Changes in Symptom Severity, Schemas and Modes in Heterogeneous Psychiatric Patient Groups Following Short-term Schema Cognitive–Behavioural Group Therapy: A Naturalistic Pre-treatment and Post-treatment Design in an Outpatient Clinic

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Schema therapy has proven to be an effective treatment for patients with borderline personality disorder. However, little is known of its merits in other psychiatric (personality) disorders.
Objective: This study investigated whether schema therapy in a group setting (group schema cognitive–behavioural therapy [SCBT-g]) was associated with changes in symptom and schema and mode severity. Furthermore, the aim was to search for baseline predictors and possible mediators of treatment outcome.
Design and method: Sixty-three heterogeneous psychiatric outpatients who attended the SCBT-g were included as participants. In this naturalistic pre-treatment and post-treatment design, data were available on the Symptom Checklist 90, the Schema Questionnaire and the Young–Atkinson Mode Inventory.
Results: All outcome measurements showed changes with moderate to high effect sizes, with 53.2% of the patients showing a significant reduction in severity of psychiatric symptoms and schemas and modes. Higher pre-treatment levels of the schema domain Other Directedness predicted greater symptom reduction. Pre-treatment to mid-treatment changes in schema severity predicted subsequent symptom improvement, but change in symptoms and schemas proved to be strongly correlated.
Conclusions: In this naturalistic study, SCBT-g was associated with reduced symptom and schema and mode severity in more than half of the psychiatric outpatients. Furthermore, the results suggest that changes in schemas and symptomatology mutually reinforce each other. Copyright © 2012 John Wiley & Sons, Ltd.

Key Practitioner Message:
- Over 50% of ambulatory patients show clinical improvement after treatment in a short-term schema therapy group.
- Other Directedness seems to be a predictor of schema group therapy success.
- More randomized controlled trial studies and prediction and mediation studies on (short-term) schema group therapy are sorely needed.

Keywords: Schema Therapy, Group Psychotherapy, Personality Problems, Outcome Study, Prediction, Mediation

Schema therapy has proven to be both a clinically useful and cost-effective treatment for borderline personality disorder (BPD; van Asselt et al., 2008; Farrel, Shaw, & Webber, 2009; Giesen-Bloo et al., 2006; Nadort et al., 2009; Nordahl & Nysaeter, 2005), with a low dropout rate (Giesen-Bloo et al., 2006). However, despite the promising results of schema therapy for patients with BPD, little is known about its effectiveness for other psychiatric (personality) disorders, especially in group settings.

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Schema therapy is an integrative psychotherapy originally developed for patients with personality problems. It combines techniques from cognitive–behavioural therapy (CBT), psychodynamic therapy, gestalt therapy, interpersonal therapy and attachment theory in one model, where the focus is on early maladaptive schemas, schema domains, schema coping styles and schema modes and on how they influence daily life and interpersonal relationships (Young, Klosko, & Weishaar, 2003). Schemas are defined as self-defeating core themes (traits) that pertain to one's view of the self, others and the world (Young, 2003). Schema domains contain several schemas and relate to different clusters of unmet needs. Schema coping styles are developed to survive the early environment that led to the development of schemas. They fall into three main categories: surrendering (acting as if the schema is completely true), avoidance (avoiding anxiety-provoking stimuli and blocking thoughts, feelings and emotions linked to the schema) or overcompensation (acting as if the opposite of the schema is true). Schema modes are conceptualized as groups of schemas and/or schema coping styles and are considered to reflect a particular emotional state. In schema therapy, patients are taught to respond more from a *healthy adult* perspective and to cope in a more adaptive manner when schemas are triggered by events that are linked to the unmet needs that underlie the schema.

Although the focus of research on individual schema therapy has until recently mostly been on patients with BPD, schema therapy is currently being adapted for use in the treatment of patients with other personality disorders and for patients with long-standing Axis I disorders (Ball, Cobb-Richardson, Connolly, Bujosa, & O'Neall, 2005; Ball & Young, 2000; Jakes & Rhodes, 2003; Morrison, 2000; Nordahl & Nysaeter, 2005; Ohanian, 2002). It is also being adapted for group therapy for a variety of psychiatric disorders (for an overview of the advances in schema therapy, see van Vreeswijk, Broersen, & Nadort, 2012).

Only a few studies have focused on the application of schema therapy in a group format (e.g., Farrel et al., 2009; Hoffart, Versland, & Sexton, 2002; Zorn, Roder, Muller, Tschacher, & Thommen, 2007). Farrel et al. (2009) published results of a randomized controlled trial (RCT) on the efficacy of a schema therapy group-based format. Thirty-two patients with BPD were randomly assigned to a 30-session group schema-focused therapy (SFT) combined with individual psychotherapy (treatment as usual [TAU]) versus TAU alone. The combined treatment resulted in a significantly greater reduction of BPD symptoms and global severity of psychiatric symptoms and in improved global functioning than TAU alone. Dropout rates in the SFT condition were 0% versus 25% in TAU alone. Zorn et al. (2007) performed an RCT, among a more heterogeneous Axis II patient group, using 93 patients with clusters B and C personality disorder, in which they compared group schema-focused emotive–behavioural therapy (SET) with social skills training. Patients

in the SET condition improved significantly more with respect to interpersonal behaviour and showed less emotional and symptomatic impairment than patients who received social skills training. The dropout rate in the SET was significantly lower than in the control group (6.4% versus 34.8%). Hoffart et al. (2002) studied 35 predominantly Axis I inpatients with cluster C personality traits. Patients with panic disorder with/without agoraphobia first received a cognitive inpatient treatment for their panic disorder. During the following 6 weeks, they received schema therapy delivered in an inpatient group format combined with individual sessions. Effect sizes of changes from pretreatment to follow-up were around 0.65 on the outcome measures used. There was a clear improvement in cluster C personality traits and interpersonal problems and an increase of affect awareness. These results suggest that adding group SFT to standard CBT for panic disorder with cluster C personality traits might be useful in treating these more severely affected patients.

In contrast to the relatively large number of studies focusing on the effectiveness of schema therapy, studies that focus on predictors or mediators of outcome are virtually lacking. Only one study (Nordahl, Holthe, & Haugum, 2005) with a sample of 82 outpatients found that a reduction in schema severity predicted symptomatic relief after therapy.

AIMS OF THE STUDY AND HYPOTHESES

Schema therapy has been demonstrated as an effective and feasible intervention for BPD, and studies with other clinical populations have also shown promising results. Although group studies of SFT are limited, the studies that have been conducted suggest positive treatment effects for difficult patient populations.

The present study is a follow-up study in a naturalistic treatment setting. Although RCTs can be considered the most powerful approach to study the efficacy of treatment approaches and RCTs have a high internal validity, ecological validity may be smaller, due to reasons that follow directly from this approach: patients are selected on the basis of strict inclusion and exclusion criteria; therapists are highly trained, use manuals and receive supervision in the treatment they offer; and treatment adherence is regularly checked.

Although this all renders results of RCT very reliable, it may render it difficult to generalize the results to patients in a naturalistic treatment setting. Studies as the present one, using a naturalistic pre-treatment and post-treatment design, are particularly clinically useful, because of their high ecological validity.

The aim of this study was threefold. First, we aimed to investigate the associations of group schema cognitive–behavioural therapy (SCBT-g) with outcome measurements

in a heterogeneous group of psychiatric outpatients in a naturalistic treatment setting. We hypothesized that symptom, schema and mode severity would decrease after treatment. Second, we aimed to explore whether baseline measurements of demographic and clinical characteristics, and schema and mode severity predict treatment outcome. Third, we aimed to explore whether changes in mode severity in the early stage of therapy predict subsequent changes in symptomatology. To adjust for demographical confounders, we controlled for age and gender in the analyses.

METHOD

Participants

From 2004 until the beginning of 2008, a total of around 84 patients were referred to the short-term SCBT-g. Twenty-one patients were excluded from participation. Common reasons for exclusion were not being able to make time for the schema group therapy and having pathology that needed other interventions (e.g., current crisis that needed to be treated in the clinic, full blown narcissistic or antisocial personality disorder, or autism). Sixty-three consecutive patients from the outpatient clinic of GGZ Delfland participated in the SCBT-g. Data pertain to seven consecutive groups of nine patients each. During the SCBT-g, patients did not receive any other psychological treatment. Inclusion criteria were as follows: a long-standing Axis I disorder that had previously been treated by evidence-based or best practice-based therapy according to the Dutch national guidelines (in most cases CBT, interpersonal psychotherapy and/or medication) and/or personality problems as assessed by a clinician following the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria (APA, 1994). Another inclusion criterion was being able to speak and read the Dutch language. Exclusion criteria were emotional or financial crises that needed to be prioritized for intervention, severe drug problems, severe problems of deafness or stuttering and severe deficit in empathy for others. Inclusion and exclusion criteria were assessed on the basis of clinical judgements of the schema group psychotherapists. The treatment was paid for by the insurance companies of the patients.

Treatment Intervention

The SCBT-g (van Vreeswijk & Broersen, 2006, 2012) is a manualized short-term group therapy of 20 sessions (18 sessions of 90 mins weekly and 2 follow-up sessions of 90 mins 1 and 2 months after termination of treatment, respectively). It is a closed therapy group with no provision of individual sessions except in the case of severe crisis. In the first stage of the SCBT-g, patients were educated about the schema model specifically in relation to their highest rated three schemas and modes. Patients were helped to become aware of the way in which their schemas were triggered, through the use of schema diaries and group discussions. The way they viewed themselves, others and the world around them was explored. Cognitive techniques were applied to help participants to test and challenge the distorted views associated with their schemas. All patients had their own schema workbook (Broersen & van Vreeswijk, 2006, 2012) in which the schema model was described. This provided detailed explanations of cognitive techniques, as well as homework exercises related to their schemas and modes. In the second stage (post-session 10), patients were encouraged to carry out role plays with other group members. This involved simulating a current situation or a future event that typically triggered their own schemas and modes. Group members participated in role plays either by trying to trigger the schema (playing the devil's advocate) or by acting as a *coach* to the designated group member in order to help him or her respond to the schema from a *healthy adult* perspective. During the entire course of the therapy, the group was encouraged to explore schema triggering as it occurred naturally in the group setting and to discuss it openly. From the start of the SCBT-g, patients were helped to connect with each other and to create a safe group climate. The importance of openness to one's feelings and thoughts and being respectful to each other was promoted. At the start, the group therapists functioned as role models for the patients by empathically expressing emotions and confronting and connecting to others. In doing so, the likeliness of the development of subgroups or doing harm to each other diminishes by the safety of the group climate (Yalom & Leszcz, 2005).

Therapy sessions were recorded on DVD, and patients who missed any sessions were required to watch the DVD before the next session. Two therapists delivered each schema group therapy. To achieve high treatment adherence, either M. F. V. or J. B. were consistently one of the two co-therapists who were present at group treatment sessions. The other co-therapists were psychotherapists or mental health psychologists who had been trained in schema therapy and who had experience in providing group therapy.

MEASURES

The Symptom Checklist 90 (SCL-90; Derogatis, Lipman, & Covi, 1973; for the Dutch version, see Arrindell & Ettema, 1986) evaluates a broad range of psychological problems and symptoms of psychopathology in a variety of settings. It is known for its usefulness in measuring patient progress and treatment outcome. The SCL-90 contains 90 items. Internal consistency of the Dutch version of the SCL-90 has been found to be good to excellent (α ranging from 0.77 to 0.90), and also,

the test–retest reliability is reported to be good (Arrindell & Ettema, 1986). Convergent validity and divergent validity have also been found to be satisfactory.

The Young Schema Questionnaire (YSQ; Young & Brown, 1994; for the Dutch translation, see Young & Pijnakker, 1999; for the latest Dutch validation of the YSQ, see Rijkeboer, 2005) is the most commonly used schema therapy outcome measure. It measures 16 out of 18 core beliefs or maladaptive schemas as defined by Young (2003): Abandonment/Instability, Mistrust/Abuse, Emotional Deprivation and Social Isolation/Alienation (schema domain 1: Disconnection and Rejection); Dependence/Incompetence, Enmeshment/Undeveloped Self and Failure (schema domain 2: Impaired Autonomy and Performance); Entitlement/Grandiosity and Insufficient Self-control/Self-discipline (schema domain 3: Impaired Limits); Subjugation and Self-sacrifice/Approval Seeking/Recognition Seeking (schema domain 4: Other Directedness); and Emotional Inhibition and Unrelenting Standards/Hypercriticalness (schema domain 5: Overvigilance and Inhibition). The list consists of 205 items, which can be scored on a six-point Likert-type scale ranging from 1 (*totally inapplicable to me*) to 6 (*describes me perfectly*). Research has shown that the YSQ has good reliability and convergent and discriminant validity and that it can be used to distinguish the absence or the presence of Axis I or Axis II disorders (e.g., Rijkeboer, van den Bergh, & van den Bout, 2005; Schmidt, Joiner, Young, & Telch, 1995).

The Young–Atkinson Mode Inventory (YAMI; Young & Atkinson, 2003; for the Dutch translation, see van Vreeswijk & 't Hoen, 2004) measures 10 modes: Vulnerable Child, Angry Child and Impulsive/Undisciplined Child (domain 1: Maladaptive Child Modes); Compliant Surrender, Detached Protector and Overcompensator (domain 2: Coping Modes); Punitive Parent and Demanding Parent (domain 3: Parent Modes); and Healthy Adult and Happy Child (domain 4: Healthy Modes). The list consists of 186 items, which can be scored on a six-point Likert-type scale ranging from 1 (*never or almost never*) to 6 (*always*). The YAMI is the precursor to the recently developed and validated Schema Mode Inventory (SMI; Young et al., 2007). Cronbach's α of the YAMI ranges from 0.76 to 0.96 (Lobbestael, e-mail correspondence, April 27, 2012). The internal consistencies of the subscales of the short SMI were all acceptable (α ranging from 0.79 to 0.96; Lobbestael, van Vreeswijk, Spinhoven, Schouten, & Arntz, 2010). The SMI, including the items of the YAMI, has excellent test–retest reliability (Lobbestael et al., 2010). The convergent validity and the divergent validity of the SMI subscales are satisfactory (Lobbestael et al., 2010).

PROCEDURE

Following approval by the Medical Ethics Committee of Zuid-Holland and the board of GGZ Delfland, the files

of 63 consecutive patients who had participated in one of the SCBT-g during 2004–2008 were accessed for collection of relevant data: socio-demographic data; DSM-IV classification (Axis I and Axis II) based on clinical judgement; and outcome data based on the SCL-90 (Arrindell & Ettema, 1986), the YSQ (Young & Pijnakker, 1999) and the YAMI (Young & Atkinson, 2003). The SCL-90 and the YSQ had been administered at pre-treatment, at mid-treatment (session 10) and at the end of treatment (3 months after session 18). The YAMI was only administered at pre-treatment and at the end of treatment.

STATISTICAL ANALYSES

To measure strength of treatment outcome based on the SCL-90, the YSQ and the YAMI for each measurement, within subjects effect sizes Cohen's d were calculated for each measurement (i.e., the SCL-90 and the YSQ) as defined by the difference between scores at pre-treatment, at mid-treatment (session 10) and at the end of treatment divided by the mean of the two corresponding standard deviations (SDs; Cohen & Cohen, 1983). This calculation was not possible with the YAMI scores since these were only available at pre-treatment and at the end of treatment. According to conventional criteria, $d \leq 0.20$ is considered a small effect size, $d = 0.50$ a medium effect size and $d \geq 0.80$ a large effect size.

To quantify treatment success, we used Lambert, Hansen and Bauer's (2008) classification of patients as recovered, improved, unchanged or deteriorated. To do so, we used the approach of Jacobson and Truax (1991), consisting of the following two steps. First, changes based on pre-treatment to post-treatment on the SCL-90 Global Severity Index (GSI) were calculated and assessed for statistically reliable change. In the second step, it was determined whether patients who showed statistically reliable change also passed the estimated clinical cut-off point (159.14 for women and 141.39 for men; based on norm group data provided in the Dutch manual of the SCL-90 by Arrindell & Ettema, 1986). Using these two steps, we can classify post-treatment each individual as recovered (reliable change and below the cut-off), improved (reliable change but not below cut-off), unchanged (either no reliable change and below cut-off or no reliable change and not below cut-off) or deteriorated (reliable change in a negative direction) (Lambert, Hansen, & Bauer, 2008).

Mixed level analyses were chosen to determine time and between-group effects. Dependent variables were scores at pre-treatment, at mid-treatment and at the end of treatment. Therapy groups acted as a fixed factor.

To explore predictors of treatment success, one-way analyses of variance based on intent-to-treat sample were used, contrasting the different outcome groups in relation to putative predictive variables.

To determine whether pre-treatment to mid-treatment change in schemas mediated mid-treatment to end-of-treatment change in symptomatology, cross-lagged correlations among residual change scores were calculated in completers (Finkel, 1995). We performed hierarchical regression analyses to test whether early process changes in schemas predicted later outcome changes in symptomatology after controlling for autocorrelation (i.e., the correlations of pre-treatment to mid-treatment with mid-treatment to end-of-treatment changes on a particular measure) and synchronous correlations (i.e., the correlations between pre-treatment to mid-treatment or mid-treatment to end-of-treatment changes on the YSQ and the SCL-90, respectively). Inverse associations were also determined by regression analysis (for other examples of this analyses, see also Burns, Kubilus, Bruehl, & Harden, 2003; Evon & Burns, 2004; Spinhoven, Giesen-Bloo, van Dyck, Kooiman, & Arntz, 2007).

All the tests were two-tailed with a significance level of 5%. The statistical programme SPSS 16.0 (SPSS Inc., Chicago, IL, USA) for Mac was used.

RESULTS

Of the 63 patients who participated in the study, three patients did not complete all questionnaires but remained in the therapy, three other patients terminated therapy before the mid-treatment evaluation, and 12 patients terminated therapy before the end of treatment. Reasons for dropping out were as follows: (a) patients did not find a match with the other patients in the group ($n = 2$);

(b) patients felt enough improved and therefore not motivated to complete the treatment ($n = 4$); (c) patients lacked treatment adherence (giving priority to study/work or social activities (n = 6)); (d) patients moved to another region ($n = 2$); and (e) unknown ($n = 1$). Dropout patients were given alternative treatment if they wished. Table 1 gives an overview of the biographical and clinical characteristics of the patients that remained in treatment and those who left treatment prematurely.

Patients who dropped out were significantly younger compared with patients who did not drop out $t(61) = 2.25$, $p < 0.05$. Women were over-represented in the dropout group, $\chi^2(1) = 4.13$, $p < 0.05$. There was no significant difference between the group of patients who terminated treatment prematurely and those who remained in group therapy with respect to the number of days patients were in treatment at the outpatient clinic before the start of the SCBT-g, schemas and severity of modes and of symptomatology at pre-treatment (all ps > 0.1).

Effect of Treatment

Table 2 presents the means, SDs and effect sizes of changes in symptomatic distress, schemas and modes. Almost all effect sizes are medium to large, particularly the effect sizes of the difference between pre-treatment and end of treatment. Only changes on the schema domain Impaired Limits, which consists of the schemas Entitlement/Grandiosity and Insufficient Self-control/Self-discipline, showed a small effect size.

Table 1. Biographical and clinical characteristics

	Treatment completers ($n = 48$)		Dropout patients ($n = 15$)	
Variable	M	SD	M	SD
Age	39.35	8.05	34.20	6.67
Days in treatment before SCBT-g	736.91	801.43	928.69	782.44
Variable	n	%	n	%
Gender				
Women	32	66.7	14	93.3
Men	16	33.3	1	6.7
Educational level				
Higher education (higher professional or academic training)	20	48.8	7	46.7
Higher secondary with vocational education	5	12.2	1	6.7
Elementary school education with lower vocational training	9	22.0	2	13.3
Elementary school (only)	7	17.1	5	33.3
Axis I disorder				
No Axis I	18	37.5	4	26.6
Depression	17	35.4	7	46.8
Anxiety disorder	2	4.2	4	26.6
Other	11	22.9	—	—
Variable	n	%	n	%
Number of patients with Axis II disorder	39	61.9	8	53.3

SD = standard deviation. SCBT-g = group schema cognitive–behavioural therapy.

Mixed level analyses revealed no main effect of treatment group on scores of the GSI, the YSQ total score and maladaptive modes (all $ps \geq 0.45$). Effects for time were significant for all three variables: $F_{GSI}(1,39) = 14.76$, $p < 0.001$; $F_{YSQ}(1,39) = 31.28$, $p < 0.001$; $F_{maladaptive\ modes}(1,40) = 9.37$, $p < 0.01$. No interaction effect for time × group was found (all $ps \geq 0.46$).

Prediction of Treatment Effects

Calculation of the clinical significance of change by using the SCL-90 GSI revealed that 46.8% of the patients recovered, 6.4% improved, 34.0% remained unchanged (did not pass the reliable change criterion) and 12.8% deteriorated (passed the reliable change criterion in the negative direction).

One-way analyses of variance based on intent-to-treat sample (patients with missing variables were categorized as unchanged) were used to determine whether patients classified as recovered, improved, unchanged or deteriorated on the GSI could be differentiated by (biographical) variables such as age, treatment duration prior to SCBT-g, schema domains or modes as measured at pre-treatment. Of the biographical variables, only the treatment duration expressed in days prior to SCBT-g showed a significant effect ($F(3,54) = 15.69$, $p < 0.001$). Bonferroni tests revealed that the recovered patients (M = 433.0, SD = 371.8) scored significantly lower on treatment duration prior to SCBT-g than the improved patients (M = 2885.7, SD = 1360.2) and that the improved patients scored significantly higher on treatment duration than the unchanged patients (M = 719.5, SD = 627.0) and deteriorated patients

(M = 1175.5, SD = 614.88). The schema domain Other Directedness at pre-treatment was significantly related to clinically significant changes on the GSI ($F(3,59) = 3.57$, $p < 0.05$). Bonferroni tests revealed that the improved patients scored significantly higher on this schema domain (M = 61.0, SD = 2.29) than the deteriorated patients (M = 30.33, SD = 11.11).

A Chi-squared test based on intent-to-treat sample (patients with missing variables were categorized as unchanged) indicated no significant association between clinical significant change and gender or educational level ($\chi^2(3, n = 63) = 3.88$, $p = 0.27$, and $\chi^2(3, n = 57) = 3.33$, $p = 0.34$, respectively).

Mediation Effects for Pre-treatment to Mid-treatment and Mid-treatment to End-of-treatment Change Scores

In completers, residualized change scores were calculated for the YSQ total score and the GSI. There was no significant autocorrelation for the YSQ total and the GSI, suggesting that changes early in the treatment with respect to each of these variables were unrelated to the corresponding late treatment change in each of these variables. Synchronous correlations showed a significant association of pre-treatment to mid-treatment changes in the YSQ scores with pre-treatment to mid-treatment changes in the GSI, $r(59) = 0.44$, $p = 0.001$. There was also a significant association of mid-treatment changes to end-of-treatment changes in the YSQ scores with mid-treatment to end-of-treatment changes in the GSI, $r(45) = 0.72$, $p = 0.001$. These results suggest that changes in schemas

Table 2.   Means, standard deviations, paired sample *t*-tests and effect sizes in the GSI, schema domains and mode domains

	Pre-treatment	Mid-treatment	End of treatment	Effect sizes
GSI	188.87 (40.92)	173.23** (48.44)	159.74*** (47.50)	0.35/0.28/0.66
YSQ total	34.69 (10.50)	29.83***(12.26)	26.06*** (12.41)	0.41/0.31/0.75
YSQ domain 1 (Disconnection and Rejection)	32.48 (13.40)	29.00* (14.01)	24.87*** (14.37)	0.25/0.29/0.55
YSQ domain 2 (Impaired Autonomy and Performance)	30.07 (14.60)	24.75* (13.81)	20.40*** (13.08)	0.37/0.32/0.70
YSQ domain 3 (Impaired Limits)	29.44 (13.88)	25.00** (13.71)	24.98** (13.32)	0.32/0.00/0.33
YSQ domain 4 (Other Directedness)	44.52 (14.70)	38.74** (18.64)	33.03*** (17.64)	0.35/0.31/0.71
YSQ domain 5 (Overvigilance and Inhibition)	41.35 (14.32)	36.07***(15.56)	32.41*** (15.75)	0.35/0.23/0.59
Maladaptive modes	32.13 (10.28)	—	25.10** (12.00)	0.63
Healthy modes	40.85 (13.46)	—	50.41*** (19.34)	−0.58
Coping modes	50.41 (19.34)	—	26.09** (10.81)	0.65
Parent modes	36.60 (16.97)	—	27.83** (15.42)	0.56
Child modes	28.97 (13.31)	—	22.29* (13.22)	0.50

Effect size values are based on the difference in scores from pre-treatment to mid-treatment ($x/$), from mid-treatment to end of treatment ($/x/$) and from pre-treatment to end of treatment ($//x$) divided by the mean of the corresponding standard deviation. A single effect size is given for modes due to the fact that this was assessed only at pre-treatment and at the end of treatment. GSI = Global Severity Index. YSQ = Young Schema Questionnaire. Paired sample *t*-tests with Bonferroni correction from pre-treatment to mid-treatment and from pre-treatment to end-of-treatment are presented with an asterisk. Significance levels of mid-treatment to discharge were omitted to improve legibility (only GSI mid-treatment to GSI end of treatment, domain 2 mid-treatment to domain 2 end of treatment and domain 3 mid-treatment to domain 3 end of treatment did not reach significance level $p < 0.05$).
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

co-occur with changes in symptoms. Because the synchronous correlations are significant, interpretation of cross-lagged correlations should be treated with caution. Cross-lagged correlations demonstrated that there was no significant association between pre-treatment to mid-treatment YSQ change and mid-treatment to end-of-treatment GSI change ($r(46) = 0.04$, $p = $ NS). The converse correlations were also non-significant.

Hierarchical regressions were performed to analyse whether pre-treatment to mid-treatment YSQ change scores were a significant predictor of mid-treatment to end-of-treatment GSI change scores after controlling for pre-treatment to mid-treatment changes on the GSI (autocorrelation GSI) and for mid-treatment to end-of-treatment changes on the YSQ (synchronous correlation YSQ–GSI; Finkel, 1995).

For mid-treatment to end-of-treatment GSI changes, pre-treatment to mid-treatment YSQ change emerged as a significant predictor after controlling for autocorrelation and synchronous correlation, $F_{change}(1,41) = 7.04$, $p = 0.05$. In testing the converse lagged association, no significant associations were observed (Table 3).

DISCUSSION

Results of the present study showed that 46.8% of the patients recovered and that 6.4% showed improvement following a short-term SCBT-g. Moderate to high effect sizes were found for changes on almost all measures. Consistent with the results of Spinhoven et al. (2008) for SFT in BPD, outcome at the end of treatment was not related to biographical (e.g., age, gender and educational level) and clinical characteristics (number of days patients were in treatment at the outpatient clinic before the start of the SCBT-g and pre-treatment symptomatology). No significant interaction effects for time × group were found.

Results of the present study suggest that short-term SCBT-g may be associated with clinically significant improvement in symptom severity as well as with a significant reduction in schema and maladaptive mode severity. Although pre-treatment to mid-treatment changes in schema severity predicted 6% of subsequent symptom improvement, beyond autocorrelation and synchronous correlation, the large synchronous associations between changes over time in symptoms and changes in schemas suggest that changes in schemas and symptoms co-occur and mutually reinforce each other rather than changes in schemas precede changes in symptoms. This has also been suggested by recent CBT research among patients with depressive disorders (Jarrett, Vittengl, Doyle, & Clark, 2007) and anxiety disorders (e.g., Anholt et al., 2008; Teachman, Marker, & Smith-Janik, 2008). Future studies on schema group therapy should focus on further exploring the specific role of schema changes in predicting and mediating outcome by including more data collection points alongside the use of implicit measures.

The schema domains Other Directedness (assessed at pre-treatment) was found to be a significant predictor of treatment success. The better outcome of patients with high scores on Other Directedness could be explained by a potential greater capacity of social learning and a higher level of sociability. If this explanation is true, the schema Other Directedness might be less maladaptive than currently thought. Another explanation might be that patients scoring high on this schema domain may have had the tendency to report a favourable outcome in order to please the therapists upon whom they might have felt dependent and who were also the researchers of this study.

The percentage of patients that did not improve (46.8%) is comparable with that found in a recent short-term

Table 3. Summary of hierarchical regression analysis: cross-lagged regressions for the YSQ in relation to the GSI ($n = 45$)

Variable	B	SE B	R^2	ΔR^2 of step
Mid-treatment to discharge GSI				
Step 1				
Pre-treatment to mid-treatment GSI	−0.246	0.101		
Mid-treatment to end-of-treatment YSQ	0.736	0.100	0.546**	0.546**
Step 2				
Pre-treatment to mid-treatment YSQ	0.310	0.117	0.613*	0.066*
Mid-treatment to discharge YSQ				
Step 1				
Pre-treatment to mid-treatment YSQ	−0.327	0.119		
Mid-treatment to end-of-treatment GSI	0.772	0.105	0.576**	0.576**
Step 2				
Pre-treatment to mid-treatment GSI	0.142	0.108	0.593	0.017

Variables are residualized change scores. SE = standard error. GSI = Global Severity Index. YSQ = Young Schema Questionnaire.
*$p < 0.05$.
**$p < 0.001$.

psychodynamic group therapy study (Jensen, Mortensen, & Lotz, 2010), and the deterioration rate of 12.8% is at the higher end of the range found in literature (5–10%; e.g., Lambert & Ogles, 2004). Patients who did not improve may have needed more than the 20 sessions provided in this study and might benefit more from a longer-term therapy. However, the fact that patients in the study by Jensen et al. (2010) received 19 group sessions more than the patients in the present study with, however, a comparable percentage of non-improved patients suggest that merely providing more sessions might not be enough to increase the number of improved patients. Preliminary data on an adapted version of the treatment protocol of the present study (Simpson, Morrow, van Vreeswijk, & Reid, 2010) suggest that adding experiential techniques and schema mindfulness exercises might be important to improve therapy results.

The dropout rate found in this study of 24% is well within the range of dropout percentages found in the group therapy literature (15–30%; e.g., Wilberg et al., 2003; Leichsenring & Leibing, 2003) for patients with personality disorders. Clinically, a dropout of two to three patients per group in a population of patients with long-standing Axis I disorders and/or personality problems is widely accepted by group therapists. In this study, patients who dropped out were significantly younger in age, and most of them were female. This suggests that more research is needed, addressed at patient characteristics associated with dropout from this type of group therapy.

Limitations of the Study

The results of this study need to be viewed in the context of several limitations. First, the lack of a control group limits the generalizability of these findings. Therefore, it is uncertain whether changes are due to schema therapy or to non-specific factors such as the therapeutic attention and rapport between therapists and group members. Second, the relatively small sample size in this study limited the number of analyses that could be carried out and the number of variables that could be included. Third, we did not systematically assess DSM-IV Axis I and Axis II diagnoses by using a standardized structured interview, such as the Structured Clinical Interview for DSM-IV Disorders I and II (First, Spitzer, Gibbon, & Williams, 1996; First, Spitzer, Gibbon, Williams, & Benjamin, 1997, respectively). Fourth, at the start of this group therapy (Dutch), validated versions of the YSQ and the YAMI were unavailable. So, we used the translated original versions of the YSQ and the YAMI (Young & Pijnaker, 1999; van Vreeswijk & 't Hoen, 2004, respectively). Currently, the YSQ and the SMI are well validated for the Dutch population (Lobbestael et al., 2010; Rijkeboer et al., 2005),

and these versions should be used in future studies. Since several norm groups are now available for these questionnaires, it will also be possible to calculate recovery rates concerning schemas and modes. Fifth, schemas and modes were only measured using self-report measures. The validity of self-report depends on the level of self-insight of the patients, which is often very limited in patients with personality pathology (Ganellen, 2007; Huprich & Bornstein, 2007), and on patients' willingness or ability for self disclosure (Berarit, Newborn, & Orgler, 2008). Ideally, self-report data should be combined with implicit measures of schemas and modes, such as a Stroop task, Semantic Simon paradigm, Pragmatic Interference Test, evaluation tasks and Thematic Apperception Test (for a review, see Sieswerda, 2008). At the present time, implicit tasks that measure schema prevalence and severity are under development (Rijkeboer, e-mail correspondence, August 8, 2008). Huprich and Bornstein (2007) summarize the importance of including both types of measures by showing that discrepancies between self-report data and data derived from other, more indirect data sources can sometimes provide even more valuable information about patients' internal states than convergences.

Despite these limitations, to our knowledge, this is the first study to report on the results of short-term SCBT-g in terms of clinically significant improvement by using measures of symptom severity and biographical and clinical characteristics of patients. The findings are largely consistent with other studies on long-term schema (group) therapy. Future studies might first further address the outcome mediating or moderating role of schemas and modes. Second, future studies might also include the mediating or moderating role of group cohesion and group composition among patients with personality disorders. RCTs are required to be able to conclude more definitively whether short-term schema group therapy is indeed effective in reducing symptoms and schema and mode severity.

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