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ORIGINAL ARTICLE

Self-stigma, severity of psychopatology, dissociation, parental style and comorbid personality disorder in patient with neurotic spectrum disorders

Part 2: Therapeutic efficacy of intensive psychotherapeutic inpatients program

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Abstract

OBJECTIVES: The effect of short-term psychodynamic psychotherapy in patients with neurotic spectrum disorders may be related with predictive factors such as the severity of the disorder, diagnosis, self-stigma level, personality characteristics, comorbidity with depression and personality disorder, dissociation, and traumatic childhood experience. This study focuses on finding factors related to the effect of short-term psychodynamic psychotherapy in patients with neurotic spectrum disorders.

METHOD: The study was conducted at the Psychotherapeutic ward of the Psychiatric Department in Regional Hospital Liberec from October 2015 to March 2019. The assessment method used at the beginning was the objective and subjective Clinical global impression (objCGI, subjCGI), Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI-II), Dissociative Experience Scale (DES), Liebowitz Social Anxiety Scale (LSAS), Internalized Stigma of Mental Illness (ISMI), Temperament and Character Inventory (TCI), Parental Bonding Style (PBI), Childhood Trauma Questionnaire (CTQ). The 6-week therapeutic program combines group dynamic psychotherapy (4 times a week for 1.5 hours), pharmacotherapy and other therapeutic activities. The primary criterium of therapeutic outcome was the change in objCGI severity, and the secondary criteria were changes in subjCGI, BAI and BDI-II.

RESULTS: A total of 96 hospitalized patients with neurotic spectrum disorder diagnosed according to ICD-10, confirmed with the MINI (MINI-International Neuropsychiatric Interview) were included in the study and filled out the

questionnaires' battery. There was a statistically significant decrease in the anxiety and depression symptoms and an overall decrease in the disorder's severity during the treatment. At the beginning of the treatment, a higher self-stigma rate was associated with a smaller decrease in anxiety symptoms (BAI) and depression (BDI-II). However, self-stigma is not a factor associated with the change in primary outcome criteria (objCGI change). Initial assessment of objective severity of the disorder (objCGI) and personality factor Novelty Seeking predict the change in objCGI severity. **CONCLUSIONS:** Self-stigma predicted the change in anxiety and depressive symptom but not the change of the disorder's global severity in short-term psychodynamic psychotherapy of patients with a neurotic spectrum disorder.

INTRODUCTION

Although anxiety spectrum disorders are considered less severe psychiatric disorders, their treatment is insufficiently effective or unsuccessful in many patients. For example, despite effective medication and psychotherapy, nearly one-third of patients with the panic disorder remain symptomatically (Cowley *et al.* 1997, Chen & Tsai 2016). The reasons why treatment may not be sufficient, are the treatment strategies themselves and factors that can negatively impact therapeutic strategies' effectiveness. This research focuses on finding factors related to the effect of short-term psychodynamic psychotherapy in patients with neurotic spectrum disorders. Such factors may include the severity of the disorder, diagnosis, self-stigma, personality characteristics, comorbidity (with depression and personality disorder), dissociation and traumatic childhood experiences (Prasko *et al.* 2016, Ociskova *et al.* 2018).

Self-stigma

Self-stigma represents a maladaptive process of adopting social prejudices to self-perception and self-concept of the person with many negative consequences for human life and is associated with poorer treatment outcomes (Prasko *et al.* 2016; Kamaradova *et al.* 2016) and lower adherence to treatment (Kamaradova *et al.* 2016; Carrara & Venturac 2018). Numerous studies have investigated self-stigma in neurotic spectrum disorders associated with clinical or personality variables and psychological changes during treatment and after completing therapeutic programs (Ociskova *et al.* 2015; Ociskova *et al.* 2018). According to some studies, patients with higher self-stigma had less improvement in anxiety symptoms after combined treatment (Ociskova *et al.* 2018). A study by Lorona *et al.* (2018) in 213 patients diagnosed with anxiety disorder found that self-stigma was significantly related to the severity of disorder symptoms. Changes in self-stigma were positively associated with changes in the severity of symptoms after completing the CBT therapeutic program (Lorona *et al.* 2018).

Traumatic events in childhood

If the child who does not have developed self-regulatory mechanisms is repeatedly exposed to traumatic experiences, it affects the whole person's psychological organization (Howell 2005; Chefetz 2015).

Chronic traumatization can induce functional personality reorganization and separate personality structure that is not fully integrated (Sar & Öztürk 2007; Bromberg 2012). Many individuals with anxiety disorder have a comorbid personality disorder, that may be caused by traumatization in childhood (Pollatos *et al.* 2008; Herbert & Pollatos 2014; Ricciardi *et al.* 2016). However, studies investigating or describing the relationship between traumatic events in childhood concerning treatment effectiveness are not published in the literature.

Personality traits

Personality traits are associated with most anxiety disorders, in the form of predisposition, consequence or etiological agent. Brandes & Bienvenu (2006) report that personality characteristics, such as high neuroticism, low extraversion and personality disorders, are risk factors of developing anxiety disorders. In general, specific mental disorders predict treatment utility; however, some studies point out that the personality characteristics may affect treatment effectiveness more than previously anticipated (Zanarini *et al.* 2004; Ansell *et al.* 2007; Hopwood *et al.* 2008).

Parental style

Studies on the relationship between parental style and response to treatment in patients with neurotic spectrum disorders have not been published. Several types of parental behaviour have been associated with excessive anxiety in children, including high levels of criticism and over-control, low levels of warmth and support for autonomy (Whaley *et al.* 1999; McLeod *et al.* 2007; Budinger *et al.* 2013). For example, parents' excessive hyper-protectiveness forms a higher vulnerability of a child, who is not ready to adaptively face failures and burdens in adulthood (Alikaj *et al.* 2017).

Dissociation

Dissociation is a mental process, that occurs in the early developmental stages of a child. It enables the split-off unwanted emotional states or stress events with an impact on perception, thinking, experiencing, memory and other personality cognitive and integration processes (Schore 2009; Dell & O'Neil 2009; Schimmenti 2016). The presence of dissociation is an essential factor influencing the outcome of treatment in patients with depressive and anxiety disorders (Watson *et al.* 2006; Prasko *et al.* 2009), particularly panic disorder (Segui *et al.* 2000; Gulsun *et al.* 2007), obsessive-compulsive disorder (Rufer *et al.* 2006; Prasko *et al.* 2009) and others neurotic spectrum disorders (Ociskova *et al.* 2014). Spitzer *et al.* (2007) indicated

Tab. 1. Mean scores of assessment scales

	Beginning of treatment	End of treatment	Statistics (Paired T-Test)
BAI	22.63 ± 13.88	16.21 ± 11.97	t=13.349, df=95; ***p* <0.001**
BDI-II	23.86 ± 12.70	17.60 ± 10.78	t=11.843, df=95; ***p* <0.001**
ObjCGI	3.03 ± 0.71	2.49 ± 0.73	t=9.168, df=95; ***p* <0.001**
SubjCGI	3.96 ± 1.15	3.38 ± 1.06	t=6.726, df=94; ***p* <0.001**
DES	14.93 ± 13.91		
DES-T	9.50 ± 13.32		
LSAS – score	104.91 ± 34.32		
LSAS – fear	52.51 ± 16.91		
LSAS – avoidance	52.28 ± 18.31		
PBI-Parental care	18.88 ± 9.00		
PBI-Parental control	14.51 ± 7.54		
PBI-Maternal care	21.94 ± 8.97		
PBI-Maternal control	16.54 ± 8.19		
CTQ-Emotional neglect	14.59 + 4.70		
CTQ-Psychological neglect	9.55 ± 4.36		
CTQ-Sexual abuse	6.93 ± 4.62		
CTQ-Emotional abuse	10.21 ± 4.85		
CTQ-Psychological abuse	8.01 ± 4.39		
TCI-Harm Avoidance	22.02 ± 3.35		
TCI-Novelty Seeking	25.85 ± 4.22		
TCI-Reward Dependence	23.25 ± 3.80		
TCI-Persistence	23.88 ± 3.61		
TCI-Self-Directedness	22.82 ± 6.43		
TCI-Co-Operation	20.90 ± 3.42		
TCI-Self-Transcendence	19.84 ± 6.66		
HAMA	15.40 + 7.67		
0bjCGI relative change		0.17 ± 0.18	
SubjCGI relative change		0.12 ± 0.31	
BAI relative change		0.30 ± 0.16	
BDI-II relative change		0.26 ± 0.25	

Notes: Data are presented as means, standard deviations (sd) and number N (%); CGI (Clinical Global Impression); objCGI (objective CGI); subjCGI (subjective CGI); HAMA (Hamilton Anxiety Scale A); BDI (Beck Depression Inventory); BAI (Beck Anxiety Inventory); SWL (Satisfaction with Life Scale); LSAS (Liebowitz Social Anxiety Scale).

that dissociation directly or indirectly impacts treatment outcome because negative emotions experienced intensively in psychotherapy and attachment patterns negatively affect the therapeutic relationship. They found that comorbid personality disorder, low baseline psychopathology and high dissociation levels emerged as relevant predictors of non-response patients.

Comorbidities

The comorbid disorders (e.g. personality disorders, depressive disorders, other anxiety disorders) are quite common in neurotic disorders. Thus, the treatment of comorbid disorders and its efficacy can be much more complex and last much longer with smaller therapeutic effect and higher resistance, depending on the number, severity and type of comorbid disorders (Keefe *et al.* 2018). Personality disorders are present in about 50% of people with panic disorder (Friborg *et al.* 2013). The incidence of comorbid disorders is associated with worse psychosocial impairment, worse treatment outcomes and smaller improvement in anxiety symptoms even after undergoing cognitive-behavioural therapy (Ansell *et al.* 2011; Penner-Goeke *et al.* 2015; Porter & Chambless 2015; Keefe *et al.* 2018). Ociskova

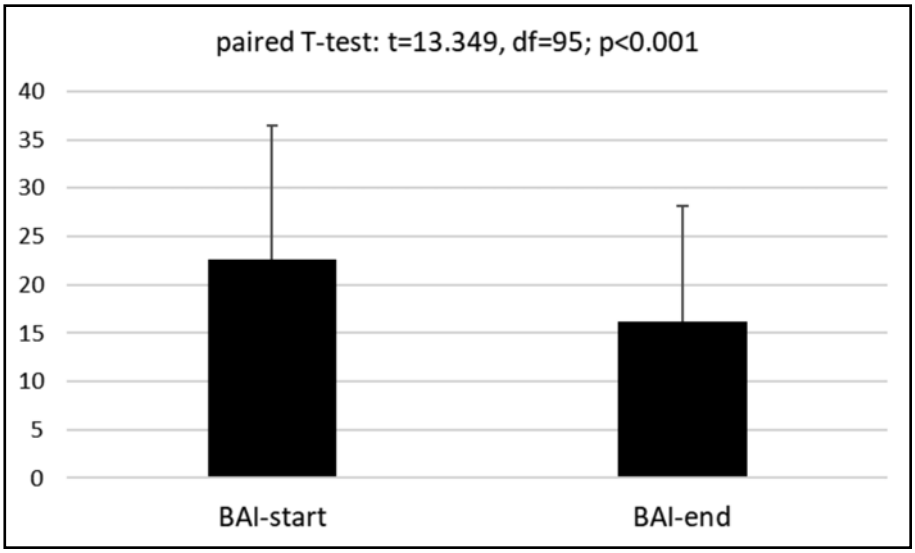

Fig. 1. Average scores of the BAI scale and changes during treatment

et al. (2016) found that individuals with anxiety disorders and without a comorbid personality disorder improved considerably more than patients with an anxiety disorder and comorbid personality disorder.

Study objectives and hypotheses

According to the theory and results mentioned above, several hypotheses were established. We assume that the factors below affect treatment outcomes at all:

(1) During the treatment, the severity and symptomatology of the disorder will change.
(2) The level of self-stigma at the beginning of the therapeutic program affects the outcomes of treatment.
(3) The severity of the disorder at the beginning of treatment affect treatment outcomes.
(4) The level of dissociation at the beginning of treatment affect treatment outcomes.
(5) Personality features of Novelty Seeking and Self-Directedness affect treatment outcomes.
(6) Childhood adversities affect treatment outcomes.
(7) Maternal and paternal style affect treatment outcomes.
(8) The change in self-stigma rate during treatment correlates positively with the change in psychopathology at each assessment scale.
(9) Patients with comorbidity will benefit less from treatment than those without comorbidity.

METHOD

The study was conducted at the Psychiatric Centre's psychotherapeutic ward in the Regional Hospital Liberec from October 2015 to March 2019. The 6-week therapeutic program for the treatment of neurotic

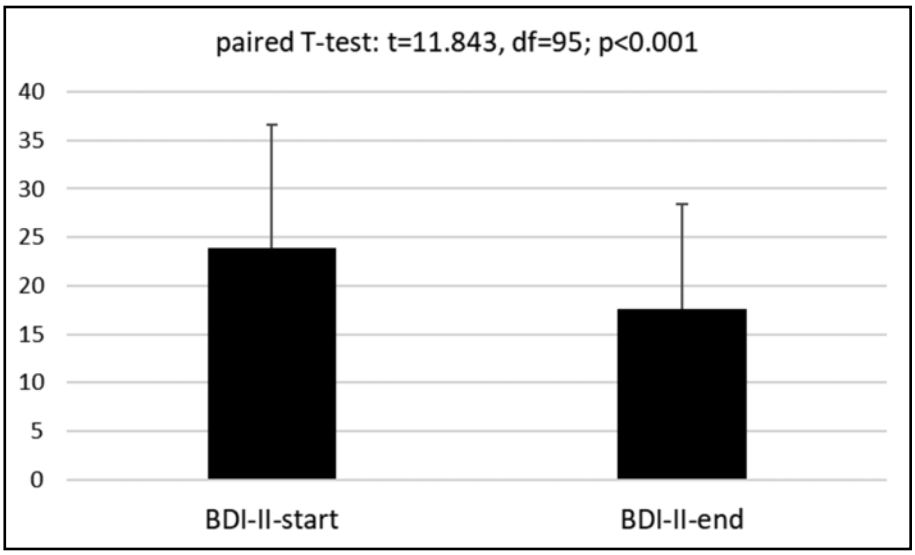

Fig. 2. Average scores of the BDI-II and changes during treatment

Tab. 2. ISMI subscales including comparison at the beginning and the end of the program

SUBSCALES	BEGINNING OF THE PROGRAM (mean ± SD)	END OF THE PROGRAM (mean ± SD)	STATISTICS (Paired T-Test)
Alienation	13.89 ± 3.76	13.08 ± 3.91	t=5.373, df=95; ***p*<0.001**
Stereotype Endorsement	13.09 ± 3.27	12.13 ± 3.38	t=5.772, df=95; ***p*<0.001**
Perceived Discrimination	9.80 ± 2.78	10.18 ± 3.22	t=-2.423, df=95; ***p*<0.05**
Social Withdrawal	13.10 ± 3.89	11.82 ± 3.61	t=8.579, df=95; ***p*<0.001**
Stigma Resistance	12.77 ± 2.52	11.98 ± 2.11	t=4.295, df=95; ***p*<0.001**
ISMI total score	62.66 ± 13.65	59.19 ± 14.32	t=6.512, df=95; ***p*<0.001**

Notes: df (degrees of freedom), SD (standard deviation); ISMI (Internalized Stigma of Mental Illness)

Tab. 3. Relationship between the severity of the disorders at baseline and change in treatment

Changes	objCGI	subjCGI	BDI-II	BAI	HAMA
objCGI – relative change	**0.20***	-0.16	0.09	0.05	0.17
subjCGI – relative change	**0.24***	0.01	-0.02	-0.09	-0.15
BDI-II – relative change	-0.14	-0.13	-0.16	**-0.22***	-0.19
BAI – relative change	-0.14	**-0.37*****	**-0.22***	**-0.28****	**-0.20***

Notes: Spearman correlation - statistical significance * p <0.05, ** = p <0.01 a *** = p <0.001; CGI (Clinical Global Impression); objCGI (objective CGI); subjCGI (subjective CGI); BDI (Beck Depression Inventory); BAI (Beck Anxiety Inventory); HAMA (Hamilton Anxiety Scale Measurement)

spectrum disorders is conducted at this ward. In the first adaptation week, patients undergo an interview with a psychologist, who acquainted them with the ongoing research's nature and purpose.

Measurements

The demographic questionnaire inquired gender, age, age at the onset of the disorder, duration of the disorder, marital status, employment status, retirement or disability benefits, education, number of past hospitalizations, current medication, positive family history.

MINI (MINI-International Neuropsychiatric Interview) is a standard diagnostic interview developed by Sheehan *et al.* (1997) that includes diagnostic criteria for 17 common psychiatric disorders according to DSM-IV and ICD-10. Sensitivity is higher than 0.70 in all revised disorders except dysthymia, obsessive-compulsive disorder and drug dependence (Sheehan *et al.*.1998). The interview lasts approximately 20 minutes, providing a reliable diagnosis according to ICD-10 in a short time (Lecrubier *et al.* 1997).

HAMA (Hamilton Anxiety Scale) is a widely used and well-proven tool to measure the severity of anxiety in a patient created by Max Hamilton in 1959. The scale is used to assess the severity of anxiety clinically (Hamilton 1959). The reliability and validity of the method are acceptable (Maier *et al.* 1988). The administration takes 15-20 minutes. The scale consists of 14 items designed to assess the severity of the patient's anxiety.

CGI (Clinical Global Impression) is a scale for global assessment of psychopathology severity (Guy 1976). The assessment is performed by a psychologist or psychiatrist using an objective scale (objCGI). The disorder's severity is assessed on a seven-point scale ranging from 1 (normal) to 7 (most seriously ill patient). The patient assesses subjective severity with subjCGI, which also includes seven levels of psychopathology severity. The internal consistency of the tool is satisfactory (Zaider *et al.* 2003).

BAI (Beck's Anxiety Inventory) created by Aaron T. Beck contains 21 questions with a choice from 0 (does not occur at all) to 3 (occurs significantly and severely). Patients evaluate perceived common anxiety symptoms and their severity during the last week (Leyfer *et al.* 2006; Beck *et al.* 1988). The method has excellent internal consistency (mean α = 0.92) (De Ayala *et al.* 2005). The Czech translation was validated by Kamarádová *et al.* (2015). Cronbach's alpha is 0.92. (Kamarádová *et al.* 2015). Test-retest reliability after one week was 0.75 (Beck *et al.* 1996).

BDI-II (Beck's Depression Inventory, Second Edition) is a 21-item scale identifying depressive symptoms. Patients evaluate symptoms over the last 14 days on a 4-point scale. Administration takes 5-10 minutes. The method is designed for a population aged 13-80 years (Storch *et al.* 2004). BDI-II has high internal consistency. Following the Beck *et al.* (1996) Cronbach alpha was 0.91. Eight years later, Storch *et al.* (2004) reached a slightly lower but still excellent internal consistency of (α = 0.86) in the psychiatric population and α = 0.81 in the general population. The Czech standardization was performed by Ociskova *et al.* (2017) with Cronbach's alfa 0.90.

Tab. 4. Relationship between self-stigma at baseline and change in treatment

Changes in evaluation tools	ISMI score
objCGI – relative change	0.025
subjCGI – relative change	-0.103
BDI-II – relative change	**-0.261** *
BAI – relative change	**-0.246** *
ISMI – relative change	0,028

Notes: Spearman correlation - statistical significance * p <0.05; CGI (Clinical Global Impression); objCGI (objective CGI); subjCGI (subjective CGI); BDI (Beck Depression Inventory); BAI (Beck Anxiety Inventory); ISMI (Internalized Stigma of Mental Illness)

Tab. 5. Relationship between changes in self-stigma and change in treatment

Changes in evaluation tools	ISMI- relative change
objCGI- relative change	0,146
subjCGI- relative change	0,006
BDI-II- relative change	0,193 (p= 0,06)
BAI- relative change	**0,366*****

Notes: S (Spearman correlation); statistical significance *** p <0.001; CGI (Clinical Global Impression); objCGI (objective CGI); subjCGI (subjective CGI); BDI (Beck Depression Inventory); BAI (Beck Anxiety Inventory); ISMI (Internalized Stigma of Mental Illness)

DES (Dissociative Experience Scale) created by Bernstein & Putnam in 1986 is a self-assessment scale containing 28 items. The items describe a wide range of normal (e.g. daydreaming) and pathological dissociative experiences (e.g. depersonalization and derealization) (Carlson 1997). Test-retest stability over time exhibits excellent psychometric properties; the internal consistency evaluated by Cronbach alpha is 0.93 (Bernstein & Putnam 1986). The Czech version was created by Ptacek *et al.* (2007). Cronbach's alpha was 0.96 in the presented study.

ISMI (Internalized Stigma of Mental Illness) is a measurement of subjective experience with stigma. It contains 29 items divided into five areas that the patient assesses on a 4-point Lickert-type scale (Ritsher *et al.* 2003). The internal consistency of the scale is excellent (Boyd *et al.* 2014). The questionnaire was standardized in the Czech Republic by Ocisková *et al.* (2014). Cronbach's alpha of Czech translation is high (α = 0.91) (Ocisková *et al.* 2014). It also shows very good reliability in split-half (Spearman-Brown coefficient = 0.93) and test-retest reliability 3 weeks after the first measurement (r = 0.90, p <0.001).

TCI (Temperament and Character Inventory) is a personality questionnaire from Cloninger *et al.* (1994). The questionnaire measures seven dimensions of personality (Banás 2003). The percentile standards were created on the original version of TCI (Preiss *et al.* 2007). The internal consistency and test-retest reliability are high; the method's psychometric properties are excellent (Preiss *et al.* 2007).

PBI (Parental Bonding Instrument) was developed by Parker *et al.* (1979) to assess parental care during the first 16 years of life. The 25-item questionnaire contains a retrospective assessment of parenting on a 4-point scale, separately for father and mother. The Czech version was compiled by Čikošová & Preiss (2011). Cronbach's alpha's internal consistency ranges from 0.79 to 0.84 for both scales for the father, and from 0.82 to 0.85 for both scales for the mother. Test-retest stability after three weeks was 0.85 to 0.96 (Parker *et al.* 1979). A Czech validation study confirmed excellent psychometric characteristics (Preiss *et al.* 2012).

CTQ (Childhood Trauma Questionnaire) is a self-assessment scale containing 28 items from Bernstein & Fink (1998). It focuses on five major traumatic areas (emotional, physical and sexual abuse and emotional and physical neglect), which the patient evaluates retrospectively (Liebschutz *et al.* 2018). Reliability for CTQ is good (Bernstein & Fink, 1998). The internal consistency is high (Bernstein *et al.* 2003). Cronbach's alpha for sexual abuse is 0.93-0.95; emotional neglect 0.88-0.92; emotional abuse 0.84-0.89; physical abuse 0.81-0.86. Test-retest reliability is 0.80 after three months (Adams 2007).

Time table of measurements

In the first adaptation week, patients received a test battery of self-assessment questionnaires. The test battery consisted of subjective Clinical Global Inventory (subjCGI), Beck Depression Inventory (BDI-II), Beck Anxiety Inventory (BAI), Dissociative Experience Scale (DES), Temperament and Character Inventory (TCI), Childhood Traumatization Questionnaire (CTQ), Parental Style Instrument (PBI), During the consultation with the psychologist, a standard diagnostic interview Mini-International Neuropsychiatric Interview (MINI), and objective assessment of anxiety rates using the Hamilton Anxiety Scale Measurement (HAM-A), and objective evaluation of the overall clinical impression (Clinical Global Impression; objCGI) were conducted with the patients.

At the beginning of the third week of their hospitalization, patients were given a questionnaire to evaluate their current psychological status (subjCGI), depression (BDI-II) and anxiety rate (BAI). In the last week of the program, patients were given almost the same battery as in the beginning the hospitalization (subjCGI, BAI, BDI-II) to fill in, plus a self-stigma (ISMI) questionnaire was added. The attending psychiatrist concluded the diagnosis and objCGI at the end of the treatment program.

Primary and secondary outcome criteria

The *primary outcome* criteria of the therapeutic change were defined as:

• The relative change in objCGI severity;

The *secondary outcome* criteria of the therapeutic change were defined as:
• The relative change in subjCGI severity;
• The relative change in BAI;
• The relative change in BDI-II.

Treatment approach

Patients were treated according to the recommendations for treating neurotic spectrum disorders (WHO 1991). There were no significant pharmacotherapy changes; most patients took the same medication throughout the course consisting of antidepressants, gradually discontinued benzodiazepines, augmented second-generation antipsychotics or mood stabilizers. Changes in drug doses during the psychotherapeutic program were not followed up. Most of the patients used psychopharmacs when entering the psychotherapy program (N=93; 96.9 %); three patients did not use any medication (3.1%). Eighty-one patients (87.01%) took antidepressants, with an average 33.7 + 18.0 mg paroxetine equivalent dose. Anxiolytics were used by 47 patients (50.53%) at an average dose calculated as diazepam of 6.38 + 3.53 mg per day, and 28 of them used (30.11%) antipsychotics at an average dose of 1.37 + 1.12 mg equivalent of risperidone.

Patients joined a 6-week psychotherapy program that combines group dynamic psychotherapy (4 times a week for 1.5 hours, a total of 20 group psychotherapy), other therapeutic activities (art therapy, drama therapy, music therapy, relaxation methods, ergotherapy), educational groups and pharmacotherapeutic procedures. Every day, clients undergo warm-up, community meetings, medical visit, bibliotherapy, club and other therapeutic activities including cultural events, excursions, a gaming evening and sports afternoon. In addition to the psychodynamic group program, patients attended educational groups focused on stigma and self-stigma (necessary information about mental disorders, myths, stereotypes, possibilities to influence stigma, destigmatization videos from the National Institute of Mental Health project, sharing stories and experiences, reducing strategies of self-stigma, training methods).

Statistic

We used SPSS version 24.0 (SPSS Inc, 2008), Prism (GraphPad PRISM version 5.0; http://www.graphpad.com/prism/prism.htm) for statistical analysis. For quantitative and demographic and clinical data, we used average and standard deviations for descriptive statistics. One-way ANOVA analysis determined the normality of data distribution compared several groups within the normal data distribution (Tukey was used as the Post Hoc Test). We compared the two groups with the Two-tailed Independent Sampling T-test or the Mann-Whitney U test (MW). Relations between variables were compared using correlation coefficients (Pearson coefficient for parametric data and Spearman nonparametric correlation coefficient). We used the Fisher test or χ-square to verify the relationship between alternative variables (gender, education, marital status, partnership). The difference between the individual measurements was determined by calculating the relative change. Relative change during therapy for objCGI, subjCGI, BDI-II, BAI, ISMI (the difference between baseline and end of treatment stay divided by baseline score). We used stepwise regression to analyze the meanings of variables in correlation relationships. For all statistical tests, we used a 5% significance level.

Tab. 6. Relationship between variables and relative changes in treatment

	BAI – relative change	BDI-II – relative change
DISSOCIATION DES		
DES score	**-0.219***	**-0.225***
PARENTAL STYLE PBI		
Maternal care	0,081	**0.220***
Maternal control	0,029	0,014
Paternal care	**0.219***	**0.258***
Paternal control	**-0.367*****	**-0.392*****
CHILDHOOD TRAUMA CTQ		
Emotional neglect	**-0.272****	**-0.224***
Psychological neglect	**-0.290****	**-0.209***
Sexual abuse	-0.103	**-0.205***
Emotional abuse	**-0.232***	**-0.340****
Psychological abuse	**-0.210***	**-0.248***
CLONINGER TEMPERAMENT AND CHARACTER TCI		
Self-Directedness	**-0.210***	**-0.220***

Notes: Pearson correlation (P), statistical significance
* p <0.05, ** p <0.01, *** p <0.001; DES (Dissociation Scale); DES-T (pathological dissociation); CTQ (Childhood Trauma Questionnaire); PBI (Parental Bonding Instrument); TCI (Cloninger Temperament and Character Inventory)

Ethics

Patients were provided with all information with an emphasis on the ethical nature of the research, anonymity, voluntary participation and the possibility to withdraw at any time without giving any reason. Patients signed informed consent. Their research questions were answered. The study is in accordance with the latest version of the Helsinki Declaration and the Principles of Good Clinical Practice (EMEA 2002). We tried to balance the study's benefits and reduce adverse events by providing full, specific information about the research's nature that allowed the patient to participate based on a fully respected volunteer rule.

Tab. 7. Regression analysis for the dependent variable objCGI relative change

Relative change objCGI	Regressors	B	SE	β	t	Significance
3. step	objCGI-beginning	0.053	0.025	0.211	2.133	0.036
	Novelty Seeking	-0.007	0.003	-0.208	-2.102	0.038
	F= 4.827 df=95; p <0.01; Adjusted R Square = 0.075					

Notes: SE (standard error); β (beta); B (regression coefficient); objCGI (Clinical Global Impression Objective Assessment)

Tab. 8. Regression analysis for the dependent variable subjCGI relative change

Relative change subjCGI	Regressors	B	SE	β	t	Significance
3. step	subjCGI-beginning	0.091	0.025	0.353	3.647	0.001
	Novelty Seeking	-0.012	0.006	-0.199	-2.059	0.042
	F= 9.077 df=91; p <0.001; Adjusted R Square = 0.151					

Notes: statistical significance *** p <0.001; SE (standard error); β (beta); B (regression coefficient); subjCGI (Clinical Global Impression Objective Assessment)

RESULTS

Demographic variables

The research sample included 69 women (71.9%) and 27 men (28.1%), the average age was 44.09 ± 11.34 years (the youngest participant was 18 years old, the oldest was 76). The majority of patients were married (n = 36; 37.5%), 24 were divorced (25%), and there were two widows (2%), 61 participants been in the partnership (63.5%). Over half of the participants were employed (60.4%), 30 participants received disability benefits (full disability pension 11.5%; partial disability pension 19.8%), a total of 5 individuals were retired (5.2%).

Almost half of the patients had secondary education (42.7%), 29 patients (30.2%) had vocational training, and 18 patients (18.8%) had a university education. A total of 49 patients reported a positive family psychiatric history (60%), of which the same disorder as the patient had 20 individuals in the family (20.8%) and 29 had other disorder (30.2%). Most patients have been hospitalized at psychiatric ward in the past 1 time (n = 62; 64.6%), 18 subjects 2 times (18.8%), 9 subjects 3 times (9.2%), for the rest it was the first hospitalisation (n = 7; 7,3%). The onset of the disorder and duration was very variable, with the most frequent development around 35 years and an average of 8.74 ± 9.36 years.

Results of the treatment

After completing the therapeutic program, a statistically significant decrease in the disorder's overall severity (both subjective and objective) and anxiety and depression symptoms (Table 1).

The severity of the disorder

Psychiatrist and psychologist evaluated patients with neurotic disorders at the start of the psychotherapeutic program (i.e., in the first week of admission) as moderately mentally ill (3.03 ± 0.71) according to objCGI. At the end of the treatment program (6th week of the program), the score was significantly better, with slight/marginal signs of mental disorder (2.49 ± 0.73) (Paired T-test: t=9.168 df=95, p<0.001).

Subjective severity of the disorder (subjCGI) assessed by the patients was initially 3.96 + 1.15 (moderately mentally ill). During their stay, the patients evaluated the severity of their mental state slightly better, i.e. with mild mental disorder symptoms (3.40 + 0.91). At the end of the program, the subjective evaluation was average the same as during the course (3.38 + 1.06). The difference between the subjective assessment of severity at the beginning and the end of the stay was statistically significant (Paired T-test: t=6.726 df=95, p<0.001) (Table 1).

Symptoms of anxiety and depression

During treatment, a statistically significant decrease was noted in both the depression and anxiety scales (Table 1; Figure 1; Figure 2). After treatment, the symptoms of anxiety lowered to a healthy level of anxiety (Kamaradova *et al.* 2015), and the degree of depression decreased to the level of mild symptoms (Ociskova *et al.* 2017).

Self-stigma

The overall ISMI score at the beginning of the program was average (Ociskova *et al.* 2014). The overall ISMI score at the end of the program was statistically significantly lower than at baseline. The difference between all

Tab. 9. Regression analysis for dependent variable BDI-II relative change

Relative change BDI-II	Regressors	B	SE	β	t	Significance
12. step	Duration of the disorder	-0.007	0.003	-0.234	-2.167	0.034
	PBI_Mother – care	0.011	0.003	0.377	3.304	0.002
	PBI_Mother – overprotection	0.010	0.004	0.286	2.504	0.015
	F= 6.436 df=70; p<0.001; Adjusted R Square = 0.189					

Notes: statistical significance *** p <0.001; SE (standard error); β (beta); B (regression coefficient; PBI (Parental Bonding Instrument)

Tab. 10. Regression analysis for the dependent variable BAI relative change

Relative change BAI	Regressors	B	SE	β	t	Significance
12. step	subjCGI – beginning	-0.051	0.014	-0.361	-3.702	0.000
	Novelty Seeking	-0.009	0.003	-0.281	-2.874	0.005
	PBI_father – hyper-protectivity	-0.005	0.002	-0.231	-2.365	0.021
	F= 9.750 df=80; p <0.001; Adjusted R Square = 0.247					

Notes: SE (standard error); β (beta); B (regression coefficient); subjCGI (subjective Clinical Global Impression); PBI (Parental Bonding Instrument)

ISMI subscales and total ISMI scores at baseline and the end of stay was statistically significant (Table 2).

The therapeutic change and the initial measurements

The severity of the disorders at the beginning and treatment change

Also, BAI at the beginning negatively correlates with the BDI-II relative change. BAI relative change correlates with four measurements at the beginning of the study (subjCGI, BDI-II, BAI and HAMA) (Table 3).

Self-stigma and change in treatment

Correlation relationships between self-stigma at baseline and relative changes on assessment scales showed that the overall ISMI score did not statistically significantly correlate with the relative change in objCGI or subjCGI (Table 4). Statistically significant correlations were found between the ISMI and the relative change in BDI-II and BAI. The higher the self-stigma rate at the start of treatment, the smaller the relative decrease in depression or anxiety during treatment (Table 4).

No relationship was found between the relative change in objCGI or subjCGI and the change in self-stigma. The statistically significant positive correlation is between the relative change in anxiety assessed by the BAI and the relative change in ISMI (Table 5). More significant decrease in anxiety during therapy is significantly related to a more significant decrease in self-stigma.

Correlation analysis between factors and relative changes in the scales

The correlation between total dissociation scores (DES) and relative changes in anxiety (BAI) and depression (BDI-II) scales was found. Also, paternal care and overprotective, personality factor Self-Directedness, Emotional and Psychological neglect and abuse have a correlation with relative changes in anxiety (BAI) and depression (BDI-II) (Table 6). Maternal care and Sexual abuse correlated only with BDI-II relative change. Subjective or objective severity of the disorder did not correlate with any of the mentioned factors (Table 6).

Regression analyses of relative changes in assessment scales

To examine the relative change in assessment scales on demographic, clinical, personality factors and how ISMI is involved in psychopathology change, backward stepwise regression analyses were used. Relative changes in assessment scales were entered as dependent variables; independent regressors were ISMI, demographic factors, personality and clinical factors that significantly correlated with changes in scales in the correlation analysis.

As regressors for the dependent variable Relative change in objCGI, the following regressors entered the regression analysis: objCGI-beginning, Novelty Seeking, Self-Directedness, ISMI total score. Two of them passed in three steps (objective CGI at the

Tab. 11. Regression analysis for dependent variable ISMI relative change

Relative change ISMI	Regressors	B	SE	β	t	Significance
4. step	BAI – relative change	0.149	0.052	0.300	2.874	0.005
	Onset of the disorder	0.002	0.001	0.258	2.499	0.015
	PBI_Mother-care	0.002	0.001	0.214	2.072	0.042
	F= 7.978 df=75; p <0.001; Adjusted R Square = 0.074					

Notes: SE (standard error); β (beta); B (regression coefficient); ISMI (Internalized Stigma of Mental Illness); BAI (Beck Anxiety Inventory); PBI (Parental Bonding Instrument)

beginning and personality factor of Novelty Seeking) (Table 7). Together, these two regressors explain a 7.5% relative objective change in the overall clinical impression.

As regressors for the dependent variable Relative change in subjCGI, the following regressors entered the regression analysis: subjCGI-beginning, Novelty Seeking, dissociation DES, ISMI total score. The initial assessment of subjective CGI and Novelty Seeking explains a 15.1% relative change in the subjective overall clinical experience (Table 8).

Regressors for the dependent variable Relative change in BDI-II entered to the regression analysis the following regressors: subjCGI at baseline, duration of the disorder, Harm Avoidance, Self-Directedness, dissociation (DES), anxiety attachment in the relationship (ECR- R), emotional, psychological abuse and neglect and sexual abuse (CTQ), maternal and paternal hyper-protectivity and care (PBI), anxiety symptoms at the beginning (BAI), social anxiety (LSAS), ISMI total score. Three of them underwent twelve steps (negative duration of the disorder, positive maternal care and hyper-protectivity in childhood), and explain the 18.9% relative change in the severity of depression (Table 9).

As regressors for the dependent variable Relative change in BAI have entered into the regression analysis the following: subjCGI-beginning, Novelty Seeking, Self-Directedness, dissociation, anxiety attachment in the relationship (ECR-R), emotional, mental and sexual abuse and neglect (CTQ), maternal and paternal overprotection and care (PBI), ISMI-overall score, symptoms of anxiety at baseline (BAI), symptoms of depression at baseline (BDI-II). Initial assessment of subjective CGI, personality factor Novelty Seeking and paternal hyper-protectivity in childhood underwent twelve steps of regression and explain 24.7 % of relative change in anxiety rate assessed by BAI (Table 10).

Last regression analysis is devoted to the factors that influence the change in ISMI. Relative change in ISMI was introduced as a dependent variable; regressors included relative change in BAI, the relative change in BDI-II, the onset of the disorder, personality trait Self-Directedness, avoidant attachment in the relationship (ECR-R), maternal care in childhood (PBI). Relative change in BAI, age of onset of disease and PBI-maternal care underwent positive regression in four steps. Together, these regressors explain the 7.4 % relative change in ISMI (Table 11).

Comparison of therapeutic effectivity in patients with and without a personality disorder

Both patients with comorbid or without comorbid personality disorder improved during the therapy. However, the improvement of patients without a personality disorder was more significant than in patients with comorbid personality disorder (Table 12).

Tab. 12. Comparison of the patient with and without comorbid personality disorder at the beginning and the end of the program

Measurements	BEGINNING OF THE PROGRAM	END OF THE PROGRAM	STATISTICS (two-way RM ANOVA)
objCGI – with personality disorder	3.52 ± 0.63	3.10 ± 0.72	F=1.38, df=29;
objCGI – without personality disorder	2.82 ± 0.65	2.22 ± 0.55	interaction: p<0.005
subjCGI – with personality disorder	4.62 ± 1.40	3.67 ± 0.89	F=2.22, df =29;
subjCGI – without personality disorder	4.31 ± 1.04	3.00 ± 0.82	interaction: p<0.001
BAI – with a personality disorder	31.79 + 15.16	18.66 + 11.28	F=15.24, df =29;
BAI – without personality disorder	24.72 + 14.04	12.52 + 8.83	interaction: p<0.0001
BDI-II – with a personality disorder	32.24 ± 13.96	26.14 ± 11.27	F=11.89, df =29;
BDI-II – without personality disorder	20.24 ± 10.26	13.91 ± 8.22	interaction: p<0.0001

Notes: df (degrees of freedom), SD (standard deviation)

DISCUSSION

The study of hospitalized patients with neurotic spectrum disorder found that self-stigma was moderate in this group of patients. After completing the 6-week therapeutic program, the resulting level of self-stigma was significantly lower. The results are consistent with the studies by Ocisková *et al.* (2014, 2015, 2018), who found that the rate of self-stigma was moderate in patients with anxiety disorders. Kamaradova *et al.* (2016) also found an average self-stigma rate in anxiety disorders. Compared to the results of studies with other groups of disorders, the rate of self-stigma is either similar or slightly lower than in severe mental disorders (Kamaradova *et al.* 2016; Vrbova *et al.* 2016; Turkmen *et al.* 2017; Holubova *et al.* 2018). However, these studies did not detect a decrease in the self-stigma rate during treatment, so that is why our study is original in monitoring the decline in self-stigma over time, albeit in a short period with various effects. It is unclear whether self-stigma's rate decreased directly due to therapy or decreased secondary to decreased symptomatology. Further studies will be needed to compare the change in self-stigma in the group treated only with psychopharmacs and the group treated with psychotherapy.

Self-stigma and treatment effectiveness

The study's second aim was to find out the link between self-stigma and worse outcomes of treatment. According to some studies, self-stigma is associated with reduced cooperation and treatment effectiveness in various psychiatric disorders (Ritsher & Phelan 2004; Vrbova *et al.* 2014; Uhlmann *et al.* 2014). The presence of self-stigma reduces the effectiveness of the combination treatment of anxiety disorders (Ociskova *et al.* 2018). According to our findings, self-stigma is not related to the change in the disorder's objective and subjective severity. However, Prasko *et al.* (2016) reported that the relative change in the objective assessment of the severity of the depressive disorder is significantly related to self-stigma. This finding may be explained by different mental disorder categories, where the objective severity of the pathology was higher than the psychopathology of patients with neurotic disorders.

We found a significant correlation between self-stigma and a smaller relative decrease in the evaluation of anxiety and depression symptoms, which is consistent with the results of Prasko *et al.* (2016) and Ociskova *et al.* 2018. Individuals who are more self-stigmatizing have a smaller decrease in depressive and anxiety symptoms during treatment. According to some authors, self-stigma is associated with increased anxiety, depression and severity of psychopathology at the beginning of treatment in neurotic disorders (Drapalski *et al.* 2013; Ociskova *et al.* 2018). In our results, patients with higher self-stigma had less improvement in anxiety symptoms after combined therapy (Ociskova *et al.* 2018). Prasko *et al.* (2016) reported the same results in patients with depressive disorders, indicating that lower treatment success is associated with a higher self-stigma rate. Ociskova *et al.* (2015) also confirmed this finding in patients with neurotic spectrum disorders.

We also found that the rate of depression, anxiety, the severity of psychopathology and self-stigma was significantly reduced after the therapeutic stay. After treatment, the symptoms of anxiety corresponded with the level of anxiety symptoms common in the non-clinical population (Kamaradova *et al.* 2015) and the degree of depression decreased to the level of mild symptoms (Ociskova *et al.* 2017). The regression analysis revealed that self-stigma is not an essential factor associated with therapeutic change as there are more significant factors such as initial assessment of subjective and objective CGI, personality factor Novelty Seeking, duration of the disorder, maternal care and hyper-protectivity, paternal hyper-protectivity in childhood, which predict the effectiveness of treatment more strongly and can also explain the higher rate of self-stigma at the beginning since the severity of self-stigma is related to the severity of psychopathology. In contrast, direct influencing of self-stigma can also affect psychopathology. We cannot determine this from our research, but it is possible to plan research to address this issue.

Response to the hypotheses

According to the following hypotheses in this study, we found that:

(1) *Hypothesis*: During the treatment, the severity and symptomatology of the disorder will change.
Response: We found a significant decrease in the severity of the disorder, as well as a decrease in the evaluation of individual psychopathology. Anxiety, depression and social anxiety, and self-stigma and its subscores, were significantly lower after the treatment. This finding has confirmed the results of the studies made by Ritsher & Phelan's 2004; Vrbová *et al.* 2014; Uhlmann *et al.* 2014.

(2) *Hypothesis*: The level of self-stigma at the beginning of the therapeutic program affects treatment outcome after completing the therapeutic program.
Response: This hypothesis has been partially confirmed in some assessment scales, such as the significant correlation between the self-stigma and a smaller relative decrease in anxiety symptoms (BAI) and a smaller relative decrease in depressive symptoms (BDI). The relative change in objective or subjective severity of the disorder (objCGI, subjCGI) did not appear to be relevant to ISMI scores at baseline. Our findings are consistent with Ociskova *et al.* (2018) findings that self-stigma presence reduces the effectiveness of the combination therapy of patients with anxiety disorders.

(3) *Hypothesis*: The change in self-stigma during treatment correlates positively with the change in psychopathology at each assessment scale.

Response: This hypothesis was confirmed for the relationship between change in self-stigma and change in anxiety (BAI), but the relationship between self-stigma and depression (BDI-II) is not within statistical significance. The finding is consistent with Ociskova *et al.* (2018) findings, where higher self-stigma had less improvement in anxiety symptoms after combined treatment. The hypothesis was not confirmed for an objective or subjective severity of the disorder (CGI).

(4) *Hypothesis*: The severity of the disorder at the beginning of treatment affects treatment outcomes.
Response: The objective severity of the disorder at the beginning of the treatment, affects treatment outcomes in some of the evaluated parameters, such as a change in depressive (BDI) and anxiety symptoms (BAI). According to the regression analysis of objCGI relative change, the objective severity of the disorder (objCGI) at the beginning is the critical regressors for this parameter.

(5) *Hypothesis*: The level of dissociation at the beginning of treatment affects treatment outcomes.
Response: The dissociation level did not enter into regression analyses of treatment-related predictors as an essential factor. However, we found a correlation between total dissociation scores (DES) and relative changes in anxiety (BAI) and depression (BDI-II) scales. This finding is in line with the results of other investigations that consider dissociation as an essential factor influencing the outcome of treatment in patients with an anxiety disorder (Rufer *et al.* 2006; Spitzer *et al.* 2007; Gulsun *et al.* 2007; Prasko *et al.* 2009; Ociskova *et al.* 2014).

(6) *Hypothesis*: Personality features of Novelty Seeking and Self-Directedness influences treatment outcomes.
Response: Novelty Seeking predicts statistically significant change in objCGI, subjCGI, BAI, but not in BDI according to the regression analysis, and do not correlate with any of the treatment outcomes in correlation analyses. Self-Directedness is not an essential regressor in regression analysis of scale changes during treatment. However, we found a correlation between Self-Directedness and relative changes in anxiety (BAI) and depression (BDI-II) scales. Ociskova *et al.* (2016) found that more considerable improvement in psychopathology assessed by the relative change in objCGI was connected with low Harm Avoidance and higher amounts of Self-Directedness, which we did not confirm in our study.

(7) *Hypothesis*: Childhood adversities affect treatment outcomes.
Response: Childhood adversities are not the critical regressor in treatment changes; however, we found a correlation between emotional and psychological neglect and abuse and relative changes in anxiety (BAI) and depression (BDI-II) scales. Sexual abuse correlated only with BDI-II relative change. The history of adverse events experienced in childhood seems to be associated with anxiety and depression symptoms and their treatment changes. However, studies investigating the relationship between traumatic events in childhood and treatment effectiveness are not published in contemporary literature.

(8) *Hypothesis*: Maternal and paternal style affect treatment outcomes.
Response: According to regression analysis, maternal and paternal care significantly positively affect the change in symptoms of depression (BDI-II), the father's hyper-protectivity negatively affect the change in anxiety symptoms (BAI). Maternal care significantly affects the change in self-stigma (ISMI); however, neither of the parenting styles had any effect on objective or subjective changes in CGI, which is also considered an indicator of treatment outcome.

(9) *Hypothesis*: Patients with a comorbid personality disorder will benefit less after the treatment than those without comorbidity.
Response: The hypothesis was confirmed in all used outcome measures. This is in line with other authors who conclude that the incidence of comorbid disorders is associated with worse psychosocial impairment, worse treatment outcomes and less improvement in anxiety symptoms even after undergoing cognitive-behavioural therapy (Ansell *et al.* 2011; Penner-Goeke *et al.* 2015; Porter & Chambless, 2015; Keefe *et al.* 2018). Ociskova *et al.* (2016) found that individuals with anxiety disorders and without a comorbid personality disorder improved considerably more than patients with an anxiety disorder and comorbid personality disorder.

Limitations of the study

The study has some limitations. The test battery consisted of self-assessment questionnaires that may be affected by the patient's subjective testimony. On the other hand, objective evaluation methods (objCGI, HAMA, MINI) were used, which increases the validity of the results. Another limitation is that the research sample consisted of a heterogeneous sample of patients with neurotic spectrum disorders and other comorbid disorders with different severities. Patients have taken different doses of different drugs converted to an index dose of the reference drug, but some factors, notably the degree of dissociation, anxiety and depression, may affect the results. Patients with personality disorders have already come to a psychotherapeutic stay with this diagnosis and have been guided and treated with it by their outpatient psychiatrists. The diagnosis of personality disorder was further confirmed by us during the clinical interview, but no standardized interview was conducted to confirm it.

CONCLUSION

The study points out that a higher self-stigma rate at the beginning of the treatment was associated with a smaller decrease in anxiety and depression symptoms during treatment. Self-stigma is, therefore, an essential factor in complex treatment interventions; however, it is not the essential factor associated with therapeutic change (on the other hand, the initial assessment of subjective and objective severity, personality factor Novelty Seeking, duration of the disorder, maternal care and hyper-protectivity and paternal hyper-protectivity in childhood significantly, predict the effectiveness of treatment). The results can serve as a basis for the targeted development of intervention strategies to reduce self-stigma in various mental disorders groups.

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