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PII: S0005-7916(16)30023-4

DOI: [10.1016/j.jbtep.2016.03.006](https://doi.org/10.1016/j.jbtep.2016.03.006)

Reference: BTEP 1213

To appear in: *Journal of Behavior Therapy and Experimental Psychiatry*

Received Date: 31 July 2015

Revised Date: 25 February 2016

Accepted Date: 10 March 2016

Please cite this article as: Thiel, N., Jacob, G., Tuschen-Caffier, B., Herbst, N., Külz, A.K., Hertenstein, E., Nissen, C., Voderholzer, U., Schema Therapy augmented Exposure and Response Prevention in Patients with Obsessive-Compulsive Disorder: Feasibility and Efficacy of a Pilot Study, *Journal of Behavior Therapy and Experimental Psychiatry* (2016), doi: 10.1016/j.jbtep.2016.03.006.

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Word count: 4943

## Schema Therapy augmented Exposure and Response Prevention in Patients with Obsessive-Compulsive Disorder: Feasibility and Efficacy of a Pilot Study

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## Abstract

**Background:** In spite of the availability of effective treatments for obsessive-compulsive disorder (OCD), many patients do not respond sufficiently or relapse. Treatments using other potentially effective methods such as experiential techniques need to be investigated. We developed a 12-week inpatient treatment augmenting exposure and response prevention (ERP) with schema therapy (ST) called STERP. The feasibility and effectiveness of STERP was tested.

**Methods:** In a pilot study, 10 inpatients with OCD who failed to respond to Cognitive Behavioral Therapy (CBT) with ERP received STERP. The Yale-Brown Obsessive Compulsive Scale (Y-BOCS) served as primary outcome. Secondary outcome measures were the Obsessive Compulsive Inventory-revised (OCI-R) and the Beck Depression Inventory (BDI-II). Treatment effects were assessed with t-tests for paired samples.

**Results:** Significant reductions of the Y-BOCS, OCI-R and the BDI-II were found, with very large effect sizes (Cohen's  $d = 1.48 - 2.25$ ). Results remained stable at 6 months follow-up. Five prior non-responders responded according to the 35% Y-BOCS symptom reduction criterion.

**Limitations:** Lack of control group, small sample size and lack of repeated outcome measures during baseline.

**Conclusions:** STERP may be a feasible and potentially effective treatment for prior non-responders among OCD patients and thus worth further investigation in randomized controlled trials.

**Keywords:** Obsessive-compulsive disorder, Cognitive Behavior Therapy, exposure and response prevention, schema therapy

## 1 1. Introduction

2

3 Obsessive-compulsive disorder (OCD) is a chronic and debilitating mental disorder that  
4 affects 2-3% of the general population (Abramowitz, 2006; Ruscio, Stein, Chiu & Kessler,  
5 2010). OCD typically severely impairs patient's job performance and their capacity to function  
6 in social contexts or at home. The course of OCD is often chronic and full symptom  
7 remission is rare (Catapano et al., 2006; Eisen, Pinto, Mancebo, Dyck, Orlando &  
8 Rasmussen, 2010). Cognitive-Behavioral Therapy (CBT) with Exposure and Response  
9 Prevention (ERP) is the first-line treatment for OCD according to standard guidelines (Eisen  
10 et al., 2010; Foa, Liebowitz, Kozak, Davies, Campeas, & Franklin, 2005; National Institute for  
11 Health and Clinical Excellence [NICE], 2005). Even though several meta-analyses postulate  
12 the relative efficacy of ERP, pharmacotherapy, or their combination, a systematic review  
13 proves that 10 to 37% of patients suffering from OCD do not respond satisfyingly to CBT  
14 (Podea, Suci, Suci, & Ardelean, 2009; Schruers, Koning, Luermans, Haack, & Griez,  
15 2005). Typical difficulties that complicate treatment are the refusal to perform exposure in  
16 approximately 25-30% of the patients and therapy drop-out in 28% (Emmelkamp & Foa,  
17 1983; Kozak, Liebowitz, & Foa, 2000). In the long term, more than one third of the  
18 completers remain symptomatic and a meta-analysis postulates that even after adequate  
19 treatment, OCD symptoms often persist at moderate levels and patients suffer from disabling  
20 symptoms (Alonso et al., 2001; Eddy, Dutra, Bradley, & Westen, 2004). Moreover, in a  
21 prospective, naturalistic study assessing OCD symptoms annually over five years, 59% of  
22 treatment-seeking OCD patients relapse after an adequate treatment, especially after  
23 experiencing only partial remission (Eisen et al., 2013). Without adequate treatment, OCD  
24 typically takes a chronic course (Abramowitz, 2006).

25 Non-response in OCD is, among other factors, associated with greater OCD symptom  
26 severity at baseline, earlier age at onset, higher illness burden, social and occupational  
27 impairment and the need for more inpatient care (Eisen et al., 2010; Keeley, Storch, Merlo, &  
28 Geffken, 2008; Pinto, Mancebo, Eisen, Pagano, & Rasmussen, 2006; Van Minnen, Arntz, &  
29 Keijsers, 2002). Additional factors that may contribute to a negative treatment outcome are  
30 comorbid personality and axis I disorders, childhood traumatization and a distinct  
31 functionality of symptoms (Thiel, Hertenstein, Nissen, Herbst, Kuelz & Voderholzer, 2013;  
32 Abramowitz, Franklin, Street, Kozak, & Foa, 2000; Fricke et al., 2006; Keeley et al., 2008;  
33 Külz, Lump, Herbst, Stelzer, Förstner, & Voderholzer, 2010; Maier, Kuelz, & Voderholzer,  
34 2009). The term "functionality of symptoms" represents circumstances that give symptoms a  
35 sense or meaning in the life and experiences of a person (Külz et al., 2010). An example  
36 may be the use of compulsive behavior to regulate personal negative emotions or to set a  
37 limit to others.

38 Consequently, the development of new strategies and effective alternative psychotherapeutic  
39 approaches for non-responding OCD patients is needed. Given the complexity of these  
40 patients, specifically tailored treatment approaches for individual case constellations with  
41 complex symptomatology and comorbid axis II disorders are required (Franz et al., 2013;  
42 Fricke et al., 2006).

43  
44 Schema therapy (ST) was primarily developed for patients with severe personality disorders  
45 (PD) and for patients with chronic mental disorders who insufficiently responded to traditional  
46 CBT (Young, Klosko, & Weishaar, 2003). It is considered an approach to be provided to  
47 treatment-resistant patients (Bernstein, Arntz, & de Vos, 2007). As an integrative treatment it  
48 combines attachment theory, cognitive, behavioral, psychodynamic, emotion-focused and  
49 gestalt therapy (Kellogg & Young, 2006). Since ST focuses on the treatment of negative  
50 childhood experiences, underlying core beliefs, comorbid personality disorders and distinct  
51 functionality of symptoms, we assume that ST is suitable for non-responding OCD patients  
52 since these factors are related to treatment failure in CBT for OCD (Young et al., 2003).  
53 Additionally, the work on early maladaptive schemas (EMS) and schema modes is of great  
54 interest. EMS are dysfunctional cognitive patterns that arise from unmet basic needs and  
55 traumatic experiences during childhood (Young et al., 2003). When an individual gets into a  
56 life situation, to which it is sensitive to, EMS are triggered and schema modes get activated.  
57 Schema modes are predominant emotional states and coping responses that are currently  
58 active for the individual. They regulate the current mood and behavior of the person. Three  
59 studies examined EMS and schema modes in OCD and showed that patients presented  
60 significantly higher scores than healthy controls or other axis I disorders (Atalay, Atalay,  
61 Karahan, & Caliskan, 2008; Lochner et al., 2005; Voderholzer et al., 2013). In addition, two  
62 studies investigated the predictive value of EMS in OCD identifying the EMS *abandonment*,  
63 *failure* and *emotional inhibition* as negative predictors for CBT outcome (Haaland et al.,  
64 2011; Thiel et al., 2014). Concerning the EMS *emotional inhibition*, suppressing emotions  
65 can have a negative impact on ERP sessions, since confrontation and habituation are  
66 impaired. ST employs a variety of experiential and emotion-inducing treatment techniques,  
67 which may be especially indicated in patients who suppress emotional experiences (Young  
68 et al., 2003). Moreover, one aim of ST is to establish a so called healthy adult mode. This  
69 mode performs appropriate adult functions such as accepting responsibility, taking care of  
70 ones health, working and parenting. We assume that the specific strengthening of a healthy  
71 and adult coping response by ST will encourage patients to perform ERP sessions and to  
72 stay motivated in treatment. We do not assume that OCD patients with a co-morbid PD will  
73 positively respond, since PD outpatient studies feature average treatment durations of 2-3  
74 years.

75 Initial studies showed good efficacy in the treatment of patients with Borderline PD in the  
76 one-on-one (Giesen-Bloo et al., 2006; Nadort et al., 2009) and group therapy setting (Farrell,  
77 Shaw, & Webber, 2009), as well as in the treatment of other PDs including cluster C,  
78 paranoid, histrionic and narcissistic PD (Arntz, 2012) and forensic patients (Bernstein,  
79 Nijman, Karos, Keulen-de Vos, de Vogel, & Lucker, 2012). One study showed positive  
80 effects of ST on co-morbid depression in patients suffering a cluster C PD (Bamelis, Evers,  
81 Spinhoven, & Arntz, 2014). Only a few studies investigated the application of ST in axis I  
82 disorders. One randomized clinical trial compared ST and CBT in 100 outpatients with a  
83 major depressive episode and showed comparable efficacy of both treatments (Carter,  
84 McIntosh, Jordan, Porter, Frampton, & Joyce 2013). Two single case series tested ST in  
85 chronically depressed patients and showed high remission rates along with large effect sizes  
86 (Malogiannis et al., 2014; Renner, Arntz, Leeuw, & Huibers, 2013). Moreover, the use of ST  
87 as a promising new approach is discussed for other axis I disorders with mostly chronic  
88 courses such as eating, anxiety and obsessive compulsive disorders. So far, case series  
89 provide information of case formulation procedures and processes within ST for example in  
90 chronic eating or anxiety disorders (Gross, Stelzer, & Jacob, 2012; Hoffart, o. J.; Simpson,  
91 2012). Hoffart (2012) assumes that some patients with panic disorder fail to progress during  
92 CBT due to schema-related issues and that changes in anxiety symptoms may partially  
93 prevented by underlying EMS. Concerning OCD, two case examples provide promising  
94 results of the use of a combination of ST with CBT (Gross et al., 2012). Mode models  
95 oriented to OCD and the use of schematherapeutic techniques are presented to respond to  
96 problems in the therapy, for example if patients refuse to do ERP sessions or do not respond  
97 (Gross et al., 2012).

98 These findings and the evidence for insufficient treatment response of OCD patients to  
99 traditional CBT with ERP suggest that schema therapy may be suitable and an effective  
100 approach for OCD patients with prior non-response to CBT with ERP. As to date ERP is the  
101 most effective technique for the treatment of OCD, we developed a 12-week treatment  
102 augmenting ERP with ST. In this treatment protocol ST elements are combined with the use  
103 of ERP called STERP and we tested STERP in a pilot study with previously non-responding  
104 OCD patients. Since non-responders who usually present a severe OCD were included,  
105 STERP was examined in an inpatient setting. This had the advantage that ERP sessions  
106 could be often accompanied and prompt debriefed. Moreover, ecological validity was  
107 increased, since the study was realised in the setting usually indicated for long existing, very  
108 impairing symptoms. But, due to the time-limited setting, ST had to be adapted and  
109 shortened. To the best of our knowledge, this is the first study on the application of ST with  
110 ERP for non-responding OCD patients.

111 The present study tested three hypotheses. Firstly, we assume that STERP is feasible and  
112 will be accepted by patients with OCD. Secondly, we hypothesized that STERP is efficient  
113 and leads to a significant reduction of OC symptoms, and thirdly, we expected that the  
114 symptom reduction will be sustained for a period of six months.

115

## 116 **2. Materials and Methods**

### 117 **2.1 Subjects**

118 Ten inpatients diagnosed with OCD were included in this pilot study and recruited from the  
119 Department of Psychiatry and Psychotherapy, University Medical Center Freiburg. The  
120 inclusion criteria were a primary diagnosis of OCD assessed by the Structured Clinical  
121 Interview for DSM-IV (SCID-I) and an age between 18 and 65 years (Wittchen, Zaudig, &  
122 Fydrich, 1997). Moreover, the participants had to be non-responders to at least one CBT  
123 treatment which featured exposure exercises conducted following expert guidelines either in  
124 an inpatient setting in a hospital specialized in the treatment of OCD or a disorder-specific  
125 outpatient treatment of at least six months duration. In addition, patients had gone through at  
126 least one unsuccessful attempt of pharmacotherapy with a first-line drug in adequate dosage  
127 and treatment duration (SSRI: Citalopram, Escitalopram, Fluoxetine, Fluvoxamin, Paroxetine,  
128 Sertralin („AWMF: Detail“, n.d.). Non-response was examined by studying the final reports of  
129 the prior treatments and the patients' personal assessment. Whenever pre- and post-  
130 treatment results of the Yale-Brown Obsessive Compulsive Scales (see 2.2) were available,  
131 a reduction of less than 25% was considered a non-response (Pallanti & Quercioli, 2006).  
132 SCID-I and –II interviews were administered by trained and experienced clinicians. All  
133 clinicians attended a SCID-I and –II training, that consisted of a two-day theoretical training  
134 by a certified trainer for SCID. The exclusion criteria were a primary diagnosis other than  
135 OCD, psychotic disorders, substantial neurological impairment, severe cognitive dysfunction,  
136 severe Tourette syndrome and any acute addictive disorder. Due to the limited time of the  
137 study protocol, existing pharmacotherapy at the time of admission was not discontinued. No  
138 new psychotropic medication was applied, but blood levels of existing medication were  
139 examined and adjusted if necessary. Accordingly, patients continued their pharmacotherapy  
140 in addition to STERP in compliance with current and international guidelines for OCD  
141 treatment („AWMF: Detail“, n.d.). The mean age of the sample was 35.26 years ( $SD=11.11$ ).  
142 50% were female. Nine patients had at least one other co-morbid axis I diagnosis and five  
143 patients suffered a co-morbid axis II diagnosis. Details on sociodemographic and clinical  
144 characteristics are given in Table 1.

145

146 Title: Sociodemographic and Clinical Characteristics of Study Participants (N=10)

147

Insert Table 1 approximately here

148 Table 1

149

150 Sociodemographic and clinical characteristics of the participants

Participant	Age	Marital status	Education (years)	Age at onset of OCD	Previous treatments (inpatient/outpatient)	Medication	Comorbid axis I diagnosis (SCID-I)	Comorbid axis II diagnosis (SCID-I)	
1 F	30	Single	14	9	1/ 3	SSRI	Moderate MDD, rec.	Avoidant PD	151
2 M	48	Married, 1 child	11	14	7/ 3	AP	Tourette syndrome	Obsessive Compulsive and Paranoid PD	152 153 154 155
3 F	54	Single	13	19	8/ 2	SSRI + NaSSA + AP	Moderate MDD, rec.	Dependent PD	156 157 158 159
4 M	33	Single	26	22	-/ 2	SSRI	Insomnia	Narcissistic PD	160
5 F	23	Single	13	16	2/ 1	SSRI + AAP + AP	Severe MDD, rec.	-	161 162 163
6 M	33	Single	23	10	3/ 3	SSRI	Moderate MDD, rec.	-	164
7 F	50	Married, 1 child	13	12	1/ 2	SSRI	-	-	165 166
8 M	30	Single	19	13	4/ 2	SSNRI	Severe MDD, rec.	-	167
9 F	39	Married	11	27	5/ 1	SSRI + TZA	Moderate MDD, rec.	Avoidant PD	168 169
10 M	24	Single	17	21	2/ 1	TZA	Moderate MDD, rec.	-	170 171

172

173 Note: F=Female, M=Male, SSRI= Selective serotonin reuptake inhibitor; AP=Antipsychotics; AAP=atypical antipsychotic; NaSSA= Noradrenergic and specific  
 174 serotonergic antidepressant; TCA=tricyclic antidepressant; MDD=Major Depressive Disorder, rec.=recurrent, PD=Personality disorder  
 175



176 At pre-treatment, the sample was characterised by severe levels of obsessive-compulsive  
177 symptom severity ( $M=25.8$ ,  $SD=2.95$ ) on the Y-BOCS. On average, the OCD began at the  
178 age of 19.7 years ( $SD=9.9$ ) and the mean duration of OCD was 16.3 years ( $SD=5.8$ ).  
179 Patients went through an average 3.4 ( $SD=2.5$ ) inpatient stays and 2 ( $SD=0.8$ ) outpatient  
180 treatments for their OCD. The main reasons patients reported for the non-response during  
181 previous treatments were problems complying with the exposure, lack of emotional activation  
182 during exposure exercises, and failure to transfer the results into their everyday life.  
183 The study was approved by the local Ethics Committee for research with human subjects.  
184 Written informed consent was obtained from all participants prior to baseline assessment.

## 186 2.2 Measures

187 A clinical assessment of the patients' axis I diagnoses was conducted before and after  
188 treatment and at a 6-months follow-up (SCID-I). Additionally, axis II diagnoses were  
189 assessed pre-treatment (SCID-II). The OCD diagnosis was ascertained by the outpatient  
190 clinic (see 2.4), the therapist in the study and the SCID-I. The main outcome measure was  
191 the Yale-Brown Obsessive Compulsive Scale (Y-BOCS) (Goodman et al., 1989). The Y-  
192 BOCS is a semi-structured, clinician-administered interview that is considered the gold  
193 standard for assessing OCD symptom severity (Jacobsen, Kloss, Fricke, Hand, & Moritz,  
194 2003; Taylor, 1998). It was conducted pre- as well as post-treatment and at follow-up.  
195 Following Pallanti and Quercioli (2006), we defined full response as a Y-BOCS reduction of  
196 at least 35%. All interviews were conducted by a trained and experienced psychologist who  
197 was not involved in the treatment and who was blind for the results. Furthermore, a  
198 comprehensive battery of standard self-report instruments including the Obsessive  
199 Compulsive Inventory-revised (OCI-R; Gönner, Leonhart, & Ecker, 2008), the Beck  
200 Depression Inventory-II (BDI-II; Beck, Steer, Ball, & Ranieri, 1996), the Working Alliance  
201 Inventory – Short Revised (WAI-SR; Wilmers et al., 2008) was administered. The severity  
202 rating of the DSM-IV general adaptive functioning scale (GAF; axis V) was assessed by the  
203 therapist at pre-, post-treatment and follow-up. Additionally, to measure patients' global  
204 improvement after the treatment, therapist (Clinical Global Impression – Improvement Scale  
205 (CGI-I)) and patient (Patient Global Impression – Improvement Scale (PGI-I)) applied the  
206 Improvement Scale (Collegium Internationale Psychiatrie Salarum, 1996). In addition, a  
207 self-rating questionnaire was designed regarding the evaluation of the program, including  
208 current satisfaction with life and the treatment (10 = 'very satisfied'; 1 = 'very dissatisfied'),  
209 the recommendation of STERP and a section in which experiences with STERP could be  
210 described in a continuous text. Moreover, patients were asked about the difference between  
211 STERP and previously known treatments and also about whether they had done exposure

212 exercises. At follow-up, patients were asked about life events, utilization of therapeutic  
213 interventions and the subjective development of symptoms during the follow-up period.

214

### 215 **2.3 Procedure**

216 Ten inpatients participated in this study testing the feasibility of the STERP treatment.  
217 Patients with OCD who want to attend an inpatient treatment at the University Hospital in  
218 Freiburg, sign in at the OCD outpatient clinic of our hospital. At the outpatient clinic, patients  
219 are seen to an one-hour personal interview by a psychiatrist or psychotherapist who confirms  
220 the OCD diagnosis and illustrates the inpatient treatment. Subsequently, patients are  
221 enrolled on a waiting list for inpatient treatment. This waiting list was screened for  
222 appropriate patients and all appropriate subjects (N=13) were informed about the study. All  
223 13 subjects agreed to participate in the study. Written informed consent was obtained, but  
224 three patients had to be excluded because they did not fulfill the in- or exclusion criteria (see  
225 2.2). After the waiting period for inpatient admission, the pre-treatment measures were  
226 conducted and the 12 weeks combined treatment STERP was administered.

227

### 228 **2.4 Treatment**

229 The treatment consisted of two individual therapy sessions per week (50 min each) with a  
230 therapist (NT) appropriately trained and experienced in ST and CBT with ERP. The therapist  
231 received weekly supervision by a trainer in ST and CBT (GJ).

232 STERP consisted of 3 treatment segments: An introduction phase (3 weeks), a change  
233 phase (6 weeks) and a final phase (3 weeks) (Stelzer et al., 2011; Stelzer, Herbst, Kuelz,  
234 Nissen & Voderholzer, 2011). The introduction started with a detailed case history. A general  
235 education about ST and the discussion of the ST questionnaire results followed. The ERP  
236 rationale was revised only briefly, since all participants had previously received a CBT with  
237 ERP treatment. The CBT with ERP treatment was based on the established and evidence-  
238 based treatment by Lakatos and Reinecker (2007). An individual fear hierarchy was  
239 established and the first exposure session was initialized. The therapeutic relationship was  
240 characterized by limited reparenting (soothing, support, guidance). It is established on the  
241 assumption that EMS and schema modes arise when core needs are not met. The  
242 foundation is the establishment of a secure therapeutic relationship and the therapist  
243 supports the patient to meet these unmet needs within the bounds of the professional  
244 relationship.

245 In the change phase, an individual schema mode model was created to reach a shared  
246 understanding of the patient's schema modes, distress and interpersonal difficulties. For  
247 examples of typical individual mode models see (Gross et al., 2012; Thiel & Voderholzer,  
248 2013a, 2013b). The exposure sessions started with moderately anxiety-provoking situations

249 in vivo and gradually increased to more distressing fears. Exposure consisted of therapist-  
250 accompanied sessions but also of self-administered homework assignments. Additionally,  
251 specific schematherapeutic techniques were used: with the use of chair work, the patient  
252 moves between different chairs and has a dialogue between different schema modes for  
253 example the obsessive compulsive mode and the healthy adult mode. By the technique of  
254 imagery rescripting, painful memories are revised and the therapist assists the patient to  
255 satisfy unmet needs that were injured in the past. Flashcards are written statements that  
256 were used by the patient in-between sessions for examples to increase the motivation before  
257 starting self-administered exposure exercises. As homework assignments patients  
258 conducted ERP exercises or filled out schema memos. Schema memos are forms that  
259 provide a guide for the patient to become aware of the personal EMS driven reactions. The  
260 patient notes thoughts, feelings, problematic behavior, EMS and healthy perspectives and  
261 behavior. At the beginning of the change phase the focus of the sessions was alternating  
262 between ST elements and ERP. Gradually, when the patient increasingly self-administered  
263 exposure, the focus shifted toward ST elements to work on interpersonal coping skills and  
264 schema modes and to overcome difficulties and crises. Symptom functionality (regulation of  
265 emotions, limit setting) was addressed from the very beginning with the aim of strengthening  
266 treatment motivation. The following examples should illustrate how ST and ERP  
267 complemented each other. Chair work preceded exposure exercises to ensure that exposure  
268 sessions were conducted in the healthy adult mode and not in a coping or avoidance mode  
269 from which patients do not benefit. Audiotape messages and schema memos were drafted  
270 for situations in which the patient felt overwhelmed for examples self-administered exposure  
271 sessions. Emotions that occurred after exposure exercises (anger, sadness, shame, guilt)  
272 were treated with schema-therapeutic imaginative re-scripting.

273 In the final phase, the focus was on transferring newly learned skills to the home  
274 environment, on relapse prevention, arrangement of outpatient psychotherapy, gradual  
275 termination and phasing out of therapy.

276 In addition to individual sessions, inpatients attended a weekly educational group (90 min)  
277 conducted by experienced therapists, and ergotherapy as well as therapeutic exercises.  
278 Team meetings took place to discuss ongoing cases and difficulties.

279

## 280 **2.6 Data analysis**

281 The IBM Statistical Package for Social Sciences (SPSS), version 21, was used for statistical  
282 analysis. One participant who did not complete the study was considered a drop-out. The  
283 missing data of this drop-out at post-treatment was imputed by the Last-Observation-Carried-  
284 Forward method, since untreated OCD manifest a rather stable symptomatology. Data of the  
285 Y-BOCS, OCI-r and BDI-II were analysed for goodness of fit to a normal distribution with a

286 Kolmogorov-Smirnov test, which showed non-significance. Accordingly, means and standard  
287 deviations were compared using t-tests for paired samples. Full treatment response was  
288 defined a priori as a reduction in symptom severity of at least 35% and partial response as a  
289 reduction of at least 25% on the Y-BOCS (Pallanti & Quercioli, 2006). To classify the  
290 therapeutic success, effect sizes (Cohen's  $d$ ) were calculated. Clinical significance  
291 concerning depressive symptoms was examined with the reliable change index (RCI). The  
292 RCI was calculated based on the test-retest reliability of the BDI-II ( $r= 0.92$ ) according to  
293 Hautzinger, Keller and Kühner (2006).

294

295

### 296 **3 Results**

297 *Hypothesis 1: STERP is feasible and will be accepted by patients with OCD.*

298 Concerning feasibility, nine of the ten patients included in the study completed the treatment  
299 and follow-up assessment. One participant dropped out three weeks into the introduction  
300 phase and did not enter the treatment phase. This participant admitted to have started  
301 treatment under pressure from her parents; however, she did not develop treatment  
302 motivation herself. No participant was excluded due to dissatisfaction with the combined  
303 treatment or suicidal ideation. The evaluation of the experience with and acceptance of  
304 STERP revealed that average satisfaction scored a 9 (10 = 'very satisfied'; 1 = 'very  
305 unsatisfied'). Eight of the nine completers would recommend STERP to other persons with  
306 OCD. STERP proved to be feasible and there were no reportable difficulties integrating the  
307 combined treatment into the daily clinical routine. The treatment could be conducted within  
308 12 weeks as planned.

309

310 *Hypothesis 2: STERP is efficient and leads to a significant reduction of OC symptoms*

311 T-tests for paired samples revealed significant improvements from severe to moderate OC  
312 symptoms. For the calculation of the effect sizes, data of the standard deviation of a  
313 representative study were used to detect more valuable results ( $SD\ pre: 4.6; SD\ post: 8.2$ )  
314 (Foa et al., 2005). The study of Foa et al., (2005) was considered representative compared  
315 to our study since patients also received a 12 week ERP treatment in combination with  
316 medication but with a larger study sample. A large effect size in the primary outcome  
317 measure Y-BOCS could be detected (Cohen's  $d\ Y-BOCS_{pre-post}: d=1.29$ ) (see table 2). At  
318 post-treatment assessment 4 patients (40%) fully responded (participant 1,3,6,7) and another  
319 2 patients (20%) responded partially (participants 2,9).

320

321 Title: Psychometric scores at baseline, after STERP (post) and at follow-up.

322

Insert Table 2 approximately here

323 Table 2

324

325 Psychometric scores at baseline, after STERP (post) and at follow-up.

	<i>M ± SD</i>			<i>Pre vs. post</i>		<i>Pre vs. fu</i>		<i>Post vs. fu</i>	
	<i>Pre</i>	<i>post</i>	<i>6 month follow-up</i>	<i>t</i>	<i>p</i>	<i>t</i>	<i>p</i>	<i>t</i>	<i>p</i>
Y-BOCS global	25.8±2.8	17.8±4.6	16.6±4.3	5.59	<.001***	6.22	<.001***	0.28	.784
OCI-R global	31.9±10.3	19.1±6.9	17.5±7.1	4.95	.001**	6.81	<.001***	.676	.518
BDI-II	29.7±12.5	15.1±7.5	22.3±11.9	3.94	.003**	1.63	.141	-1.8	.391
GAF	50.7±7.1	61.7±5.5	57.5±10.1	-5.44	.001**	-	.137	1.41	.396
						1.65			.333

334

335

336 Note: Y-BOCS = Yale-Brown Obsessive-Compulsive Scale, OCI-R = Obsessive Compulsive Inventory-revised, BDI-II = Beck Depression Inventory II, GAF = General  
 337 Adaptive Functioning Scale \*  $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

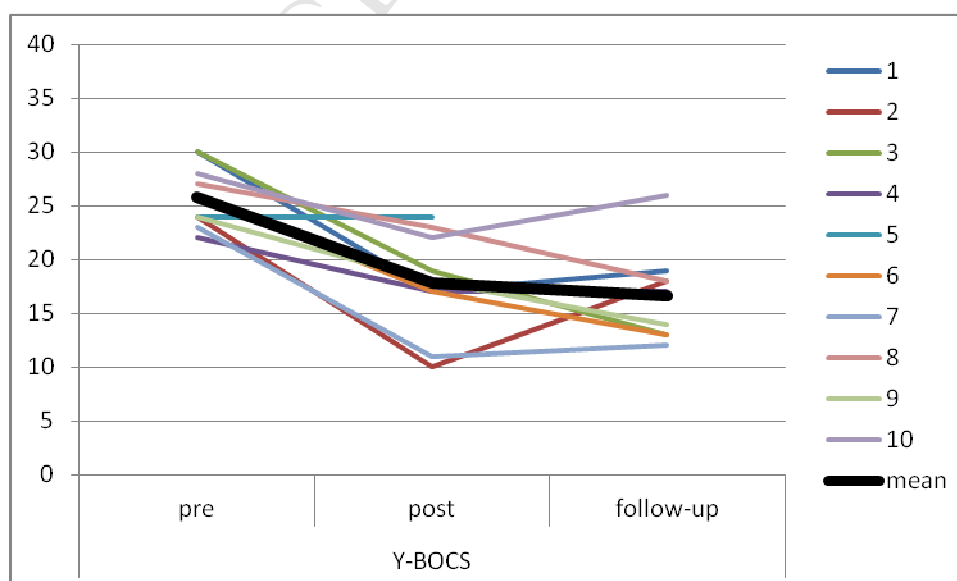
338

339 *Hypothesis 3: The symptom reduction can be maintained for a period of six months.*  
 340 Follow-up assessments were completed by all nine patients who completed treatment.  
 341 Seven patients continued outpatient psychotherapy (CBT: 3, ST: 4). Concerning OCD  
 342 symptoms, two full responders (6,7), one partial responder (9) and one non-responder (8)  
 343 continued outpatient psychotherapy with a combination of CBT with ERP and ST. Within the  
 344 6-month follow-up period, these responders remained in response, the partial responder  
 345 achieved response and the non-responder achieved partial response wherein scores on  
 346 depression remained stable. Besides, two full responders (1,3) and one partial responder (2)  
 347 continued outpatient CBT psychotherapy. All of these three participants maintained their  
 348 results concerning the OC symptoms but deteriorated regarding the depressive symptoms.  
 349 Overall, the follow-up scores on the Y-BOCS were non-significant compared to the post-  
 350 treatment scores and were significantly reduced compared to baseline (Table 2). For three of  
 351 the five responders medication remained unchanged during and after inpatient treatment. In  
 352 two participants the dosage was adjusted according to the blood levels of the medication  
 353 during inpatient treatment. Six of the nine completers were still on the same dosage of  
 354 psychotropic medication at follow-up. One non-responder discontinued pharmacotherapy.  
 355 Consequently, we found five responders and two partial responders at follow-up. Two  
 356 patients were non-responders, but there was no exacerbation of OCD symptoms. Figure 1  
 357 presents the scores for Y-BOCS, OCI-r and BDI-II for each participant and the mean.  
 358

359 Title: Scores on standardized measures for Y-BOCS, OCI-r and BDI-II for each participant  
 360 and mean (N=10)

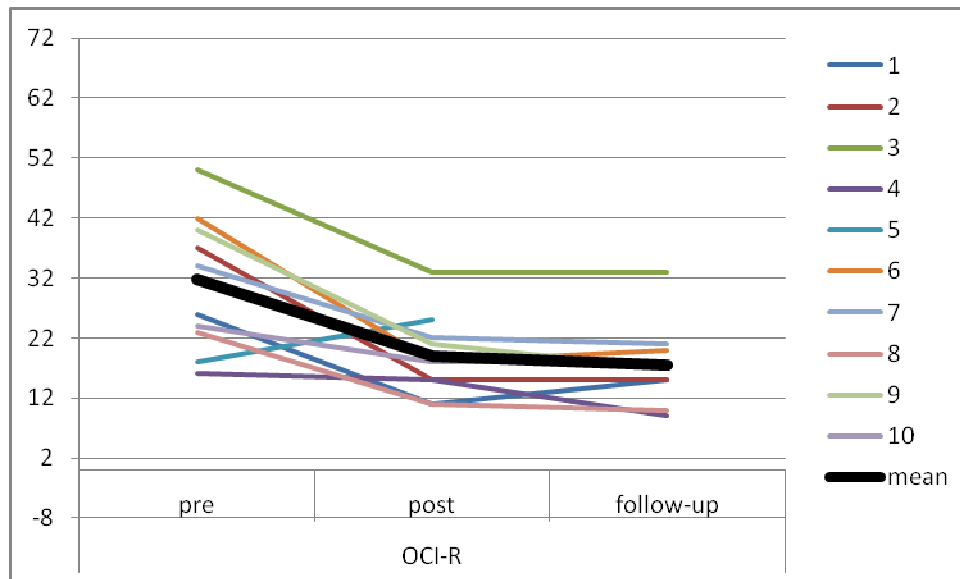
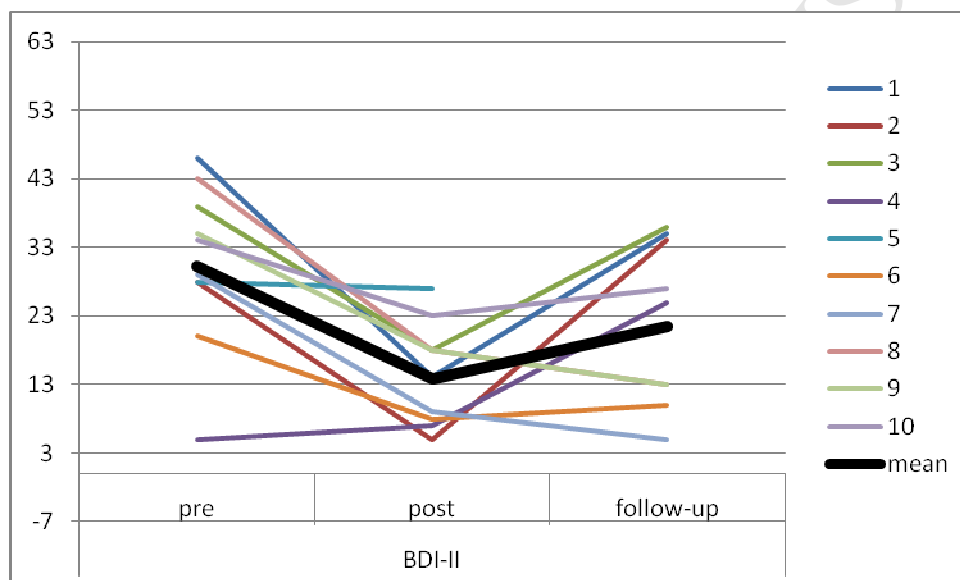
361 Insert Figure 1 approximately here

362 Figure 1  
 363 Scores on standardized measures for Y-BOCS, OCIr, BDI-II for each participant and overall mean.  
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Note: Y-BOCS = Yale-Brown Obsessive-Compulsive Scale, OCI-R = Obsessive Compulsive Inventory-revised, BDI-II = Beck Depression Inventory II,

374

375 **Exploratory outcomes:** The significant improvements in and large effect sizes on OCD  
376 symptoms could be asserted by the OCI-R at post-treatment and follow-up (OCI-R<sub>pre-post</sub>:  
377  $d=1.53$ ). In addition, t-tests results indicated significant improvements in general adaptive  
378 functioning (GAF) from baseline to post-treatment. While the GAF score increased by 15%,  
379 there was no significant improvement from baseline to follow-up.

380 The BDI-II changes between pre- and post-treatment were large and statistically significant  
381 ( $p<.003$ ; Cohen's  $d$  BDI-II<sub>pre-post</sub>:  $d=1.48$ ). Subjects were, on average, severely depressed  
382 before treatment and only marginally depressed at post-treatment. The average follow-up  
383 score showed no significant differences to the post-treatment and the baseline score (Table

384 2). Clinical significant changes could be detected in five participants (1,6,7,8,9) ( $RCI > 1.96$ ).  
385 In three patients, depression scores remained unchanged compared to the baseline BDI-II  
386 score (2,3,10) and participant 4 deteriorated significantly. Participant 3, a full responder  
387 concerning OC symptoms suffered a relapse of the recurrent moderate MDD. Participant 2  
388 who partially responded concerning the OC symptoms worsened compared to his baseline  
389 BDI-II score. He named the separation from his wife in the follow-up period as a reason.  
390 Participant 4 (Y-BOCS non-responder) reported that his depressive symptoms worsened  
391 because he was under psychological pressure as he had to terminate his studies because of  
392 the OCD. He discontinued outpatient psycho- and pharmacotherapy.

393 The general quality of the therapy relationship received a 3.9 ( $SD=0.8$ ) rating on the WAI-SR  
394 at post-treatment (5 = 'always'; 1 = 'seldom' a good relation). The development of an  
395 affective bond was rated with 4.2 ( $SD=0.6$ ).

396 After the treatment 11% percent ( $N=1$ ) of the nine completers rated the condition on the PGI-  
397 I as very much improved, four (44%) as much improved and three (33%) as slightly  
398 improved. One (11%) reported no change and no patient reported a worsening of symptoms.  
399 The evaluation of the clinician on the CGI-I was similar: 33% of the completers had improved  
400 a lot and 44% slightly. The mean PGI-I score did not differ statistically from the CGI-I score.  
401 Overall, the therapists rated patients' condition on CGI-I as 'slightly improved' ( $M=2.8$ ;  
402  $SD=0.6$ ). The patients gave their improvement an average score between 'improved a lot'  
403 and 'slightly improved' ( $M=2.6$ ;  $SD=0.9$ ).

404 Patients' life satisfaction significantly improved from baseline to post-treatment (pre  $M=2.2$ ,  
405  $SD=1.1$ ; post  $M=5.1$ ,  $SD=1.5$ ;  $t=-6.33$ ,  $p=.000$ ) but not from baseline to follow-up ( $M=4.22$ ;  
406  $SD=3.3$ ).

407 When asked to describe the difference between STERP and other treatments, participants  
408 stated that it was helpful how STERP made them understand their problematic behavior  
409 within the mode model. They were able to take a different approach to their OC behavior by  
410 working with the schema mode model, and they better understood why particular events  
411 triggered their symptoms. Moreover, patients reported that the classification of compulsive  
412 symptoms in the mode model caused distance to their symptoms. Some patients stated that,  
413 as a result, they were able to better comply with exposure sessions. All of them were able to  
414 perform therapist-accompanied as well as self-administered exposure exercises.  
415 Establishing the individual mode model, the chair technique and exposure sessions were  
416 considered very helpful. At follow-up, five participants stated that they were still 'in contact'  
417 with their different schema modes in everyday situations.

418

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420



#### 421 **4 Discussion**

422 The results of this study provide first evidence for the feasibility and efficacy of STERP, a  
423 combination of schema therapy with ERP for patients with OCD who did not respond to  
424 traditional CBT. Consistent with our hypothesis, we demonstrated feasibility and acceptance  
425 of the treatment by OCD patients. Additionally, significant improvements from severe to  
426 moderate OC symptoms and large effect sizes in the primary outcome Y-BOCS were shown  
427 and could be maintained for a 6-months period.

428 Five out of ten OCD patients who had previously not responded to traditional CBT responded  
429 to STERP short- and long-term with regard to their obsessive compulsive behavior. The large  
430 post-treatment effect sizes concerning OC symptoms were proven both through an interview  
431 (Y-BOCS) and a self-rating instrument (OCI-R). Additionally, significant and considerable  
432 pre-post improvements in depression severity and general adaptive functioning were  
433 demonstrated. Since there were no or only slight changes in medication especially for the  
434 responders, we hypothesize that symptom improvement is not attributable to  
435 pharmacotherapy. The majority of the patients rated their condition and life satisfaction after  
436 STERP as improved. Moreover, a high satisfaction with the treatment could be  
437 demonstrated: 89% would recommend STERP to other OCD patients. The 12-week STERP  
438 protocol could be integrated into clinical routine without reportable difficulties.

439 Our experience was that implementing the combination of ST and ERP went well. The work  
440 with the ST mode model was particularly suitable for OCD patients since the work with the  
441 mode model caused distance to their problematic behavior. We assume that this distance  
442 facilitated the implementation of exposure exercises. OCD patients who previously failed to  
443 respond to CBT received a new psychotherapeutic approach by working with the mode  
444 model and each patient conducted exposure exercises, even if they had excluded it at the  
445 beginning of treatment due to negative prior experiences. It was probably helpful that specific  
446 attention was paid to the fact that exposure sessions were conducted in the healthy adult  
447 mode. Moreover, other schematherapeutic strategies (chair work, imaginative rescripting,  
448 schema memos) were assessed as helpful by patients and therapists. Schema therapy  
449 worked well in combination with ERP and extended the ERP treatment in a helpful and  
450 positive way.

451 Our participants reached similar results as average OCD patients in inpatient treatments  
452 ( $d=1.7 - 2.5$ ) (Gönner, Limbacher, & Ecker, 2012; Hohagen, Winkelmann, & Rasche-  
453 Rächle, 1998; Kordon, Kahl, & Brooks, 2005; Müller-Svitak, Reinecker, Rief, & Fichter,  
454 2002). It should be noted though that our patients had not responded to traditional treatments  
455 before and had a longer OCD history.

456 In our sample, patients who continued outpatient psychotherapy with a combination of CBT  
457 with ERP and ST benefitted most from the new approach. Follow-up results are remarkable

458 in as far as remitted patients remained in remission over a period of 6 months, and that a  
459 partial responder achieved response. Although we examined former non-responders, our  
460 results are comparable with some OCD studies observing the maintenance of clinical benefit  
461 over extended follow-up periods. They even exceed results from other studies investigating  
462 less affected participants (van Oppen, van Balkom, de Haan, & van Dyck, 2005; Rufer, et al.,  
463 2005). Notably, no participant's OC symptoms deteriorated. These findings are promising,  
464 since often a considerable proportion of OCD patients worsen between discharge and follow-  
465 up even with subsequent outpatient treatment (Fricke et al., 2006).

466  
467  
468 The improvement of depressive symptoms exceeded the results in the study by Gönner et  
469 al., (2008), likely because baseline depression was higher and treatment duration was longer  
470 in the present study compared to the Gönner study, investigating outcome of inpatient CBT  
471 in 108 OCD patients. However, at follow-up four patients, including two OC responders,  
472 worsened with regard to depressive symptoms. Four out of five OC full responders presented  
473 a MDD at baseline with two having a depression relapse at follow-up. The results of studies  
474 investigating the predictive value of depressive symptoms in OCD on treatment outcome are  
475 inconsistent (Abramowitz et al., 2000; Franklin, Abramowitz, Kozak, Levitt, & Foa, 2000;  
476 Keijsers, Hoogduin, & Schaap, 1994; Steketee, Chambless, & Tran, 2001; Steketee, Siev,  
477 Fama, Keshaviah, Chosak, & Wilhelm, 2011; Rufer, Fricke, Moritz, Kloss, & Hand, 2006;  
478 Anholt et al., 2011). However, severe depression or a MDD is consistently linked with a  
479 negative treatment outcome (Abramowitz, 2004; Abramowitz & Foa, 2000). Thus, it is  
480 particularly promising that even those participants with remitting depression could maintain  
481 their treatment effect with regard to OCD symptoms.

482  
483 So far, schema therapy has mainly been tested as a treatment for personality disorders. Half  
484 of our sample was diagnosed with at least one co-morbid personality disorder. However,  
485 both subjects with and without PD responded well to our treatment. Especially the long-term  
486 responders tended not to present a PD. Thus, our effects cannot be explained by mere  
487 improvements of the PD pathology of our patients, since STERP seems to be suitable for  
488 OCD patients both with and without co-morbid PD. STERP is relatively short with a mere 24  
489 inpatient sessions in comparison with outpatient ST studies for PD patients with at least 60  
490 sessions (Giesen-Bloo et al., 2006; Malogiannis et al., 2014). Studies are needed to test  
491 STERP as an outpatient treatment with longer duration in such samples.

492  
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494

**495 Limitations:**

496 Obviously, our pilot study only yields preliminary results. This study has several limitations  
497 including lack of a control condition, small sample size and heterogeneity of the participants.  
498 Since no control condition was examined, repeated outcome measures during the baseline  
499 phase would have been of advantage to exclude spontaneous symptom changes. Previous  
500 treatments were naturalistic and partly no reliable information about treatment response was  
501 given. As a result, the information about prior treatment response was often restricted to final  
502 reports and patients' personal assessment. In addition, due to the complex individual  
503 medication histories and the time-limited study, pharmacotherapy during the study could not  
504 be standardized. The slight changes of medication dependent on the blood levels of the  
505 psychotropic drugs have to be regarded as an independent variable that may have affected  
506 the treatment outcome. However, 50% of the patients did not change medication in the study  
507 and no additional psychotropic medication was applied. Since we applied a very complex  
508 treatment we do not know whether the observed effects were attributable to ST techniques,  
509 ERP techniques or other aspects of the inpatient treatment. However, since all participants  
510 had previously received a specialized CBT with ERP treatment, it is conceivable that success  
511 results from the combined treatment. Randomized studies are needed that compare STERP  
512 with ERP in comparable settings.

513 Interpretation of the follow-up data is somewhat limited, since changing medication and  
514 restarting any kind of outpatient psychotherapy was not excluded as a potential confounder.  
515 We have not prohibited a subsequent outpatient treatment, since it was important to continue  
516 the work on the developed strategies in the outpatient setting. However, continuing with  
517 outpatient therapy to maintain the treatment outcome was of great interest to the treating  
518 study psychiatrists and psychotherapists. With regard to the assessment of treatment  
519 satisfaction, self-ratings always carry a risk of participants answering in a socially desired  
520 manner. Studies with more standardized treatments after inpatient therapy are needed.

521 This study has been conducted in an inpatient setting. Most psychotherapy studies on OCD  
522 took place in outpatient settings and are thus not fully comparable. However, follow-up  
523 results give us at least some indication of the maintenance of effects in the outpatient setting.

524

**525 Strengths:**

526 The proof-of-concept character of this study allowed for less restrictive exclusion criteria. The  
527 inclusion of a severely disturbed patient population is a strength of the present study.  
528 Severely ill patients in need of inpatient treatment and with many prior pre-treatments, high  
529 co-morbidity rates and a long duration of OCD could be included. Another strength is a very  
530 limited number of exclusion criteria to investigate a preferably natural, representative  
531 population and to improve external validity of the study. One advantage of the STERP

532 treatment is that it attends overt symptoms (obsessive compulsive behavior, different moods,  
533 interpersonal problems) and underlying themes (EMS and schema modes) in an  
534 understandable way to the patient and theoretically consistent to the therapist.

535  
536 Recent research showed that standard CBT is of limited efficacy in some OCD patients. To  
537 our knowledge, this was the first study combining ST techniques with CBT with ERP in the  
538 treatment of an axis I diagnosis. In summary, the present findings demonstrate that the  
539 combined treatment approach STERP can be adapted for OCD patients who previously did  
540 not respond to ERP. STERP seems to be a powerful therapeutic approach that can bring  
541 about clinically significant symptom improvement with large effect sizes, a good working  
542 alliance and a positive feedback from the participants. Thus, despite being limited by the  
543 small sample size, the results suggest that STERP might become a well-accepted and  
544 effective new approach for OCD patients who do not optimally respond to traditional CBT  
545 with ERP. We believe that these results deserve further and more thorough investigation in  
546 randomized controlled trials.

547

#### 548 **Competing interests**

549 The authors declare that they have no competing interests except of CN who has received  
550 speaker honoraria from Servier.

551

#### 552 **Authors' contributions**

553 NT and GJ carried out the study. CN, BTC and NH helped to draft the manuscript. UV and  
554 participated in the design and coordination of the study and drafted the manuscript. NT and  
555 AKK performed the statistical analysis. EH acquired the data of the study. All authors read  
556 and approved the final manuscript.

557

#### 558 **Acknowledgements**

559 We want to thank the participants in our study and EH who has contributed to the acquisition  
560 of the data. Moreover we want to acknowledge NH, GJ, CN, BTC, UV, AKK, and NT for their  
561 contribution to the study and complementation of the manuscript. No financial support or  
562 funding source was provided for this study

**References**

- Abramowitz, J. S. (2004). Treatment of Obsessive-Compulsive Disorder in Patients Who Have Comorbid Major Depression. *Journal Of Clinical Psychology*, 60(11), 1133-1141. doi:10.1002/jclp.20078
- Abramowitz, J. S. (2006). The Psychological Treatment of Obsessive-Compulsive Disorder. = Le traitement psychologique du trouble obsessionnel-compulsif. *The Canadian Journal of Psychiatry / La Revue canadienne de psychiatrie*, 51(7), 407–416.
- Abramowitz, J. S., & Foa, E. B. (2000). Does major depressive disorder influence outcome of exposure and response prevention for OCD?. *Behavior Therapy*, 31(4), 795-800. doi:10.1016/S0005-7894(00)80045-3
- Abramowitz, J. S., Franklin, M. E., Street, G. P., Kozak, M. J., & Foa, E. B. (2000). Effects of comorbid depression on response to treatment for obsessive-compulsive disorder. *Behavior Therapy*, 31(3), 517–528. doi:10.1016/S0005-7894(00)80028-3
- Alonso, P., Menchon, J. M., Pifarre, J., Mataix-Cols, D., Torres, L., Salgado, P., & Vallejo, J. (2001). Long-term follow-up and predictors of clinical outcome in obsessive-compulsive patients treated with serotonin reuptake inhibitors and behavioral therapy. *Journal of Clinical Psychiatry*, 62(7), 535–540. doi:10.4088/JCP.v62n07a06
- Anholt, G. E., Aderka, I. M., van Balkom, A. M., Smit, J. H., Hermesh, H., de Haan, E., & van Oppen, P. (2011). The impact of depression on the treatment of obsessive-compulsive disorder: Results from a 5-year follow-up. *Journal Of Affective Disorders*, 135(1-3), 201-207. doi:10.1016/j.jad.2011.07.018
- Arntz, A. (2012). Schema therapy for Cluster C personality disorders. In M. van Vreeswijk, J. Broersen, & M. Nadort (Hrsg.), *The Wiley-Blackwell handbook of schema therapy: Theory, research, and practice*. (S. 397–414). Wiley-Blackwell. doi:10.1002/9781119962830.ch30

- Atalay, H., Atalay, F., Karahan, D., & Caliskan, M. (2008). Early maladaptive schemas activated in patients with obsessive compulsive disorder: A cross-sectional study. *International journal of psychiatry in clinical practice*, *12*(4), 268–279.  
doi:10.1080/13651500802095004
- AWMF: Detail. (n.d.). Retrieved February 23, 2015, from  
<http://www.awmf.org/leitlinien/detail/ll/038-017.html>
- Bamelis, L. L. M., Evers, S. M. A. A., Spinhoven, P., & Arntz, A. (2014). Results of a multicenter randomized controlled trial of the clinical effectiveness of schema therapy for personality disorders. *The American Journal of Psychiatry*, *171*(3), 305–322.  
doi:10.1176/appi.ajp.2013.12040518
- Beck, A. T., Steer, R. A., Ball, R., & Ranieri, W. F. (1996). Comparison of Beck Depression Inventories–IA and –II in psychiatric outpatients. *Journal of Personality Assessment*, *67*(3), 588–597. doi:10.1207/s15327752jpa6703\_13
- Bernstein, D. P., Arntz, A., & de Vos, M. (2007). Schema focused therapy in forensic settings: Theoretical model and recommendations for best clinical practice. *The International Journal of Forensic Mental Health*, *6*(2), 169–183.  
doi:10.1080/14999013.2007.10471261
- Bernstein, D. P., Nijman, H. L. I., Karos, K., Keulen-de Vos, M., de Vogel, V., & Lucker, T. P. (2012). Schema therapy for forensic patients with personality disorders: Design and preliminary findings of a multicenter randomized clinical trial in the Netherlands. *The International Journal of Forensic Mental Health*, *11*(4), 312–324.  
doi:10.1080/14999013.2012.746757
- Carter, J. D., McIntosh, V. V., Jordan, J., Porter, R. J., Frampton, C. M., & Joyce, P. R. (2013). Psychotherapy for depression: A randomized clinical trial comparing schema therapy and cognitive behavior therapy. *Journal of Affective Disorders*, *151*(2), 500–505. doi:10.1016/j.jad.2013.06.034

- Collegium Internationale Psychiatrie Salarum, C. (Hrsg.). (1996). *Internationale Skalen für Psychiatrie* (4. ueberarbeitete und erweiterte). Goettingen: Beltz.
- Eddy, K. T., Dutra, L., Bradley, R., & Westen, D. (2004). A multidimensional meta-analysis of psychotherapy and pharmacotherapy for obsessive-compulsive disorder. *Clinical psychology review, 24*(8), 1011–1030. doi:10.1016/j.cpr.2004.08.004
- Eisen, J. L., Pinto, A., Mancebo, M. C., Dyck, I. R., Orlando, M. E., & Rasmussen, S. A. (2010). A 2-Year Prospective Follow-Up Study of the Course of Obsessive-Compulsive Disorder. *The Journal of clinical psychiatry, 71*(8), 1033–1039. doi:10.4088/JCP.08m04806blu
- Eisen, J. L., Sibrava, N. J., Boisseau, C. L., Mancebo, M. C., Stout, R. L., Pinto, A., & Rasmussen, S. A. (2013). Five-year course of obsessive-compulsive disorder: Predictors of remission and relapse. *Journal of Clinical Psychiatry, 74*(3), 233–239. doi:10.4088/JCP.12m07657
- Emmelkamp, P. M., & Foa, E. B. (1983). Failures are a change. In E. B. Foa & P. M. G. Emmelkamp (Eds.), *Failures in behavior therapy*, pp 1-9. New York: Wiley.
- Farrell, J. M., Shaw, I. A., & Webber, M. A. (2009). A schema-focused approach to group psychotherapy for outpatients with borderline personality disorder: A randomized controlled trial. *Journal of Behavior Therapy and Experimental Psychiatry, 40*(2), 317–328. doi:10.1016/j.jbtep.2009.01.002
- Foa, E. B., Liebowitz, M. R., Kozak, M. J., Davies, S., Campeas, R., Franklin, M. E., ... Tu, X. (2005). Randomized, Placebo-Controlled Trial of Exposure and Ritual Prevention, Clomipramine, and Their Combination in the Treatment of Obsessive-Compulsive Disorder. *The American Journal of Psychiatry, 162*(1), 151–161. doi:10.1176/appi.ajp.162.1.151
- Franklin, M. E., Abramowitz, J. S., Kozak, M. J., Levitt, J. T., & Foa, E. B. (2000). Effectiveness of exposure and ritual prevention for obsessive-compulsive disorder:

- Randomized compared with nonrandomized samples. *Journal Of Consulting And Clinical Psychology*, 68(4), 594-602. doi:10.1037/0022-006X.68.4.594
- Franz, A. P., Paim, M., Araújo, R. d., Rosa, V. O., Barbosa, Í. M., Blaya, C., & Ferrão, Y. A. (2013). Treating refractory obsessive-compulsive disorder: What to do when conventional treatment fails?. *Trends In Psychiatry And Psychotherapy*, 35(1), 24-35. doi:10.1590/S2237-60892013000100004
- Fricke, S., Moritz, S., Andresen, B., Jacobsen, D., Kloss, M., Rufer, M., & Hand, I. (2006). Do personality disorders predict negative treatment outcome in obsessive-compulsive disorders? A prospective 6-month follow-up study. *European Psychiatry*, 21(5), 319-324. doi:10.1016/j.eurpsy.2005.03.010
- Giesen-Bloo, J., van Dyck, R., Spinhoven, P., van Tilburg, W., Dirksen, C., van Asselt, T., ... Arntz, A. (2006). Outpatient Psychotherapy for Borderline Personality Disorder: Randomized Trial of Schema-Focused Therapy vs Transference-Focused Psychotherapy. *Archives of General Psychiatry*, 63(6), 649-658. doi:10.1001/archpsyc.63.6.649
- Gönner, S., Leonhart, R., & Ecker, W. (2008). The Obsessive-Compulsive Inventory-Revised (OCI-R): Validation of the German version in a sample of patients with OCD, anxiety disorders, and depressive disorders. *Journal of Anxiety Disorders*, 22(4), 734-749. doi:10.1016/j.janxdis.2007.07.007
- Gönner, S., Limbacher, K., & Ecker, W. (2012). Stationäre kognitive Verhaltenstherapie bei Zwangsstörungen: Effektivität und Erfolgsprädiktoren in der Routineversorgung. *Verhaltenstherapie*, (22), 17-26. doi:10.1159/000335776
- Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., Fleischmann, R. L., Hill, C. L., ... Charney, D. S. (1989). The Yale-Brown obsessive compulsive scale: I. Development, use, and reliability. *Archives of general psychiatry*, 46(11), 1006-1011. doi:10.1001/archpsyc.1989.01810110048007



- Gross, E., Stelzer, N., & Jacob, G. (2012). Treating OCD with the schema mode model. In M. van Vreeswijk, J. Broersen, & M. Nadort (Hrsg.), *The Wiley-Blackwell handbook of schema therapy: Theory, research, and practice*. (S. 174–184). Wiley-Blackwell.
- Haaland, A. T., Vogel, P. A., Launes, G., Haaland, V. Ø., Hansen, B., Solem, S., & Himle, J. A. (2011). The role of early maladaptive schemas in predicting exposure and response prevention outcome for obsessive-compulsive disorder. *Behaviour research and therapy*, 49(11), 781–788. doi:10.1016/j.brat.2011.08.007
- Hautzinger, M., Keller, F., & Kühner, C. (2006). Beck Depressions-Inventar (BDI-II). Revision. Frankfurt/Main: Harcourt Test Services. Deutsche Bearbeitung von Beck, A. T., Steer, R. A., & Brown, G. K. (1996). Beck Depression Inventory-II (BDI-II). San Antonio, TX: Harcourt Assessment Inc.
- Hoffart, A. (o. J.). The case formulation process in schema therapy of chronic Axis I disorder (affective/anxiety disorder). In M. Van Vreeswijk, J. Broersen, & M. Nadort (Hrsg.), *The Wiley-Blackwell handbook of schema therapy: Theory, research, and practice* (S. 69–80). Chichester: John Wiley & Sons.
- Hohagen, F., Winkelmann, G., & Rasche-Räuchle, H. (1998). Combination of BT with fluvoxamine in comparison with BT and placebo. *British Journal of Psychiatry*, (173), 71–78.
- Jacobsen, D., Kloss, M., Fricke, S., Hand, I., & Moritz, S. (2003). Reliabilität der deutschen Version der Yale-Brown Obsessive Compulsive Scale. = Reliability of the German Version of the Yale-Brown Obsessive Compulsive Scale. *Verhaltenstherapie*, 13(2), 111–113. doi:10.1159/000072184
- Keeley, M. L., Storch, E. A., Merlo, L. J., & Geffken, G. R. (2008). Clinical predictors of response to cognitive-behavioral therapy for obsessive-compulsive disorder. *Clinical Psychology Review*, 28(1), 118–130. doi:10.1016/j.cpr.2007.04.003

- Keijsers, G. J., Hoogduin, C. L., & Schaap, C. R. (1994). Predictors of treatment outcome in the behavioural treatment of obsessive-compulsive disorder. *The British Journal Of Psychiatry*, 165(6), 781-786. doi:10.1192/bjp.165.6.781
- Kellogg, S. H., & Young, J. E. (2006). Schema therapy for borderline personality disorder. *Journal of Clinical Psychology*, 62(4), 445-458. doi:10.1002/jclp.20240
- Kordon, A., Kahl, K. G., & Brooks, A. (2005). Clinical outcome in patients with obsessive-compulsive disorder after discontinuation of SRI treatment: results from a two-year follow-up. *European Archives of Psychiatry and Clinical Neuroscience*, (255), 48-50.
- Kozak, M. J., Liebowitz, M. R., & Foa, E. B. (2000). Cognitive behavior therapy and pharmacotherapy for obsessive-compulsive disorder: The NIMH-sponsored collaborative study. In W. K. Goodman, M. V. Rudorfer, & J. D. Maser (Hrsg.), *Obsessive-compulsive disorder: Contemporary issues in treatment*. (S. 501-530). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Külz, A. K., Lump, A., Herbst, N., Stelzer, N., Förstner, U., & Voderholzer, U. (2010). Welche Funktionen erfüllen Zwangssymptome? - Ergebnisse einer Analyse im stationären Setting. *Verhaltenstherapie*, 40, 101-108.
- Lakatos, A., & Reinecker, H. (2007). *Kognitive Verhaltenstherapie bei Zwangsstörungen. Ein Therapiemanual*. (3., überarbeitete Auflage). Göttingen: Hogrefe Verlag.
- Lobbestael, J., van Vreeswijk, M., Spinhoven, P., Schouten, E., & Arntz, A. (2010). Reliability and validity of the Short Schema Mode Inventory (SMI). *Behavioural and Cognitive Psychotherapy*, 38(4), 437-458. doi:10.1017/S1352465810000226
- Lochner, C., Seedat, S., du Toit, P. L., Nel, D. G., Niehaus, D. J. H., Sandler, R., & Stein, D. J. (2005). Obsessive-compulsive disorder and trichotillomania: A phenomenological comparison. *BMC Psychiatry*, 5. doi:10.1186/1471-244X-5-2

- Maier, S., Kuelz, A. K., & Voderholzer, U. (2009). Traumatisierung und Dissoziationsneigung bei Zwangserkrankten: Ein Überblick. = Trauma and dissociation in patients with obsessive-compulsive disorder: An overview. *Verhaltenstherapie*, *19*(4), 219–227. doi:10.1159/000247333
- Malogiannis, I. A., Arntz, A., Spyropoulou, A., Tsartsara, E., Aggeli, A., Karveli, S., ... Zervas, I. (2014). Schema therapy for patients with chronic depression: A single case series study. *Journal of Behavior Therapy and Experimental Psychiatry*, *45*(3), 319–329. doi:10.1016/j.jbtep.2014.02.003
- Mataix-Cols, D., Marks, I. M., Greist, J. H., Kobak, K. A., & Baer, L. (2002). Obsessive-compulsive symptom dimensions as predictors of compliance with and response to behaviour therapy: Results from a controlled trial. *Psychotherapy and Psychosomatics*, *71*(5), 255–262. doi:10.1159/000064812
- Müller-Svitak, S., Reinecker, H., Rief, W., & Fichter, M. (2002). Kognitiv-verhaltenstherapeutische Behandlung von Patienten mit Zwangsstörungen: Ein stationäres Gruppentherapieprogramm. *Verha*, (12), 108–115.
- Nadort, M., Arntz, A., Smit, J. H., Giesen-Bloo, J., Eikelenboom, M., Spinhoven, P., ... van Dyck, R. (2009). Implementation of outpatient schema therapy for borderline personality disorder: Study design. *BMC Psychiatry*, *9*. doi:10.1186/1471-244X-9-64
- Pallanti, S., & Quercioli, L. (2006). Treatment-refractory obsessive-compulsive disorder: Methodological issues, operational definitions and therapeutic lines. *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, *30*(3), 400–412. doi:10.1016/j.pnpbp.2005.11.028
- Pinto, A., Mancebo, M. C., Eisen, J. L., Pagano, M. E., & Rasmussen, S. A. (2006). The Brown Longitudinal Obsessive Compulsive Study: Clinical Features and Symptoms of the Sample at Intake. *The Journal of Clinical Psychiatry*, *67*(5), 703–711. doi:10.4088/JCP.v67n0503

- Podea, D., Suciu, R., Suciu, C., & Ardelean, M. (2009). An update on the cognitive behavior therapy of obsessive compulsive disorder in adults. *Journal of Cognitive and Behavioral Psychotherapies*, 9(2), 221–233.
- Ravizza, L., Barzega, G., Bellino, S., Bogetto, F., & Maina, G. (1995). Predictors of drug treatment response in obsessive-compulsive disorder. *Journal of Clinical Psychiatry*, 56(8), 368–373.
- Renner, F., Arntz, A., Leeuw, I., & Huibers, M. (2013). Treatment for chronic depression using schema therapy. *Clinical Psychology: Science and Practice*, 20(2), 166–180. doi:10.1111/cpsp.12032
- Rufer, M. M., Fricke, S. S., Moritz, S. S., Kloss, M. M., & Hand, I. I. (2006). Symptom dimensions in obsessive- compulsive disorder: Prediction of cognitive-behavior therapy outcome. *Acta Psychiatrica Scandinavica*, 113(5), 440-446. doi:10.1111/j.1600-0447.2005.00682.x
- Rufer, M., Hand, I., Alsleben, H., Braatz, A., Ortman, J., Katenkamp, B., & ... Peter, H. (2005). Long-term course and outcome of obsessive-compulsive patients after cognitive-behavioral therapy in combination with either fluvoxamine or placebo: A 7-year follow-up of a randomized double-blind trial. *European Archives Of Psychiatry And Clinical Neuroscience*, 255(2), 121-128. doi:10.1007/s00406-004-0544-8
- Ruscio, A. M., Stein, D. J., Chiu, W. T., & Kessler, R. C. (2010). The epidemiology of obsessive-compulsive disorder in the National Comorbidity Survey Replication. *Molecular Psychiatry*, 15(1), 53-63. doi:10.1038/mp.2008.94
- Schruers K., Koning K., Luermans J., Haack M. J., & Griez E. (2005). Obsessive-compulsive disorder: a critical review of therapeutic perspectives. *Acta Psychiatrica Scandinavica*, 111, 261-271.
- Simpson, S. (2012). Schema therapy for eating disorders: A case study illustration of the mode approach. In Michiel van Vreeswijk, J. Broersen, & M. Nadort (Hrsg.), *The*

- Wiley-Blackwell handbook of schema therapy: Theory, research, and practice.* (S. 145–171). Wiley-Blackwell.
- Steketee, G., Chambless, D. L., & Tran, G. Q. (2001). Effects of axis I and II comorbidity on behavior therapy outcome for obsessive-compulsive disorder and agoraphobia. *Comprehensive Psychiatry*, *42*(1), 76–86. doi:10.1053/comp.2001.19746
- Steketee, G., Siev, J., Fama, J. M., Keshaviah, A., Chosak, A., & Wilhelm, S. (2011). Predictors of treatment outcome in modular cognitive therapy for obsessive-compulsive disorder. *Depression And Anxiety*, *28*(4), 333-341. doi:10.1002/da.20785
- Stelzer, N., Kuelz, A.K., Jacob, G., Knauß, E., Herbst, N., Nissen, C., & Voderholzer, U. (2011). Stationäre Schematherapie bei Zwangsstörungen. DGPPN Kongress 2011- 23.-26. November 2011
- Stelzer, N., Herbst, N., Kuelz, A.K., Nissen, C., & Voderholzer, U. (2011). Schemata und Schematherapie bei Zwangsstörungen. DGPPN Kongress 2011- 23.-26. November 2011
- Taylor, S. (1998). Assessment of obsessive–compulsive disorder. In R. P. Swinson, M. M. Antony, S. Rachman, & M. A. Richter (Hrsg.), *Obsessive-compulsive disorder: Theory, research, and treatment.* (S. 229–257). New York, NY, US: Guilford Press.
- Thiel, N., Tuschen-Caffier, B., Herbst, N., Külz, A. K., Nissen, C., Hertenstein, E., ... Voderholzer, U. (2014). The prediction of treatment outcomes by early maladaptive schemas and schema modes in obsessive-compulsive disorder. *BMC psychiatry*, *14*(1), 1689.
- Thiel, N., Hertenstein, E., Nissen, C., Herbst, N., Külz, A. K., & Voderholzer, U. (2013). The effect of personality disorders on treatment outcomes in patients with obsessive-compulsive disorder. *Journal of Personality Disorders*, *27*(104), 1-19.

- Thiel, N., & Voderholzer, U. (2013a). Der Beste zu sein ist das einzige, was zählt - Zwangsstörungen und Narzisstische Persönlichkeitsstörung. In *Fallbuch Schematherapie* (1. Aufl., S. 117 – 122). Basel: Beltz Verlag.
- Thiel, N., & Voderholzer, U. (2013b). Symptome als Ablenkungsstrategien- Zwangsstörungen und Selbstunsichere Persönlichkeitsstörung. In *Fallbuch Schematherapie* (1. Aufl., S. 219 – 226). Basel: Beltz Verlag.
- Van Minnen, A., Arntz, A., & Keijsers, G. P. J. (2002). Prolonged exposure in patients with chronic PTSD: Predictors of treatment outcome and dropout. *Behaviour research and therapy*, 40(4), 439–457. doi:10.1016/S0005-7967(01)00024-9
- Van Oppen P, van Balkom A, de Haan E, van Dyck R. (2005). Cognitive Therapy and Exposure in Vivo Alone and in Combination With Fluvoxamine in Obsessive-Compulsive Disorder: A 5-Year Follow-Up. *Journal Of Clinical Psychiatry*, 66(11), 1415-1422. doi:10.4088/JCP.v66n1111
- Voderholzer, U., Schwartz, C., Thiel, N., Kuelz, A. K., Hartmann, A., Scheidt, C. E., ... Zeeck, A. (2013). A comparison of schemas, schema modes and childhood traumas in obsessive-compulsive disorder, chronic pain disorder and eating disorders. *Psychopathology*, 47(1), 24–31. doi:10.1159/000348484
- Wilmers, F., Munder, T., Leonhart, R., Herzog, T., Plassmann, R., Barth, J., & Linster, H. W. (2008). Die deutschsprachige Version des Working Alliance Inventory – short revised (WAI-SR) – Ein schulenübergreifendes, ökonomisches und empirisch validiertes Instrument zur Erfassung der therapeutischen Allianz. *Klinische Diagnostik und Evaluation*, 1(3), 343–358.
- Wittchen, H.-U., Zaudig, M., & Fydrich, T. (1997). Skid. Strukturiertes klinisches Interview für DSM-IV. Achse I und II. Handanweisung.
- Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema therapy: A practitioner's guide*. Guilford Press.

## Highlights

- Prior non-responding obsessive-compulsive disorder patients (OCD) were examined.
- Exposure and response prevention was augmented with schema therapy called STERP.
- STERP is feasible and accepted in an inpatient pilot study.
- STERP significantly reduced symptoms and showed large effect sizes.