Research Article

PSYCHODYNAMIC PSYCHOTHERAPY VERSUS COGNITIVE BEHAVIOR THERAPY FOR SOCIAL ANXIETY DISORDER: AN EFFICACY AND PARTIAL EFFECTIVENESS TRIAL

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Objectives: *Comparing the overall and differential effects of psychodynamic psychotherapy (PDT) versus cognitive behavior therapy (CBT) for social anxiety disorder (SAD).* **Design:** *Patients with a primary SAD (N = 47) were randomly assigned to PDT (N = 22) or CBT (N = 27). Both PDT and CBT consisted of up to 36 sessions (average PDT 31.4 and CBT 19.8 sessions). Assessments took place at waitlist: pretest, after 12 and 24 weeks for those who received longer treatment: posttest, 3-month and 1-year follow-up.* **Methods:** *Changes in the main outcome measure self-reported social anxiety composite, as well as in other psychopathology, social skills, negative social beliefs, public self-consciousness, defense mechanisms, personal goals, independent rater's judgments of SAD and general improvement, and approach behavior during an objective test, were analyzed using multilevel analysis.* **Results:** *No improvement occurred during waitlist. Treatments were highly efficacious, with large within-subject effect sizes for social anxiety, but no differences between PDT and CBT on general and treatment-specific measures occurred. Remission rates were over 50% and similar for PDT and CBT. Personality disorders did not influence the effects of PDT or CBT.* **Conclusions:** *PDT and CBT are both effective approaches for SAD. Further research is needed on the cost-effectiveness of PDT versus CBT, on different lengths PDT, and on patient preferences and their relationship to outcome of PDT versus CBT. Depression and Anxiety 00:1–11, 2014.* © 2014 Wiley Periodicals, Inc.

Social anxiety disorder (SAD) is considered an anxiety disorder, but can also be regarded as an interpersonal

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problem.[1–5]. SAD, except for the performance-only subtype,[6] generally starts early in life,[7] appears to stem from interpersonal issues, such as lack of close relationships with adults and parental marital conflicts,[8] less sociable families,[9] and childhood shyness.[10] Such early childhood experiences may cause schemas of being unlovable, leading to interpersonal behaviors of avoiding intimacy, and being distant, submissive, or even aggressive in relationships.[3] In line, relationships of adults with SAD are characterized by excessive dependence, lack of assertiveness, and avoidance of conflict.[5] Since psychodynamic psychotherapy (PDT) views psychopathology as resulting from early relational problems with caregivers, PDT might be effective for SAD.
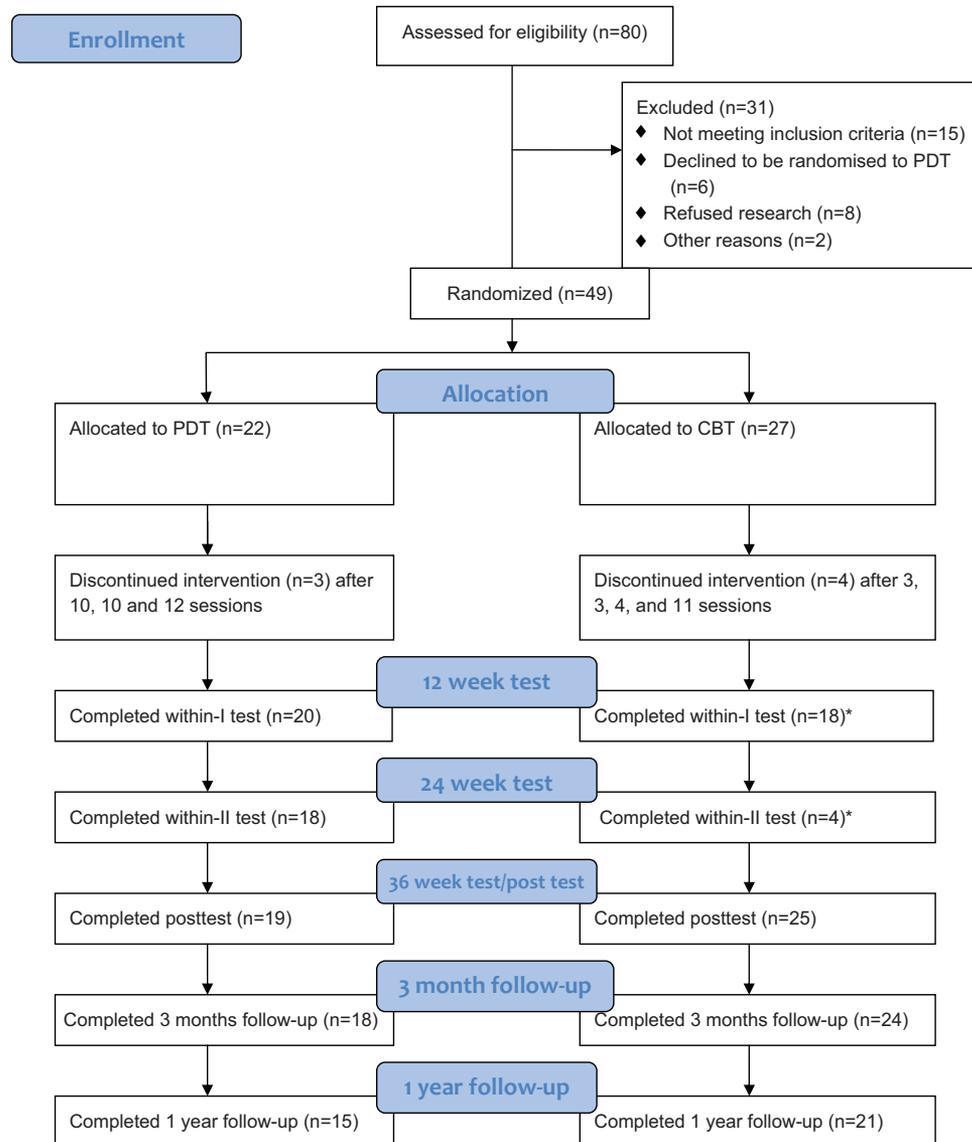
Figure 1. CONSORT 2010 flow diagram.

The efficacy of PDT for anxiety disorders is controversial,[11] and PDT may not be expected to be efficacious in anxiety disorders including SAD, given the perceived need for behavior interventions such as systematic exposure.[12] In line, CBT is a highly effective approach for anxiety disorders including SAD according to meta-analyses.[13–16] However, meta-analyses do show PDT to be efficacious in psychiatric disorders,[17] depression,[18] and personality disorders (PDs).[19] A recent large-scale randomised clinical trial (RCT) found PDT as effective as CBT in remission rates of SAD, but CBT superior in reduction of social anxiety, though effect size differences were small.[20]

SAD often co-occurs with PDs. Research has generally shown that although patients with anxiety disorders and co-occurring PD are more symptomatic before and after treatment, they improve at similar rates.[21] However, with respect to SAD specifically, this has mainly been investigated in patients with co-occurring avoidant PD.[6, 22–24] Since PDT changes the way patients solve intrapsychic conflicts, originated in early upbringing (i.e., "personality"), whereas CBT focuses on anxiety

symptom change, PDT may be more effective in SAD patients with PD.

We compared the short- and long-term effects of CBT and PDT on subjectively and objectively measured social anxiety symptoms, on comorbid psychopathology, personal goals, and general functioning. Also, we examined whether CBT more effectively changes dependent variables that are specifically targeted during CBT, such as social skills, whereas PDT more effectively changes variables targeted during PDT, such as defense mechanisms. Finally, we tested whether PD influenced the effects of both treatments differently.

METHOD

PARTICIPANTS

Patients referred to a community mental health care center with a primary generalized SAD were screened with the SCID-I[25]) and SCID-II[26] by trained clinicians. Moderate to excellent SCID-I and excellent SCID-II inter-rater reliability was reported from the same research group/clinic,[27] but was not specifically established in this study. Exclusion criteria were (I) having had CBT or PDT for SAD in the last 2 years, (II) substance abuse/dependence, (III) psychotic disorder, and (IV) suicidal behavior. Furthermore, two exclusion criteria were added, requested by the psychodynamic therapists. First, (V) PD from clusters A and B, except for paranoid and narcissistic PD, as Malan's PDT is meant for so-called neurotic PD.[28] Second, (VI) insufficient self-reflection, defined as "being able to keep the attention directed to own conscious feelings, perceptions, cognitions, and images." Diagnostic interviewers assessed this by investigating an emotional meaningful situation with the patient. They rated the degree to which the patient was able to direct attention and investigate own reactions on this situation (from 1 = not at all to 5 = very well). A minimum score of 3 (sufficient) was required for inclusion. A different rater double-rated 15 interviews, kappa was .70, indicating substantial inter-rater agreement.[29]

In total 80 patients were screened, 49 participated (see Fig. 1).

PROCEDURE AND DESIGN

Medical-ethical approval was obtained. Patients who signed informed consent were put on a waitlist. Patients who had to wait at least 3 months (n = 27), were immediately assessed (waitlist) and reassessed (pretest) before treatment started, to create a quasiexperimental waitlist control group. Mean waiting time for those with a waitlist assessment was 17.3 weeks (SD = 9.5), waiting time was similar for PDT and CBT, F (1, 24) = .0.

An independent rater formulated with each patient a hierarchy and treatment goals, and assessed SAD severity (see assessments). The rater was a CBT and PDT psychotherapist with extensive experience in treating SAD. Further assessments consisted of computerized questionnaires and a behavior test.

Then, patients were randomly assigned to PDT or CBT by tossing a coin at the clinical staff meeting. Both PDT and CBT consisted of up to 36 weekly sessions. The number of sessions was not a priori determined, but depended on the treatment plan and clinical course. CBT consisted of on average 19.8 (SD 8.9, range 3–36) and PDT 31.4 (SD 8.8, range 10–36) sessions. Patients were reassessed at 12 and 24 weeks only if they received a longer treatment, at posttreatment (immediately after their last treatment session), and 3 months and 1 year after treatment. The independent rater assessments and behavior test took place only pre and post treatment. The rater was kept blind

TABLE 1. Characteristics of patients assigned to cognitive behavior therapy (CBT) and psychodynamic psychotherapy (PDT)[a]

	CBT	PDT
Age	28.4 (7.6)	30.7 (9.7)
Educational level[b]	8.1 (1.4)	8.1 (2.3)
Duration of social anxiety (in months)	99.5 (78.6)	125.2 (100.2)
Prior treatment for social anxiety (no. of treatments)	0.4 (0.9)	0.9 (1.7)
Gender (number and percent of women)	12 (44)	10 (45)
Working situation		
Housewife	2 (7%)	1 (5%)
Student	8 (30%)	7 (32%)
Work	10 (37%)	12 (44%)
Ill	3 (11%)	2 (9%)
Unemployed	4 (15%)	0 (0%)
Family situation		
Married/living together	11 (41%)	11 (50%)
Unmarried/living alone	12 (44%)	10 (45%)
Living with parents	4 (15%)	1 (5%)
Medication		
No	22 (81%)	21 (95%)
Tranquilizers	2 (7%)	1 (5%)
Antidepressants	3 (11%)	0 (0%)
Treatment dropout	6 (19%)	3 (14%)

[a]No significant differences occurred on any of the personal characteristics between treatment conditions.
[b]From 1 = no education at all to 11 = university degree.

regarding patient's treatment condition. Patients who dropped out of treatment were, if willing, assessed immediately after they terminated treatment and at subsequent follow-ups, see Fig. 1. Table 1 presents general characteristics of the patients and Table 2 presents comorbid diagnoses.

ASSESSMENTS

Self-Report Outcome Measures

Social anxiety composite. The social anxiety composite was the primary outcome measure.

It was built by adding total scores (so that questionnaires with a larger range of items that cover more aspects of social anxiety and thus more measurement information weigh more) of the following instruments; the Social Phobia and Anxiety Inventory (SPAI)–Social Phobia subscale,[30,31] the subscales Main Phobia and Social Phobia of the Fear Questionnaire (FQ), rated on fear and avoidance,[32] the subscale Social Anxiety of the Self-Consciousness Scale (SCS),[33,34] The Brief Fear of Negative Evaluation Questionnaire,[35] and the subscale Social Sensitivity of the Symptoms Checklist (SCL-90).[36]

Psychopathology composite. The secondary outcome measure (other) psychopathology composite was built by adding the SCL-90 subscales Generalized Anxiety, Agoraphobia, Depression, Somatization, Psychotic symptoms, Hostility, Sleeping problems, and Other problems, the SPAI subscale Agoraphobia, and the FQ subscales Agoraphobia and Blood/Injury.

Rater- and Behavior Assessments

Social Phobia Disorders Severity and Change Scales (SPDSC)[37]. The subscale Social Phobia Severity consists of five items: anxiety, hindrance, avoidance, anticipation, and severity of SAD, rated at pretest (in this study α = .83) and posttest (α = .96). The subscale General

TABLE 2. Diagnoses of patients assigned to cognitive behavior therapy (CBT) or psychodynamic psychotherapy (PDT)

	CBT ($n = 27$)	PDT ($n = 22$)
Comorbid mental disorder present	20 (74%)	15 (68%)
Depression/dysthymia	13 (48%)	12 (54%)
Panic disorder/Agoraphobia	3 (11%)	0 (0%)
Generalized anxiety disorder	3 (14%)	1 (5%)
Obsessive-compulsive disorder	2 (7%)	0 (0%)
Posttraumatic stress disorder	1 (4%)	0 (0%)
Specific phobia	0 (0%)	2 (9%)
Eating disorder (anorexia, bulimia, NOS)	3 (11%)	1 (5%)
Dependence (alcohol, drugs, gambling)	2 (7%)	2 (9%)
Sexual disorder	0 (0%)	1 (5%)
Somatization disorder	1 (4%)	0 (0%)
Identity disorder	0 (0%)	1 (5%)
Adjustment disorder	1 (4%)	0 (0%)
V-code	2 (7%)	1 (5%)
Personality disorder present	16 (59%)	13 (62%)
Avoidant	14 (52%)	8 (36%)
Dependent	3 (11%)	3 (14%)
Obsessive-compulsive	2 (7%)	3 (14%)
Passive-aggressive	0 (0%)	1 (5%)
Narcissistic	1 (4%)	0 (0%)
Paranoid	0 (0%)	1 (5%)
Depressive	0 (0%)	2 (9%)
NOS	0 (0%)	3 (14%)

Note: No significant differences in comorbid psychiatric and personality disorders between treatment conditions were found pretreatment. NOS, not otherwise specified.

Improvement consists of five items: social anxiety, general functioning, avoidance, anticipation anxiety, and general improvement, rated at posttest ($\alpha = .96$).

Behavior approach test (BAT[38]). The independent rater and patient together constructed an ideosyncratic hierarchy of 13 social situations, requiring increasingly more fearful social activities. Then, a research assistant asked the patient to perform the highest possible item of the hierarchy. Before and after, patients rated their fear on a visual analogue scale. The most difficult item achieved (13 = least difficult, 1 = most difficult) was multiplied by the averaged fear ratings before and after, as a combined assessment of approach behavior and fear. This measure correlates highly with rater-assessed social anxiety (see Table 3).

Goal attainment scaling (GAS[39]). The independent rater formulated five idiographic treatment goals with each patient (e.g., "Understanding why I have these problems", or "Find a partner"). For each goal, the best (1), better than expected (2), expected (3), less than expected (4), and worst (5) outcome was defined, and rated at posttest by patient, independent rater, and therapist. Inter-rater reliability between the three raters ranged from .74 to .91 ($Ps < .001$).

Process of Change Measures. Three measures were included that assess aspects of social anxiety typically targeted in CBT: social skills deficits (targeted in roleplays), negative social beliefs (targeted in Socratic dialogue), and heightened self-focused attention (targeted in task concentration training). Two defense mechanisms measures were included as these are targeted in PDT.

Social skills deficits. The Scale for Interpersonal Behavior[40] is a reliable and valid self-report scale that consists of five subscales of each five items, rated on distress and performance: Display of Negative Feelings, Expression and Dealing with Personal Limitations, Initiating Assertiveness, Positive Assertion.

Social Phobic Beliefs Inventory (SPB). This scale measures 12 dysfunctional beliefs, characteristic for SAD, from 0 (do not believe this at all) to 100 (totally believe this). The SPB possesses satisfactory internal consistency and discriminant validity.[41]

Public Self-Consciousness. The subscale Public Self-Consciousness of the SCS consists of eight items measuring a dispositional tendency to be aware of oneself publicly.

Defense Style Questionnaire (DSQ). The DSQ measures three categories of defense mechanisms, Mature (sublimation, humor, anticipation, suppression; nine items), Neurotic (undoing, idealization, reaction formation; five items), and Immature (projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, splitting, rationalization, somatization; 22 items). The DSQ is reliable and valid.[42]

Defense Mechanism Inventory (DMI). The DMI[43,44] consists of five stories about conflict areas, each followed by 20 possible responses regarding actual behavior, fantasy behavior, thoughts, and feelings. The person's ratings reflect five defense mechanisms: turning against a real or presumed external object, projection, isolation, turning against self, reversal. Scale interrelationship[45] suggests that DMI scales represent a single defense continuum relating to aggression, in which the defenses at one end facilitate the expression of aggression and represent "externalizing" defenses, whereas those at the other end inhibit acting out and represent "internalizing" defenses. We used this DMI-index [(turning against object + projection) − (principalization + reversal + turning against self)].

TREATMENTS

General Principles. Both treatments started with three sessions to make a treatment plan, based on a case formulation and patient's goals, which was presented to the patient with a treatment rationale handout. Therapists in both treatments received weekly group supervision, to ensure protocol adherence. Case examples of both treatments are provided in Appendix A.

PDT. PDT was time- and focus-limited,[46] using the PDT model of Malan,[47] which is not a manual but a guideline to focus on two triangles. The first is the "triangle of conflict," it consists of (1) forbidden thoughts, feelings, and wishes, which (2) cause anxiety, and (3) result in the establishment of defensive mechanisms such as avoidance. The second triangle concerns the relation with (1) parents/caretakers, (2) important others, and (3) the therapist. A core triangle of conflict, associated with patients' social anxiety, based on the case formulation that was discussed in group supervision, was explored in the important relationships with parents, others, and the transference manifestations regarding the therapist. Therapists used the interpretative interventions of exploration, clarification, and interpretation, and occasionally, supportive-expressive interventions.[48] From a psychodynamic perspective[49] (social anxiety), symptoms stem from intrapsychic conflicts, meaning that anxiety results from unconscious wishes and impulses and a superego forbidding their expression. If the wishes and impulses are evoked in a social situation, that situation is experienced as frightening that leads to defensive operations. These defensive operations can be seen in everyday behavior and in the transference from patients to their therapists. Analyzing these manifestations and their roots enhances ego control.

CBT. CBT case formulations consisted of etiological and maintaining factors, and presenting complaints. Based on the case formulation and patient's treatment goals, a treatment plan was discussed in the supervision group, including the number of sessions planned and choice of techniques. A minimum of six sessions cognitive therapy about the present including behavior experiments[50] and three

TABLE 3. Correlations between dependent measures at pretest

	2	3	4	5	6	7	8	9	10	11
1. SA composite	0.76***	0.70***	0.61***	0.47**	0.26	0.51***	0.48**	0.40*	0.04	− 0.24
2. PP composite		0.52***	0.59***	0.33*	0.30*	0.51***	0.70***	0.47***	− 0.02	− 0.10
3. Social skills deficits			0.62***	0.15	0.37**	0.38**	0.48***	0.17	− 0.10	− 0.06
4. Social phobic beliefs				0.33*	0.30*	0.43**	0.62*	0.38**	0.12	− 0.41**
5. Public Self-Consciousness					0.04	0.20	− 0.02	0.36*	0.12	− 0.41**
6. Behavior approach test						0.53***	0.27	0.01	− 0.19	0.07
7. Rater SPDSC							0.53***	0.40**	− 0.01	− 0.17
8. DSQ-Immature								0.54*	− 0.12	0.03
9. DSQ-Neurotic									0.22	− 0.37**
10. DSQ-Mature										− 0.15
11. DMI-index										

Note: SA composite, composite of all questionnaires measuring social phobic symptoms; PP composite, composite of all questionnaires measuring other psychopathology; BAT, behavioral approach test; SPDSC, Social Phobic Disorder Severity and Change scale; DSQ, Defense Style Questionnaire; DMI-index, Defense Mechanisms Inventory index. Six patients are missing for the rater judgment.
*P < .05, **P < .01, ***P < .001.

sessions exposure in vivo based on a hierarchy of feared situations were obligatory. Techniques to be added were social skills,[51] task concentration training,[52] applied relaxation,[53] and cognitive therapy about the past,[54] all based on the case formulation. Although no standard manual was used, therapy techniques were described in detail, therapists were trained in using the state-of-the-art SAD cognitive, exposure in vivo, social skills, task concentration, and relaxation techniques, by international experts. Patients received weekly homework assignments. Treatment was terminated when treatment goals were reached.

THERAPISTS

PDT was given by six therapists (four women) who all completed eight years postdoctoral psychodynamic training. Therapists' mean PDT experience was 8 years. CBT was given by nine therapists (seven women), who were in training for cognitive behavior psychotherapist (duration 6 years) but had not necessarily completed. Their mean CBT experience was 4 years. The difference in experience between PDT and CBT therapists reflects clinical practice.

Treatment Adherence. All sessions were audio-recorded, and one random session of every treatment was selected for blind rating. First, tapes were rated by an untrained psychologist as CBT or PDT. All treatments were correctly identified. Second, another psychologist assessed general therapist quality and, separate for PDT and CBT, treatment adherence, using rating scales, based on Barber and colleagues[55,56] that involved general therapist quality and frequency and quality of PDT- and CBT-specific interventions, using 6-point rating scales. Scales can be obtained from SB. Of the 49 sessions 41% were re-rated, CBT sessions by a cognitive behavior expert, PDT sessions by a psychodynamic expert. Inter-rater reliabilities (kappa) were substantial to almost perfect: .67 for general therapeutic quality, .95 for CBT techniques, and .99 for PDT techniques. Results showed that no psychodynamic techniques were applied during CBT, mean frequency 0 for CBT and 4.49 (SD = 0.56) for PDT, and no cognitive behavioral techniques during PDT, mean frequency 0 for PDT and 2.65 (SD = 0.52) for CBT, indicating excellent treatment adherence and no "bleed-in" of countertheoretical interventions.[57] CBT had a lower mean score on CBT techniques than PDT on PDT techniques, as some CBT techniques were optional and therefore not applied in all therapies. General and specific therapist quality was, respectively, 5.14 (SD = 0.73) and 5.1 (SD = 0.44) for PDT and 5.15 (SD = 0.86) and 4.8 (SD = 0.54) for CBT, indicating high therapist competence.

DATA ANALYTIC APPROACH

Multilevel regression analysis (aka mixed modeling) was used with repeated measurements nested within respondents. The therapeutic effects are represented by coefficients for deviations from pretest (at waitlist, within-I, within-II, posttest, 3-month and 1-year follow-up), differences between PDT and CBT effects are represented by coefficients for CBT deviations from the PDT effect, and effects of personality disorders and number of treatment sessions are represented by regression coefficients. The advantage of the multilevel approach to longitudinal data is that all available data can be used, which improves statistical power and precision of parameter estimates.[58] All continuous variables were standardized (zero means, unit variances), and all dichotomous variables were binary coded, so that parameter estimates can be interpreted as effect sizes (0.2, 0.5, and 0.8 can be considered small, medium, and large).

RESULTS

Table 3 presents correlations between measures at pretest, Table 4 parameter estimates and their significance for all outcomes, and the Fig. 2 results for the primary outcome measure social anxiety composite.

WAITLIST

Inspecting time effects, waitlist scores did not deviate from pretest scores, except for neurotic defense, which improved during waitlist.

OVERALL AND DIFFERENTIAL TREATMENT EFFECTS

At the within-measurement moments and posttest, deviations from pretest increase, showing that treatment was highly effective, also during follow-ups, with large effect sizes of >1 on the main outcome social anxiety composite. For this outcome, no differences between treatments occurred, as CBT deviations from PBTs effect were nonsignificant. Treatment effects were also apparent on the psychopathology composite, with medium-sized effects, but again no differences between treatment conditions. Treatments also resulted in large

TABLE 4. Parameter estimates (standard errors between brackets) for the main outcome measure social anxiety composite, psychopathology composite, the CBT-specific measures social phobic beliefs, public self-consciousness, and social skills deficits, the PDT-specific measures immature, neurotic, and mature defense mechanisms (DSQ), and the Defense Mechanisms Inventory index, at the six assessment moments: waitlist, within–I and within–II (only if they received a longer treatment), at posttest (maximum 9 months after pretest), 3-month follow-up (FU), and 1-year follow-up, and for the rater assessment of social anxiety (SPDSC) and the behavior approach test, at posttest only

	SA comp	PP comp	SPB	PubSC	Soc skills	DSQ-Immature	DSQ-Neurotic	DSQ-Mature	DMI-index	SPDSC	BAT[e]
PDT effects (as deviations from pretest)[a,b]											
Waitlist	0.11 (0.12)	0.03 (0.13)	−0.03 (0.18)	−0.03 (0.17)	0.07 (0.16)	0.06 (0.17)	−0.40 (0.18)*	0.15 (0.19)	−0.09 (0.18)		
Within-I	−0.35 (0.13)*	−0.19 (0.13)	−0.26 (0.18)	−0.26 (0.18)	−0.19 (0.15)	0.02 (0.17)	−0.30 (0.18)****	−0.09 (0.19)	0.17 (0.18)		
Within-II	−0.68 (0.20)***	−0.25 (0.19)	−0.85 (0.24)***	−0.63 (0.25)*	−0.63 (0.22)**	−0.27 (0.24)	−0.20 (0.26)	0.01 (0.26)	0.40 (0.26)****		
Posttest	−1.25 (0.22)***	−0.75 (0.22)***	−1.1 (0.26)***	−1.17 (0.27)***	−1.19 (0.24)***	−0.56 (0.27)*	−0.77 (0.28)**	0.12 (0.27)	0.43 (0.28)****	−1.45 (0.21)***	−1.11 (0.24)***
3-month FU	−1.11 (0.23)***	−0.65 (0.23)**	−1.1 (0.27)***	−0.83 (0.28)**	−1.08 (0.25)***	−0.72 (0.27)**	−0.50 (0.29)***	0.28 (0.28)	0.29 (0.29)		
1-year FU	−1.27 (0.24)***	−0.58 (0.24)*	−0.89 (0.27)**	−0.79 (0.29)**	−1.03 (0.26)**	−0.67 (0.28)**	−0.58 (0.30)*	0.41 (0.29)	0.17 (0.30)		
Additional CBT effects (as deviations from PDT effects)[a,b]											
Waitlist	−0.03 (0.17)	−0.17 (0.17)	−0.02 (0.23)	0.20 (0.23)	−0.26 (0.21)	−0.25 (0.22)	0.17 (0.25)	−0.12 (0.25)	0.28 (0.24)		
Within-I	−0.17 (0.18)	−0.32 (0.17)****	−0.39 (0.24)	−0.16 (0.24)	−0.52 (0.20)*	−0.44 (0.23)****	−0.13 (0.25)	−0.17 (0.25)	0.23 (0.24)		
Within-II	−0.20 (0.35)	−0.36 (0.33)	0.16 (0.45)	−0.30 (0.45)	−0.28 (0.39)	−0.25 (0.44)	−0.11 (0.47)	−0.16 (0.47)	0.03 (0.46)		
Posttest	0.24 (0.31)	−0.08 (0.30)	0.04 (0.37)	0.60 (0.38)	0.06 (0.34)	−0.25 (0.37)	0.16 (0.39)	−0.37 (0.38)	−0.10 (0.39)	0.12 (0.27)	0.20 (0.32)
3-months FU	0.15 (0.31)	−0.22 (0.31)	−0.10 (0.35)	−0.03 (0.37)	−0.06 (0.33)	−0.16 (0.36)	−0.24 (0.38)	−0.39 (0.37)	0.16 (0.39)		
1-year FU	0.24 (0.32)	−0.25 (0.32)	−0.28 (0.36)	−0.15 (0.38)	−0.26 (0.34)	−0.38 (0.37)	−0.17 (0.39)	−0.64 (0.38)****	0.17 (0.39)		
Other parameters											
Number of sessions[c]	0.01 (0.01)	−0.01 (0.01)	0.02 (0.01)****	0.02 (0.01)	0.01 (0.01)	−0.01 (0.01)	−0.01 (0.01)	0.01 (0.01)	0.03 (0.01)*	0.00 (0.01)	0.01 (0.01)
Intercept[d]	0.32 (0.44)	0.65 (0.48)	0.02 (0.39)	0.05 (0.42)	0.29 (0.41)	0.60 (0.44)	0.79 (0.45)	0.01 (0.40)	−1.4 (0.45)*	0.50 (0.37)	0.15 (0.42)
CBT (vs. PDT)	0.11 (0.28)	0.06 (0.32)	0.20 (0.28)	0.07 (0.30)	0.26 (0.28)	0.04 (0.31)	−0.28 (0.32)	−0.45 (0.29)	0.55 (0.32)****	0.06 (0.25)	0.32 (0.28)

Note: SA comp, composite of all questionnaires measuring social anxiety; PP comp, composite of all questionnaires measuring other psychopathology; SPB, social phobic beliefs; PubSC, Public Self-Consciousness; DSQ, Defense Style Questionnaire; DMI-index, Defense Mechanisms Inventory index; SPCD, rater judgment of social anxiety disorder severity and change; BAT, behavior approach test.

****$P < .10$, *$P < .05$, **$P < .01$, ***$P < .001$.

In order to calculate the within-effect size (pretest vs. another measurement moment) of CBT, add the additional CBT effect to the PDT effect, for example, the within-effect size of change of CBT from pretest to 1-year follow-up on the social anxiety composite is $−1.27 + 0.24 = −1.03$.

[a]Negative parameter estimates indicate less problems compared to pretest. CBT estimates represent deviations from the PDT effects, so that negative estimates indicate larger effects than PDT.

[b]All outcomes are standardized so that all parameter estimates can be interpreted as effect sizes (0.2, 0.5, 0.8 is considered small, medium, large).

[c]Number of sessions of treatment that patients received, ranging between 3 and 36 sessions.

[d]The mean pretest score for PDT (intercept).

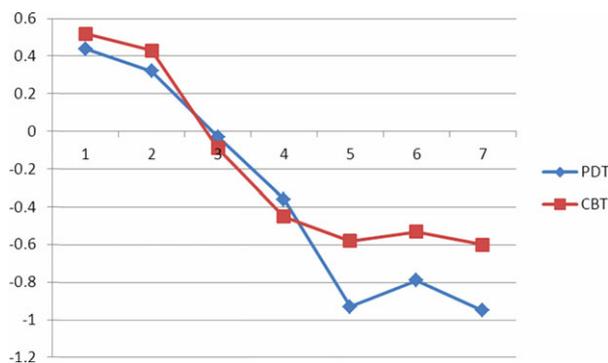[e]Assessed only at pretest and posttest.

Figure 2. Social anxiety trajectories for PDT and CBT.
Note: Measurement occasions are (1) waitlist, (2) pretest, (3) within-I, (4) within-II, (5) posttest, (6) 3-month follow-up, and (7) 1-year follow-up. Estimated marginal means of social anxiety are calculated on the basis of the parameter estimates obtained through the multilevel regression analysis of the standardized SA Composite; cf. Table 4. For example, PDT waitlist = 0.32 (intercept) + 0.12 (waitlist) = 0.44, PDT pretest = 0.32 (intercept), PDT within-I = 0.32 (intercept) − 0.35 (within-I) = −0.03, etc., CBT waitlist = 0.44 (PDT waitlist) + 0.11 (CBT) − 0.03 (waitlist) = 0.52, CBT pretest = 0.32 (PDT pretest) + 0.11 (CBT) = 0.43, CBT within-I = −0.03 (PDT within-I) + 0.11 (CBT) − 0.17 (12 weeks) = −0.09, etc.

effect sizes on the (CBT-specific) measures negative social beliefs, public SC, and social skills deficits, with no condition effects. On the (PDT-specific) defense mechanisms, medium-sized treatment effects occurred for the DMI-index in the direction of more externalizing defenses, which however were not maintained at follow-ups, and no condition effect. On neurotic and immature defense styles, medium-sized treatment effects occurred, but no condition effect. On mature defenses there was a (coincidental) pretest difference of CBT patients reporting lower mature defenses, but no treatment or condition effect. The BAT revealed a large treatment effect, but no condition effect. On the rater-assessed Social Anxiety Scale a large treatment effect occurred, but no condition effect.

Rater's General Improvement assessment with posttest ratings only (therefore not included in the multilevel analyses) indicated "substantial improvement," with no differences between conditions. On personal goals, "more than expected" improvement occurred according to patient, therapist, and independent rater, but no condition effect.

Multilevel analyses were repeated using the standardization of composite method applied by Clark et al.,[59] in which all scales were first standardized to Z-scores and then combined to the composites. This was done twice, first without taking into account the number of items of each scale, and second giving a weight based on the number of items in each scale, as more items contain more measurement information. Results were highly similar, suggesting that results are robust for various ways of making composite scores. Multilevel analyses were also repeated with number of treatment sessions,

dropout, and with the combination of dropout and treatment sessions as predictors, with highly similar results, suggesting that findings are not influenced by the (differential) effects of treatment dosage, treatment duration, or dropout. In Table 4, only the main effect of treatment sessions is added as a predictor.

CLINICAL SIGNIFICANT CHANGE AND RECOVERY

Clinical significant change in social anxiety (individual pre-, post-, and follow-up scores on the composite measure) was operationalized through the reliable change index.[60] At posttest, 64% of CBT patients and 63% of PDT patients were reliably changed, at 3-month follow-up 58% CBT and 50% PDT, and at 1-year follow-up 65% CBT and 75% PDT. Recovery was operationalized in two ways: no longer meeting diagnostic criteria for SAD, and scoring below the SPAI cutoff of 88.8,[51] indicating falling within the functional population with a likelihood of 90%.[39] First, at posttest, 54% of CBT patients did not meet SPSC SAD criteria[37] anymore according to the rater assessment, versus 47% PDT. Second, at posttest, 48% CBT and 73% PDT patients fell below the SPAI cutoff, at 3-month follow-up 52% CBT and 54% PDT, and at 1-year follow-up 52% CBT and 59% PDT. No condition effects occurred on any of these measures.

PERSONALITY DISORDERS

Multilevel analyses were repeated with the presence/absence of PD. However, no main effect or interaction with treatment condition on any of the outcome variables at any time point occurred.

DISCUSSION

We evaluated the effects of CBT versus PDT for patients with SAD. Results show that (I) both treatments were highly and equally efficacious, with remission rates of over 50%; (II) no differential treatment effects occurred; and (III) personality disorders did not affect overall and differential treatment efficacy.

Our results corroborate with Leichsenring et al.'s[20] recent large-scale RCT comparing PDT to CBT in SAD in terms of no differences in SAD remission rates (54% for CBT and 47% for PDT at posttest in our study compared to 36% for CBT and 26% for PDT in their study). However, on social anxiety symptom level reduction CBT was superior to PDT in Leichsenring et al.'s study—though effect size differences were small, whereas our results showed no differences in social anxiety symptoms outcome, with PDT appearing slightly better (see the graph). We further inspected these differences using the SPAI social anxiety measure that was applied in both studies. Our pretest scores were 123.38 (*SD* 27.97) for CBT and 117.90 (29.89) for PDT, and posttest CBT 87.89 (33.69) and PDT 74.33 (44.02), whereas their pretest SPAI scores were 90.19 (19.26)

for CBT and 90.09 (19.80) for PDT, and posttest CBT 66.28 (28.86) and PDT 76.67 (24.89). Comparisons of SPAI scores using an effect size calculator revealed that our patients reported more severe social anxiety symptoms pretreatment (effect size 1.33 for PDT and 1.63 for CBT), and our PDT patients appeared to improve more (effect size 1.17 in our vs. 0.60 in their study), whereas CBT patients reported similar improvements (effect size 1.15 in our vs. 1.02 in their study). An explanation for our somewhat more favorable PDT results is that our PDT had a higher dose than CBT (respectively, 31.4 vs. 19.8 sessions), whereas treatment dose was similar in Leichsenring et al.[20] (25.7 and 25.8 sessions). Our higher PDT dose is supported by research showing that longer PDT is more effective than shorter PDT—restricted to 20 sessions, particularly on anxiety disorders.[61]

Unexpectedly, on defense mechanisms, CBT and PDT did not differ in outcome. This may first suggest that if CBT teaches patients more functional ways to cope with fear, they can drop dysfunctional defenses. Second, defense mechanisms may merely reflect symptoms (e.g., turning against self reflects depression) and CBT reduces symptoms. Third, cognitive behavioral techniques themselves may change defense mechanisms, for example, turning against self represents negative self-focused beliefs, which are modified with Socratic dialogue. In a similar vein, that no differences between CBT and PDT occurred in changing avoidance requires an explanation, because during CBT patients are actually exposed to feared situation, as during the BAT. Apparently, exposure in vivo (CBT) is not the only way to reduce avoidance, as insight in the roots of interpersonal anxiety (PDT) appears to have similar effects.

The finding that SAD patients with PD have more severe symptoms across measurement times but that the presence of PD did not affect treatment effects is in line with previous research on anxiety disorders in general.[21] PDT was not superior to CBT in patients with PD, despite its focus on "deeper"[62] personality change. One could argue that as we applied a flexible duration CBT, patients with PD may have had longer CBT than those without. This was not found, the mean duration of CBT was 22 sessions for patients without and 18 sessions for those with PD, non-significant. Note however that we assessed PD as a moderator (pretest presence of PD influencing outcome on other measures), whereas it would be interesting to assess PD as a mediator (treatment effects on PD mediating change on other measures).

Given the lack of differences in efficacy between CBT and PDT, what is the treatment of choice? One could argue that CBT is more cost-effective, as therapist costs were lower because of shorter training required, and CBT consisted of fewer sessions. However, it is unknown whether a shorter PDT would be less effective, as when comparing therapies of different session length within-therapy effects "fill out" to fit therapy duration.[63] Moreover, from patients' perspective, even though CBT had

fewer sessions, CBT homework (in PDT no formal homework was given) requires time, attention, and effort. Besides, patients might prefer PDT for other reasons, for example, because of the attention for their family history.

This study can be seen as a replication of the Leichsenring et al. study,[20] but also has unique contributions. First, in the Leichsenring et al. study both their PDT[64] and CBT[50] were manual-guided and with equal durations, whereas we structured the treatments based on case formulations, and with flexible and for PDT on average longer duration. Homework and exposure to anxiety-provoking situations were not part of our PDT as compared to their PDT.[64] Therefore, our study can be viewed as an ecologically valid comparison of two therapeutic traditions, and thus as a partial effectiveness trial. Second, we measured outcome across a wider range of measures than in the Leichsenring et al. study, including behavioral outcomes, personal goals, and CBT- and PDT-specific measures. Third, we included 3-month and 1-year follow-up assessments, whereas the Leichsenring et al. study was restricted to posttreatment assessments. Therefore, our conclusion that CBT and PDT are not differently effective is based on a wider range of outcomes and on a longer time horizon. A final unique contribution of our study is that we added personality disorders as a predictor, and found that PDT is not more effective than CBT for patients with PD.

This study had the following limitations. First, it is unclear how results for CBT and PDT would have looked like if patients with insufficient self-reflection were included. On the one hand, in clinical practice patients are preselected for PDT based on self-reflection[65] and research[66] suggests that patients who were systematically selected for PDT, including sufficient self-reflection, improve more than unselected patients. On the other hand, most RCTs on PDT do not exclude patients with insufficient self-reflection,[20,67] and SAD patients deemed not suited for insight-oriented therapy did benefit from PDT.[68] Second, the study was underpowered to find small differences between PDT and CBT. Still, a post-hoc power analysis using the observed standard deviations and correlations showed sufficient statistical power to find medium sized differences, due to the fact that in multilevel analysis we use all available data. After correcting for the dependency of repeated assessments within subjects, the power was 93% to find large differences between means, 82% to find medium differences, but only 16% to find small differences. Third, treatment credibility was not assessed. Finally, for ethical reasons no placebo control was included. However, our response rates of over 60% exceed pill placebo response rates in SAD patients of about 30%.[69]

CONCLUSIONS

PDT appears an efficacious treatment for SAD. Further research is needed on the cost-effectiveness of PDT versus CBT, on different lengths PDT, on the role of

self-reflection, and on patient preferences and their relationship to outcome.

Appendix A: A CASE EXAMPLE OF PDT AND CBT

PDT

In the mid-phase of therapy, a young man tries to express shameful thoughts. He is hesitant to speak and he reveals that if he would express freely what he thinks, the therapist might become critical or even angry with him. By prompting the patient to voice his thoughts, he hesitantly expresses that the interior of the consulting room is cheap and not according standards of what he thinks it should be. After the patient has expressed this he feels not at ease, is blushing, and is tensely awaiting the reaction of the therapist. The therapist is not reacting according to his expectations, he rather invites the patient to explore with him freely whether there are more thoughts of this kind. The patient expresses plenty more of those negative critical thoughts, also about many other people. His fear to be arrogant and to feel better than others, and the expected rejection, lead him to behave in a modest and withdrawn way. From this point onwards the patient is able to connect the expected disapproval and inhibiting ways of dealing with this sort of situations. The insight that he is usually behaving in an overadapted manner stemming from his anticipatory disapproval reactions, reminds him of his fathers' denigrating overcritical reactions in discussions during patient's adolescence. The therapist summarizes how the patient has become anxious to manifest himself, both with his father as well as with the therapist, out of fear of rejection. The modesty that he has developed does not really fit the patient. In the sessions after this revealing moment the patient talks more and more about events in which he voices his opinion and even expresses criticism. As a result, he feels much more authentic and free.

CBT

The patient is a man in his mid-30s who is afraid to blush and sweat, thinks that his face is strangely asymmetric, and that he has a funny walk, and that others will reject him as a result. One of the behavior experiments that the therapist sets up with him is to watch together in a mirror to inspect how asymmetric he and the therapist are. When he sees the face of the therapist in the mirror he is surprised to detect how asymmetric she is, and when he tells her he also observes that she blushes. They discuss this experience in terms of whether asymmetry and blushing are normal or abnormal, and whether it leads to rejection. He carries out homework assignments observing asymmetry and blushing and sweating in others, as well as the consequences. He also asks his wife to make a videotape of him walking in order to inspect whether he walks funny, and interrogates his environment about whether they have noticed anything particular about the way he walks and about his face. To his surprise, nobody has noticed his "funny" walk and his "asymmetric" face. These experiments help him to feel less awkward and to start the exposure assignments.

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