

Schema therapy with cognitive behaviour day-treatment in patients with treatment-resistant anxiety disorders and obsessive-compulsive disorder: an uncontrolled pilot study.

Karin C.P. Remmerswaal, MSc*, Tamar E.A. Cnossen, MSc*, Anton J.L.M. van Balkom, MD, PhD, Neeltje M. Batelaan, MD, PhD

*Shared first author, both authors contributed equally to this manuscript

Amsterdam UMC, location VUMC, Department of Psychiatry, Amsterdam Public Health Institute and GGZ inGeest Specialized Mental Health Care, Amsterdam, The Netherlands.

Abstract

Background: Treatment resistance in patients with anxiety disorders and obsessive-compulsive disorder (OCD) might be caused by dysfunctional personality traits or, more specifically, early maladaptive schemas (EMSs) and schema modes, that can be treated with Schema Therapy (ST).

Aim: To explore possible effectiveness of ST-CBT day-treatment in patients with treatment-resistant anxiety disorders and OCD in an uncontrolled pilot study.

Method: Treatment-resistant patients with anxiety disorders or OCD ($n=27$) were treated with ST-CBT day-treatment for 37 weeks on average including 11.5 therapy hours per week. The Symptom Questionnaire-48, Young Schema Questionnaire-2 and Schema Mode Inventory were completed before and after treatment.

Results: General psychopathology, EMSs and schema modes significantly improved after treatment. Spearman's correlations between pre- to post-treatment difference scores of general psychopathology, EMSs and schema modes were significant and high. The level of pre-treatment EMSs and schema modes did not predict post-treatment general psychopathology.

Conclusions: Symptom reduction was strongly correlated with improvement of EMSs and schema modes. Stronger pre-treatment EMSs and schema modes did not hinder improvement of symptoms. ST-CBT day-treatment is promising for patients with treatment-resistant anxiety disorders and OCD. Further controlled research is needed to substantiate evidence for schema therapy in patients with treatment-resistant anxiety disorders and OCD.

1. Introduction

Anxiety disorders and obsessive-compulsive disorder (OCD) often run a chronic course (Bruce et al., 2005; Remmerswaal et al., 2020). After an evidence-based treatment including pharmacotherapy and cognitive behaviour therapy (CBT) almost half of the patients still fulfil the criteria of the index disorder and lack functional recovery (Penninx et al., 2011; Visser et al., 2014). When patients do not respond to these first-line treatments, guidelines recommend intensive treatment such as day-treatment (National Institute for Health and Care Excellence, 2014).

It is believed that dysfunctional personality traits account for treatment resistance in patients with anxiety disorders and OCD (Geluk Rouwhorst et al., 2022; Hovenkamp-Hermelink et al., 2021). More specifically, early maladaptive schemas (EMSs), and schema modes would result in persistence of symptoms (Young et al., 2003). EMSs are “patterns, developed during childhood or adolescence, consisting of memories, emotions, cognitions, and bodily sensations, regarding oneself and one’s relationship with others” as defined by Young (2003). Schema modes are the emotional states and coping responses arising when EMSs are activated. Indeed, research has provided some evidence that higher levels of EMSs significantly predicted poor response to CBT in patients with OCD (Sunde et al., 2019; Thiel et al., 2014), but this result was not confirmed in a study in patients with depression and anxiety disorders (Halford et al., 2002).

If treatment resistance is associated with EMSs then treating these schemas could help to reduce anxiety and obsessive-compulsive symptoms. One treatment targeting EMSs is schema therapy (ST). Schema therapy has been found to be effective in patients with personality disorders (Bamelis et al., 2014; Farrell et al., 2009; Giesen-Bloo et al., 2006; Taylor et al., 2017). Preliminary evidence exists for the effectiveness of schema therapy in mental disorders such as anxiety disorders, OCD, PTSD, chronic depression and eating disorders (Cockram et al., 2010; Malogiannis et al., 2014; Peeters et al., 2022; Simpson et al., 2010; Thiel et al., 2016). Further preliminary evidence comes from a recent pilot study showing that improvement of general psychopathology was correlated to improvement of schema modes in patients with anxiety disorders and OCD; however, EMSs were not measured in this study (Peeters et al., 2021).

To add to previous research, the aim of this exploratory study is to determine: 1) whether symptoms, EMSs and schema modes improve with ST-CBT day-treatment in

patients with anxiety disorders and OCD; 2) whether improvement in symptoms correlates with improvement in EMSs and schema modes; and 3) EMSs and schema modes at baseline is associated with improvement of symptoms. If no association appears, stronger pre-treatment EMSs and schema modes are not related to symptom improvement. This would be consistent with the hypothesis that treating EMSs and schema modes abolishes treatment resistance.

2. Method

2.1 Participants

All patients who completed an intensive outpatient ST-CBT day-treatment between medio 2017 and 2020 were included in the study. To be eligible for the ST-CBT day-treatment, patients had to: 1) have completed at least one previous CBT targeting the primary anxiety disorder or OCD; and 2) use or actively refused psychotropic drugs; and 3) experience severe limitations in daily functioning due to the disorder. Patients with mental retardation or severe mental illness, such as psychosis and bipolar disorder, were not accepted for treatment. The diagnoses were determined by experienced clinicians at the clinical assessment and re-assessed every three months by evaluating the criteria of possible diagnoses, given the symptoms of the patients. Diagnoses were made in accordance with the Diagnostic and Statistical Manual, fifth edition (American Psychiatric Association, 2013).

2.2 Design

Data were collected as part of routine clinical care before and after treatment. Approval for this study was obtained by the research committee of GGZ inGeest (CWO-2020-013). Because the current study was file research, informed refusal applied. Patients were informed about the study by the clinician/researcher and data from those who objected were not included. This study was conducted in accordance with the Declaration of Helsinki.

2.3 ST-CBT day-treatment

The ST-CBT day-treatment was offered in an open group of up to eight patients with anxiety disorders or OCD. Treatment was intensive, consisting of 11.5 therapy hours per week on three days. The main treatment target was reduction of anxiety and obsessive-compulsive symptoms. Improvement of EMSs and schema modes were considered a secondary,

facilitating aim. Experiential interventions such as chair work, roleplay, creative and body oriented exercises were offered for 5 hours per week, next to cognitive interventions (1.5 hours per week) and exposure in vivo with response prevention (5 hours per week). An individual case conceptualization conform schema theory was made in which avoidance from anxiety provoking situations, safety behaviour and compulsions were interpreted as dysfunctional coping modes (*Detached Protector* and *Detached Self-Soother*) and anxiety and obsessions were interpreted as *Vulnerable Child* mode. In addition, an individual exposure exercise list was composed. Patients were treated according to their individual case conceptualization and exposure list. Patients learned to enter anxiety provoking situations without performing safety behaviour or rituals while their *Healthy Adult* mode took good care of the needs of the *Vulnerable Child* mode. Treatment included the following integrated treatment components: schema therapy, drama therapy, art therapy, psychomotor therapy (all offering experiential interventions), exposure in vivo (therapist-guided and self-directed), and cognitive therapy. Schema and CBT jargon was used in each treatment component. In a weekly, joint meeting all therapists geared case conceptualizations, interventions and the therapeutic relationship to one another. In this meeting, improvement of anxiety and obsessive-compulsive symptoms was monitored. Treatment was continued until goals were met with a maximum treatment duration of one year. When a patient finished treatment, a new patient started in the vacant place. Due to Covid-19 measures, therapy was offered online from March 2020 to July 2020. From August 2020 to December 2020 half of the sessions was delivered online and half face-to-face. During treatment, psychotropic medication was optimized according to the multidisciplinary guidelines. Needed benzodiazepines were phased out as these may decrease the effectiveness of exposure in vivo. In addition, relatives were invited for one or two sessions with two therapists and the patient, consisting of psychoeducation about how to deal best with the anxiety and obsessive-compulsive symptoms of the patient in the context of the relationship. That is, not to accommodate (adapt) or antagonize (oppose) the symptoms of the patient. An in-company training lead by a registered schema therapist was provided to all therapists, some of whom additionally took schema therapy courses at training institutes in the Netherlands.

2.4 Instruments

To assess the severity of general psychopathology, the Symptom Questionnaire-48 (SQ-48) was used (Carlier et al., 2012; Carlier et al., 2017). It consists of 48 items that are answered on a 5-point Likert scale. A total score was calculated by adding the items of the psychopathology subscales without the Vitality and Work subscales, conform the manual. The thus obtained total score ranges from 0-148. The SQ-48 was found to be valid and reliable with good test-retest reliability and responsiveness to therapeutic change (Carlier et al., 2012; Carlier 2017). Reference data are available for non-patients and for an outpatient population referred for treatment for mood, anxiety or somatoform disorders (Carlier et al., 2012).

In patients with a primary diagnosis of OCD, severity of OCD was assessed using the Yale Brown Obsessive Compulsive Scale for Severity – Self-Report (Y-BOCS) because presence and severity of obsessive-compulsive symptoms are not captured by the SQ-48 (Goodman et al., 1989a; Goodman et al., 1989b). The Y-BOCS consists of 10 items that are answered on a 5-point Likert scale and has a range of 0-40. The psychometric properties of the Y-BOCS are good and the questionnaire is sensitive to change (Goodman et al., 1989a; Goodman et al., 1989b; Steketee et al., 1996). There are no reference data available for the Y-BOCS.

However, the total score can be interpreted with a worldwide accepted classification: a total score of 0-7 subclinical; 8-15 mild; 16-23 moderate severe; 24- 31 severe; 32-40 very severe.

To assess presence of EMSs, the Young Schema Questionnaire-2 (YSQ-2) was used (Rijkeboer et al., 2005; Rijkeboer & van den Bergh, 2006; Young et al., 2003). The YSQ-2 consists of 205 items that are answered on a 6-point Likert scale ranging from 'completely untrue' to 'describes me perfectly'. Sixteen subscale scores are calculated by summation of all scores divided by the number of items in the subscale concerned reflecting the presence of 16 EMSs. A total score was calculated by summation of all subscale scores. The Dutch translated YSQ-2 was found to be valid and reliable (Rijkeboer et al., 2005; Rijkeboer & van den Bergh, 2006). Norm data are available for a non-clinical population, and a clinical population receiving treatment for personality disorders (Rijkeboer & van den Bergh, 2006). Cronbach's alpha in the current sample was 0.982 (pre-treatment) and 0.986 (post-treatment).

To assess presence of schema modes, the Schema Mode Inventory (SMI) was used (Lobbestael et al., 2010; Young et al., 2007). The SMI consists of 118 items that are answered

on a 6-point Likert scale ranging from 'never or almost never' to 'always'. Subscale scores are calculated by the mean of the items in the subscale concerned reflecting the presence of 14 schema modes. Next, two total scores are calculated by 1) summation of subscale scores of *Happy Child* and *Healthy Adult* modes (Adaptive schema modes); and 2) summation of all other subscale scores (Maladaptive schema modes). The Dutch translated SMI-2 is valid and reliable (Lobbestael et al., 2010). Norm data are available for non-patients, patients with clinical disorders such as anxiety, mood, and substance use disorders, and patients with personality disorders (Lobbestael et al., 2010). Cronbach's alpha in the current sample for adaptive schema modes was 0.828 (pre-treatment) and 0.930 (post-treatment) and for maladaptive schema modes 0.961 (pre-treatment) and 0.971 (post-treatment).

2.5 Statistical analysis

Results were analysed using the Statistical Package for Social Sciences (version 26) (IBM Corp., 2019). One case was missing on the YSQ and three on the Y-BOCS. Missing values were deleted listwise. There were no outliers.

To evaluate the level of symptoms, EMSs and maladaptive and adaptive schema modes, one-sample t-tests were computed with norm data from the literature (Carlier et al., 2012; Lobbestael et al., 2010; Rijkeboer & van den Bergh, 2006).

To examine changes between pre- and post-treatment scores, paired samples t-tests were calculated. To determine reliable change (SQ-48 decrease ≥ 12 points; YSQ total score decrease ≥ 3.7 ; SMI maladaptive total score decrease ≥ 3.3 ; SMI adaptive total score increase ≥ 0.7) and clinically significant recovery (reliable improvement and post-treatment scores of SQ-48 ≤ 45 ; YSQ ≤ 38.0 ; SMI maladaptive ≤ 27.8 ; SMI adaptive ≥ 7.8), Jacobson and Truax's method was used (Jacobson & Truax, 1991; Wise, 2004). Reliable change was computed with the reliable change index: $RCI = (X_{pretest} - X_{posttest}) / SD_{pretest} \sqrt{1 - r_{xx}}$. And the cut-off score for clinically significant recovery with: $c = ((SD_{norm\ group} * X_{posttest}) + (SD_{posttest} * X_{norm\ group})) / (SD_{posttest} + SD_{norm\ group})$ (Wise 2004).

Norm data (standard deviation and Cronbach's alpha of total scores) were calculated with published data and the correlation matrix of subscale scores (Carlier et al., 2012; Lobbestael et al., 2010; Rijkeboer & van den Bergh, 2006).

To examine correlations between pre- to post-treatment difference scores of general psychopathology, EMSs and schema modes, Spearman's correlation coefficients were computed. A power analysis performed beforehand showed that a sample size of 19 participants would be required to obtain correlations of 0.6 and larger beyond a significance level of $p < 0.05$ (two-tailed) with a probability of 80%. No correlation analyses were performed on the Y-BOCS because the subsample of OCD patients was too small. To examine whether the level of EMSs and schema modes at baseline was associated with treatment outcome, regression analyses of pre-treatment level of EMSs, and maladaptive and adaptive schema modes on outcome of general psychopathology were performed, corrected for severity of pre-treatment general psychopathology.

3. Results

3.1 Sample characteristics

Twenty-seven patients were included in the sample. Table 1 presents the baseline characteristics. Most patients (89%) had comorbid mental disorders – mainly other anxiety disorders, mood disorders and personality disorders. Moreover, patients had followed 6.4 previous treatments on average. At admission, 63% of the patients were using psychotropic medication, predominantly SSRIs and SNRIs. The mean treatment duration was 36.8 weeks ($SD=11.2$) including 11.5 hours of treatment per week.

Table 2 presents the levels of general psychopathology, EMSs, maladaptive and adaptive schema modes in comparison to general and clinical populations. The mean level of general psychopathology was significantly higher than a non-clinical population and also compared to a population of patients with clinical disorders (Carlier et al., 2012). The severity of OCD symptoms of patients with a primary diagnosis of OCD was severe ($mean=27.3$; $n=4$) according to the Y-BOCS (Goodman et al., 1989a; Goodman et al., 1989b). The level of EMSs was significantly higher than in a non-clinical population and not significantly different from a population of patients with inpatient treatment for personality disorders (Rijkeboer & van den Bergh, 2006), indicating severe dysfunctional patterns. The level of schema modes was significantly worse than non-patients (maladaptive: $t(26)=8.0$, $p < 0.01$; adaptive: $t(26)=-11.9$, $p < 0.01$) and patients with clinical disorders ($t(26)=2.8$, $p=0.01$; $t(26)=-4.2$, $p < 0.01$) but not

significantly different from patients with personality disorders ($t(26)=-2.0, p=0.06$; $t(26)=-0.2, p=0.84$; Lobbestael et al., 2010). These results on schema modes indicate that dysfunctional coping of problems and emotions was frequently used in contrast to healthy coping which was seldom used.

Table 1. *Baseline description of sample n=27*

	<i>Mean (SD) or n (%)</i>
<i>Sociodemographic characteristics</i>	
Age, years	33.4 (7.9)
Gender, female	16 (59%)
Partner, yes	17 (63%)
Child(ren), yes	7 (26%)
Education	
Elementary school, lower vocational education	2 (7%)
General secondary education, secondary vocational education	6 (22%)
Higher professional education, university or university student	16 (59%)
Missing	3 (11%)
Working (paid job), yes	11 (41%)
<i>Clinical characteristics</i>	
Main diagnosis	
Obsessive-compulsive disorder	7 (26%)
Social phobia	6 (22%)
Generalised anxiety disorder	6 (22%)
Panic disorder with or without agoraphobia	5 (19%)
Emetophobia	1 (4%)
Anxiety disorder NOS	2 (7%)
Number of comorbid disorders	1.9 (1.1)
Duration of disorder, years	13.9 (10.5)
Psychotropic medication, yes	17 (63%)
Number of previous treatments	
Psychotherapy	4.1 (3.1)
Psychotropic medication	2.3 (2.1)
Duration of schema-focused day-treatment, number of treatment weeks, including 11.5 therapy hours per week	36.8 (11.2)

Table 2. Pre-treatment general psychopathology, EMSs and maladaptive and adaptive schema modes and the comparison with norm groups with one sample t-tests.

	Our sample	Norm data	One-sample t-test
		Non-patients	
		Patients with clinical disorders	
		Patients with personality disorders	
	<i>mean</i>	<i>mean</i>	<i>t(df); p</i>
SQ-48 ^a	78.6	15.7 ^b	19.9 (26); <0.01*
		55.6 ^b	7.3 (26); <0.01*
		NA ^c	NA ^c
YSQ ^d	48.1	30.7 ^e	7.9 (25); <0.01*
		NA ^c	NA ^c
		49.9 ^e	-0.8 (25); 0.42
SMI maladaptive ^f	33.9	23.5 ^g	8.0 (26); <0.01*
		30.2 ^g	2.8 (26); 0.01*
		36.4 ^g	-2.0 (26); 0.06
SMI adaptive ^e	6.5	9.1 ^g	-11.9 (26); <0.01*
		7.4 ^g	-4.2 (26); <0.01*
		6.5 ^g	-0.2 (26); 0.84

^a SQ-48 total score without work/study and vitality

^b Norm data from Carlier et al., 2012

^c Not available

^d Young Schema Questionnaire (YSQ-2)

^e Norm data from Rijkeboer & van den Bergh, 2006

^f Schema Mode Inventory (SMI)

^g Norm data from Lobbestael et al., 2010

The EMSs with the three highest scores were: *Unrelenting Standards* (*mean*=3.6; the belief that one has to meet very high standards of behaviour and performance), *Failure to Achieve* (*mean*=3.5; the belief that one is fundamentally inadequate or incompetent and will fail), and *Self-Sacrifice* (*mean*=3.5; the belief that the needs of others are more important than one's own). The maladaptive schema modes with the three highest scores were: *Demanding Parent* (*mean*=4.1; imposing high standards and strict rules), *Self-Soother* (*mean*=3.4; using a substance or behaviour that is numbing or soothing), and *Vulnerable Child* (*mean*=3.4; vulnerable feelings such as fear, sadness and loneliness) (Young et al., 2003).

3.2 Treatment results

Table 3 presents the results of the analyses of pre- to post-treatment change. General psychopathology, EMSs, maladaptive and adaptive schema modes all significantly improved. The severity of OCD improved with 45% from severe to mild symptoms. However, this effect was not significant, probably due to the small subsample. An improvement on the Y-BOCS of 35% and more is considered clinically relevant. A reliable improvement of general psychopathology was present in 74% of the patients, of EMSs in 54%, of maladaptive schema modes in 52%, and of adaptive schema modes in 59%. About a third of all patients had a clinically significant recovery.

Table 3

Treatment results

	Pre-treatment	Post-treatment	Paired samples t-test	Reliable improvement	Reliable deterioration	Clinically significant recovery
	<i>mean (SD)</i>	<i>mean (SD)</i>	<i>t(df), p</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
General psychopathology ^a (n=27)	78.6 (16.4)	52.4 (25.7)	5.0 (26), <0.01*	20 (74%)	1 (4%)	10 (37%)
Y-BOCS (n=4)	27.3 (10.1)	15.0 (5.7)	3.1 (3), 0.05			
Early maladaptive schemas ^b (n=26)	48.1 (11.2)	39.5 (11.2)	3.7 (25), <0.01*	14 (54%)	2 (8%)	9 (35%)
Maladaptive schema modes ^c (n=27)	33.9 (6.8)	29.2 (7.2)	3.0 (26), 0.01*	14 (52%)	3 (11%)	9 (33%)
Adaptive schema modes ^c (n=27)	6.5 (1.2)	7.8 (1.6)	-4.3 (26), <0.01*	16 (59%)	1 (4%)	10 (37%)

^a SQ-48 total score without work/study and vitality

^b Young Schema Questionnaire (YSQ-2)

^c Schema Mode Inventory (SMI)

3.3 Correlation between pre- to post-treatment difference scores

Spearman's correlation between pre- to post-treatment difference scores are presented in Table 4. All correlations are significant and high, indicating strong correlations between improvement of general psychopathology and improvement of EMSs, maladaptive and adaptive schema modes.

Regression analyses showed that the levels of pre-treatment EMSs ($StB=0.19$; $p=0.42$), maladaptive ($StB=0.01$; $p=0.96$) and adaptive schema modes ($StB=-0.07$; $p=0.74$) did not predict post-treatment level of general psychopathology, corrected for pre-treatment level of general psychopathology.

Table 4

Spearman's correlation between pre- to post-treatment difference scores

	Early Maladaptive Schemas ^a	Maladaptive Schema Modes ^b	Adaptive Schema Modes ^b
	<i>r</i>	<i>r</i>	<i>r</i>
	<i>n</i>	<i>n</i>	<i>n</i>
General psychopathology ^c	0.64	0.72	-0.80
	26	27	27
Adaptive schema modes ^b	-0.57	-0.79	
	26	27	
Maladaptive schema modes ^b	0.79		
	26		

^a Young Schema Questionnaire (YSQ-2)

^b Schema Mode Inventory (SMI)

^c SQ-48 total score without work/study and vitality

* $p<0.01$

4. Discussion

Our sample with treatment-resistant patients with anxiety disorders and OCD had strong pervasive patterns of how they perceive and cope with oneself and others. The strongest present EMSs (*Unrelenting Standards*, *Failure to Achieve*, and *Self-Sacrifice*) and schema modes (*Demanding Parent*, *Self-Soother*, and *Vulnerable Child*) may reflect cluster C personality traits, such as perfectionism, rigidity, feelings of inadequacy and low self-esteem, and anxiety and obsessive-compulsive symptoms. Two of the three EMSs with the highest scores were also in the top three in previous studies in patients with anxiety disorders and OCD, namely *Unrelenting Standards* and *Self-Sacrifice* (Haaland et al., 2011; Henker et al., 2019; Kim et al., 2014; Kwak & Lee, 2015; Thiel et al., 2014; Voderholzer et al., 2013; Wilhelm et al., 2015; Yoosefi et al., 2016). Strong levels of schema modes were reported in only one previous study, showing overlap of one schema mode with the current

study on the three strongest present schema modes, namely *Demanding Parent* (Thiel et al., 2014). Overall, the EMSs and schema modes with the highest levels in our study suggest that patients experienced insufficient fulfilment of specific core emotional needs in childhood, namely expression of emotions, validation of emotions and needs, and autonomy. This might indicate that therapy for treatment-resistant patients with anxiety disorders and OCD should aim to repair these core emotional needs by encouraging autonomy and expression of emotions and needs and by validation of emotions.

General psychopathology improved significantly from pre- to post-treatment, as well as EMSs, and maladaptive and adaptive schema modes. These results may suggest that ST-CBT day-treatment is an effective treatment option in patients with chronic, treatment-resistant anxiety disorders and OCD with many psychiatric comorbidities. Our findings corroborate previous findings in patients with anxiety disorders and OCD who were treated with a similar day-care treatment (Peeters et al., 2021). More patients in our study were reliably improved and clinically significantly recovered on symptoms and schema modes compared to the previous findings (Peeters et al., 2021), possibly because our treatment was of longer duration: 37 weeks of 11.5 therapy hours per week compared to 26 weeks including 10.25 therapy hours per week, which would be congruent with previous findings that more sessions c.q. longer treatment with schema therapy or CBT leads to better results (Craske et al., 2006; Haby et al., 2006; Kool et al., submitted). Another explanation for the difference from previous findings might be that the mean level of psychopathology before treatment in our sample ($Z=4.28$) was higher than that of Peeters et al. ($Z=3.02$), allowing for a greater reduction of symptoms.

The current study showed that improvement of general psychopathology was strongly correlated to improvement of EMSs and schema modes. This result is congruent with the hypothesis that treatment-resistance is caused by EMSs and schema modes. We hypothesize that improved EMSs and schema modes allow for better compliance with CBT and thus may ameliorate anxiety and obsessive-compulsive symptoms resistant to CBT before. However, another interpretation of our result might be that both symptoms and EMSs/schema modes are independently improved by treatment and this is reflected in a correlation. Our result replicates a previous finding on schema modes with even stronger

correlations (Peeters et al., 2021). Our finding that reduction of symptoms was strongly correlated to improvement of EMS and schema modes in patients with anxiety disorders and OCD, contributes to an emerging field of research into the effectiveness of schema therapy in patients with treatment-resistant anxiety disorders and OCD.

Pre-treatment level of EMSs and schema modes did not predict the outcome of symptoms, indicating that strong, pre-treatment EMSs and schema modes did not hinder improvement of symptoms in our sample of patients with anxiety disorders and OCD. Possibly, treatment of EMSs and schema modes contributed to this result. Congruent with this possible interpretation are two previous findings showing that outcome of CBT –without schema therapy – was worse for patients with OCD with strong EMSs (Sunde et al., 2019; Thiel et al., 2014). This finding, however, was not replicated in a study with patients with depression and anxiety disorders (Halford et al., 2002). While our findings do not demonstrate effectiveness of schema therapy, they suggest that ST-CBT day-treatment may be promising for patients with treatment-resistant anxiety disorders and OCD. It might offer prospect of improvement and recovery even in the most vulnerable patients.

A strength of this study is that we had a naturalistic sample of patients with treatment-resistant anxiety disorders and OCD. Thus, our results are generalizable to this population. A limitation of our study is the lack of a control treatment. Consequently, it is not known whether ST-CBT day-treatment caused the outcome. In addition, as the treatment was examined as a package, it is not known which elements caused which result.

Psychopharmacological treatment may have resulted in improvement as well. Also, it is not known whether ST-CBT day-treatment is superior to other treatments for treatment-resistant anxiety disorders and OCD, such as intensive exposure treatment. Last, diagnoses were clinician-based and personality disorders were not assessed.

To conclude, ST-CBT day-treatment is promising in patients with chronic, treatment-resistant anxiety disorders and OCD with many psychiatric comorbidities. Improvement of general psychopathology was strongly correlated to improvement of EMSs and schema modes, suggesting that treatment of EMSs and schema modes helps to reduce symptoms in these patients. Pre-treatment level of EMSs and schema modes did not predict the outcome of symptoms, indicating that stronger EMSs and schema modes that were present before

treatment did not hinder improvement of symptoms. Further controlled research is recommended to substantiate evidence for schema therapy in patients with treatment-resistant anxiety disorders and OCD, comparing the effectiveness of schema therapy with usual care and examining schema therapy with and without CBT. Furthermore, it is recommended to investigate the possible differential effects on EMSs and schema modes in subgroups of anxiety disorders and OCD.

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