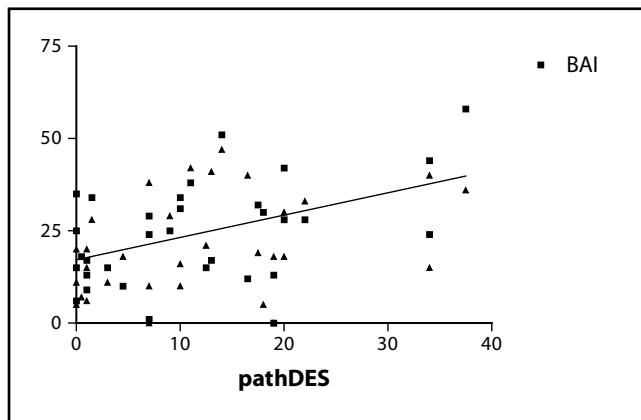
Fig. 4. Linear regressions of pathological DES and BAI.

scores were found. There were also correlation between DES or pathological DES scores and level of depression.

Psychological dissociation assessed with the DES was associated with the severity of anxiety symptoms (linear regression: $r^2=0.283$; F=11.84, DFd=30; $p<0.005$), and with the severity of depression symptoms (linear regression: $r^2=0.211$; F=8.023, DFd=30; $p<0.01$).

Psychological dissociation assessed with the subscale pathological DES was associated with the severity of anxiety symptoms (linear regression: $r^2=0.2115$; F=8.047, DFd=30; $p<0.01$), but not with the severity of depression symptoms (linear regression: $r^2=0.119$; F=4.051, DFd=30; $p=0.0532$).

DISCUSSION

Psychological dissociation assessed with the DES scale was correlated with the severity of the subjective anxiety and depressive symptoms. Patients were experiencing several psychological dissociative symptoms more frequently than healthy controls, and the mean DES scores were significantly higher. Both our hypotheses were confirmed. The main hypothesis is that dissociation is a coping strategy to deal with anxiety states. The question whether dissociative states are components of anxiety or have to be understood as an independent construct is now discussed (Hunter *et al.* 2004, Raszka *et al.* 2009). Our results showed that dissociation is closely related to subjective anxiety in patients suffering with dissociative disorder. There was also significant correlation between psychological dissociation and depressive symptoms. Stable high dissociation was associated with an increase in the BDI score in depressive patients and recovery from high dissociation was associated with a decline in the BDI score at 3-year follow-up (Maaranen *et al.* 2008). There was strong correlation between subjective scores of depression and level of psychological dissociation in our patient suffering with dissociative disorders.

Our study has substantial limitations that should be considered. To assess the level of dissociation, we used self-report questionnaires. Future research should corroborate these questionnaires 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 dissociative disorder. Patients, in contrast to the controls, were medicated and possible side-effects could explain part of the differences between patients with dissociative disorder and healthy controls. In conclusion, our findings show the close relation of dissociative states with the level of anxiety in dissociative disorder.

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