Clinical Psychology Review 30 (2010) 25–36

Contents lists available at ScienceDirect

Clinical Psychology Review

The efficacy of short-term psychodynamic psychotherapy for depression: A meta-analysis

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ARTICLE INFO

Article history:
Received 14 October 2008
Received in revised form 24 August 2009
Accepted 25 August 2009

Keywords:
Depression
Short-term psychodynamic psychotherapy
STPP
Meta-analysis

ABSTRACT

Objectives: It remains largely unclear, firstly whether short-term psychodynamic psychotherapy (STPP) is an effective treatment for depression, and secondly, which study, participant, or intervention characteristics may moderate treatment effects. The purpose of this study is to assess the efficacy of STPP for depression and to identify treatment moderators.

Results: After a thorough literature search, 23 studies totaling 1365 subjects were included. STPP was found to be significantly more effective than control conditions at post-treatment ($d = 0.69$). STPP pre-treatment to post-treatment changes in depression level were large ($d = 1.34$), and these changes were maintained until 1-year follow-up. Compared to other psychotherapies, a small but significant effect size ($d = -0.30$) was found, indicating the superiority of other treatments immediately post-treatment, but no significant differences were found at 3-month ($d = -0.05$) and 12-month ($d = -0.29$) follow-up. Studies employing STPP in groups ($d = 0.83$) found significantly lower pre-treatment to post-treatment effect sizes than studies using an individual format ($d = 1.48$). Supportive and expressive STPP modes were found to be equally efficacious ($d = 1.36$ and $d = 1.30$, respectively).

Conclusion: We found clear indications that STPP is effective in the treatment of depression in adults. Although more high-quality RCTs are necessary to assess the efficacy of the STPP variants, the current findings add to the evidence-base of STPP for depression.

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doi:10.1016/j.cpr.2009.08.010

1. Introduction

Since the second half of the 20th century, different types of short-term psychodynamic psychotherapy (STPP) have been developed by Malan (1963), Mann (1973), Sifneos (1979), Davanloo (1980), Strupp and Binder (1984), Pollack and Horner (1985), and de Jonghe (1994). They share the common feature of being rooted in psychoanalytical theories such as drive psychology, ego psychology, object relations psychology, attachment theory and self psychology. These psychoanalytic perspectives consider the underlying personality structure to play an important role in the development and maintenance of symptom disorders such as depression. Hence, STPP focuses on interpersonal relationships and unconscious feelings, desires, strivings and thoughts in order to treat symptom disorders.

STPP is by definition short in duration. The number and frequency of the sessions are typically agreed upon by the therapist and the patient before treatment starts, and usually a focus is defined that guides the therapy content. This focus is often on building awareness of the unconscious affect, cognition and behavior that produce symptom and relationship problems. The primary goal of STPP is symptom reduction; in this aspect STPP does not differ from other short-term psychotherapies, such as Cognitive Behavioral Therapy (CBT) or Supportive Therapy (ST). The secondary goal consists of personality change, albeit limited due to the time frame of the therapy. This personality change can be understood in terms of decreasing a person's vulnerability and increasing his or her long-term resiliency.

With regard to the interventions used, various STPP types can be placed on a continuum between a purely 'expressive' and a purely 'supportive' pole (Luborksy, 1984). The more expressive therapies define the therapeutic relationship by its transference aspects, rely heavily on interpreting conflicts concerning sexuality and aggression in the therapist–patient relationship and/or defenses that the patient uses, emphasize insight as being curative, and consider personality restructuring to be paramount. The more supportive therapies define the therapeutic relationship by its interpersonal aspects, rely heavily on a strong, conscious therapeutic alliance, consider growth through the relationship as curative, and consider personality building to be paramount. It must be emphasized, however, that this distinction is a continuum and not a dichotomy. Most STPPs include both expressive and supportive interventions. However, the relative weight they place on either one of the poles merits the division into supportive and expressive therapy modes.

A number of authors have found STPP efficacious in the treatment of psychiatric disorders in general, consistently reporting the superiority of STPP over control conditions (Svartberg & Stiles, 1991; Crits-Christoph, 1992; Anderson & Lambert, 1995; Leichsenring, Rabung, & Leibing, 2004; Abbass, Hancock, Henderson, & Kisely, 2006). With regard to the comparison of STPP to other psychotherapy approaches for psychiatric disorders in general, however, these meta-analyses reached different conclusions; some finding STPP inferior to alternative psychotherapies (Svartberg & Stiles, 1991), while others reported equal efficacy (Crits-Christoph, 1992; Anderson & Lambert, 1995; Leichsenring et al., 2004). These meta-analyses included a small number ($n = 2$–6) of studies regarding STPP for depression (see Table 1). With exception of Svartberg and Stiles, who found alternative psychotherapies superior to STPP in their subgroup of six studies regarding depressed populations, these meta-analyses do not report on the efficacy of STPP for depression, due to the limited number of included studies regarding this population specifically.

Whereas the meta-analyses discussed so far reviewed the efficacy of STPP in general psychiatric disorders, two other fairly recent meta-analyses did focus specifically on the psychodynamic treatment of depression (Leichsenring, 2001; Churchill et al., 2001). Leichsenring (2001) included six studies comparing STPP with CBT and found that both psychotherapies were equally effective in the treatment of depression, a result the author suggested should be regarded as preliminary, due to the small number of included studies. Churchill et al. (2001) compared STPP to CBT and to ST and found that patients receiving CBT were more likely to recover than those receiving STPP, but found no differences in post-treatment symptoms, symptom reduction or drop-out. Due to a lack of data, no conclusions could be drawn regarding the efficacy of STPP versus ST. Both meta-analyses did not include a comparison of STPP with control groups. Thus, so far two meta-analyses have addressed the efficacy of STPP for depression specifically, focusing on specific comparisons only and reporting contradictory results. Moreover, these two meta-analyses do not compare STPP to control conditions. Therefore, it remains largely unclear whether STPP is an effective treatment for depression.

Furthermore, research on factors moderating the effectiveness of STPP in depression is scarce. In a meta-analysis, differences in the efficacy between groups of studies with certain characteristics can be assessed by means of subgroup analyses. These analyses provide the basis to determine for what type of patients and under which conditions the treatment is effective. They also provide the opportunity to compare the efficacy of supportive and expressive STPP modes. To our knowledge, no previous meta-analysis has conducted subgroup analyses in order to identify STPP treatment moderators for depression.

The purpose of the present study is twofold. First, we examine the efficacy of STPP for depression by means of computing STPP pre- to post-treatment and post-treatment to follow-up effect sizes, and by means of comparing STPP with control groups and alternative treatments at post-treatment and follow-up. Second, we perform subgroup analyses to assess differences in the STPP efficacy between study, participant and intervention characteristics, such as study type (randomized controlled trial, non-random controlled study or open study), target group (adults or older adults), or treatment format (individual or group therapy).

The present study adds to the available body of evidence by including 13 studies regarding the efficacy of STPP for depression, which were published after the meta-analyses of Leichsenring (2001) and Churchill et al. (2001). In addition, it does not focus on a comparison of STPP with a specific other psychotherapy method only, but aims to compare the efficacy of STPP with all other treatments as well as with control conditions. Furthermore, this study is the first which conducts subgroup analyses in order to identify STPP treatment moderators for depression.

2. Method

2.1. Search strategy

We retrieved as many studies as possible by means of an extensive search strategy using six different search methods. First, we searched the electronic databases PubMed, PsychINFO, Embase.com, Web of Science and Cochrane's Central Register of Controlled Trials (CENTRAL). Search terms included a wide range of synonyms for *psychodynamic* (e.g., psychoanalytic, analytic, dynamic, interpersonal–psychodynamic, interpretive, insight-oriented, STPP), *therapy* (e.g., psychotherapy, counseling), and *depression* (e.g., depressive disorder, depression) both in MeSH or index terms and text words. The complete search terms are available on request from the corresponding

Table 1
Characteristics of the included studies.

Study	Target group	Recruitment	Depression diagnosis	Treatment conditions	*N*	N_{SE}	Treatment format	Depression outcome measures	Assessment moments	In previous meta-analyses
Abbass, 2002[a]	Adults	Community	Mood Disorder (DSM-IV)	1. STPP	54	14.9	Individual	BDI	Pre, post	–
Abbass, 2006	Adults	Clinical	Treatment resistant depression	1. STPP	10	13.6	Individual	HAMD, BSI-D	Pre, post, 6 months	–
Barber et al., 2005	Adults	Community and Clinical	Mood Disorder (DSM-III-R)	1. STPP	59	29.2	Individual	BDI	Pre, post, 6 months, 1 year	–
Barkham, Shapiro, Hardy, and Rees, 1999	Adults	Community	Subsyndromal depression: BDI 4–25	1. STPP 2. CBT	54 62	3	Individual	BDI	Pre, post, 1 year	–
Carrington, 1979	Adults	Community	Depressive syndrome (Feighner); BDI 20–40	1. STPP 2. CBT 3. WL	10 10 10	12	Individual	BDI, MMPI-D, VAS	Pre, post	–
Cooper et al., 2003	Adults	Other	Major Depressive Disorder (DSM-III); EPDS > 12	1. STPP 2. CBT 3. CAU 4. NDC	45 42 50 47	10	Individual	EPDS	Pre, post, 4.5 months, 13.5 months, 5 years	6, 7
de Jonghe et al., 2004	Adults	Clinical	Major Depressive Disorder (DSM-IV); HAMD 12–24	1. STPP 2. STPP + AD	106 85	16	Individual	HAMD, SCL-90D	Pre, post	7
Gallagher and Thompson, 1982	Older adults	Community	Major Depressive Episode (RDC); BDI > 17; HAMD > 14	1. STPP 2. CT 3. BT	10 10 10	16	Individual	HAMD, BDI, ZDS	Pre, post, 1.5 months, 6 months, 1 year	1, 3
Gilbert, 1982	Adults	Other	Major Depressive Disorder (DSM-III); ZDS > 50	1. STPP 2. CBT 3. WL	15 20 17	9	Group	ZDS	Pre, post	–
Hilsenroth, Defife, Blake, and Cromer, 2007	Adults	Clinical	Mood disorder (DSM-IV)	1. STPP	33	31	Individual	MDE, BSI-D	Pre, post	–
Kornblith, Rehm, O'Hara, and Lamparski, 1983	Adults	Community	Major affective disorder (RDC); BDI > 20	1. STPP 2. BT-1 3. BT-2 4. BT-3	5 11 12 11	11	Group	BDI, MMPI-D, HAMD, RTIS	Pre, post, 3-month	5
Lehto et al., 2008	Adults	Clinical	Major Depressive Disorder (DSM-IV)	1. STPP	19	80	Individual	HAMD	Pre, post	–
Liberman and Eckman, 1981	Adults	Clinical	Mood Disorder (DSM-III)	1. STPP 2. BT	12 12	32	Other	ZDS, BDI, MMPI-D	Pre, post, 0.5, 1.5, 3, 6, and 9 months	–
Lotz and Jensen, 2006[a]	Adults	Clinical	Mood disorder (ICD-10)	1. STPP	25	39	Group	SCL-90D	Pre, post	–
Maina, Forner and Bogetto, 2005	Adults	Clinical	Mood Disorder (DSM-IV); HAMD 8–15	1. STPP 2. ST 3. WL	10 10 10	19.6	Individual	HAMD	Pre, post, 6 months	–
Morris, 1975	Adults	Clinical	Neurotic/reactive depression	1. STPP 2. SMD 3. WL	30 27 14	6	Group	BDI, ZDS	Pre, post, 3 weeks	–
Philips, Wennberg, Werbert and Schubert, 2006[a]	Adults	Community	Depression (DSM-IV)	1. STPP	9	55	Group	SCL-90D	Pre, post, 18 months	–
Reis and Grenyer, 2004	Adults	–	Major Depressive Disorder (DSM-IV)	1. STPP	58	16	Individual	HAMD	Pre, post, 9 months	–
Salminen et al., 2008	Adults	Clinical	Major Depressive Disorder (DSM-IV); HDRS > 14	1. STPP 2. AD	26 25	16	Individual	HAMD, BDI	Pre, post	–
Shapiro et al., 1994	Adults	Community	Major Depressive Episode (DSM-III); BDI > 16	1. STPP-8 2. STPP-16 3. CBT-8 4. CBT-16	30 28 29 30	8 16	Individual	BDI, SCL-90D	Pre, post, 3-month, 1 year	4, 5, 6
Steuer et al., 1984	Older adults	Community	Major Depressive Disorder (DSM-III); HAMD > 16	1. STPP 2. CBT	17 16	37.5	Group	HAMD, ZDS, BDI	Pre, post	–
Thompson, Gallagher and Breckenridge, 1987	Older adults	Community	Major Depressive Disorder (RDC); BDI > 17; HAMD > 14	1. STPP 2. BT 3. CT	30 30 31	16–20	Individual	BDI, HAMD, GDS, BSI-D	Pre, post	1, 2, 3, 4, 6
Thyme et al., 2007	Adults	Clinical	Dysthymic disorder (DSM-IV) or Depressive symptoms/difficulties	1. STPP 2. STPP-art	18 21	10	Individual	SCL-90D, BDI	Pre, post, 3-month	–

Note. AD = Antidepressant medication; BDI = Beck Depression Inventory; BSI-D = Depression subscale Brief Symptom Inventory; BT = Behavior Therapy; CAU = Care as usual; CBT = Cognitive Behavioral Therapy; CT = Cognitive therapy; DSM = Diagnostic and Statistical Manual; EPDS = Edinburg Postnatal Depression Scale; GDS = Geriatric Depression Scale; HAMD = Hamilton Depression Rating Scale; MMPI-D = Minnesota Multi Personality Inventory Depression Scale; *N* = number of subjects; NDC = Nondirective Counseling; N_{SE} = number of sessions; RDC = Research Diagnostic Criteria; RTIS = Raskin Three Item Scale; SCL-90D = Depression subscale Symptom Checklist; SMD = Self-instruction Method for Depression; STPP = Short-term Psychodynamic Psychotherapy; VAS = Visual Analogue Scale; WL = Waitlist control group; ZDS = Zung Depression Scale.
1 = Svartberg and Stiles, 1991; 2 = Crits-Christoph, 1992; 3 = Anderson and Lambert, 1995; 4 = Leichsenring, 2001; 5 = Churchill et al., 2001; 6 = Leichsenring, Rabung, and Leibing, 2004; 7 = Abbass, 2006.
[a] Unpublished data provided by the authors.

author. No language or date restrictions were applied in the searches. After induplication, this search resulted in 4142 hits (PubMed 1165; PsychINFO 1012; Embase.com 2338; Web of Science 662; CENTRAL 71). Second, we searched an internet database of controlled and comparative outcome studies on psychological treatments of depression (http://www.psychotherapyrcts.org; Cuijpers, van Straten,

Warmerdam, & Andersson, 2008). Third, 43 reviews and meta-analyses concerning treatment of depression or STPP were screened for additional relevant studies. Fourth, in order to identify relevant studies from the so-called 'grey literature', we searched GLIN, a Dutch electronic database for grey literature (0 hits) and UMI database ProQuest for digital dissertations (133 hits). Fifth, prospective trial registers were searched for unpublished ongoing research (http://www.controlled-trials.com; 21 hits). The grey literature and prospective trial register searches were conducted using the search terms and strategy described above. Sixth, we contacted the authors of the included studies to ask them for additional information and unpublished data.

2.2. Selection of studies

We included studies if they reported (a) depression scores on standardized measurements of (b) depressed (c) adult patients (d) receiving STPP. Participants were considered depressed if they met specified criteria for major depressive disorder or mood disorders, or if they presented an elevated score on a standardized measure of depression. Participants had to be at least 18 years old, and studies concerning older adults (mean age > 55) were included as well. We included studies in which STPP (a) was based on psychoanalytic theories and practices, (b) was time-limited from the onset (i.e. not a therapy that was brief only in retrospect), and (c) applied verbal techniques (e.g., therapies applying art as expression form were excluded). Studies assessing the efficacy of Interpersonal Psychotherapy (IPT) were excluded, as IPT was not regarded as a psychodynamic psychotherapy by the founders of this treatment method (Klerman, Weissman, Rounsaville, & Chevron, 1984; Klerman & Weissmann, 1987). Studies had to include at least 10 subjects. Case studies were therefore excluded.

The screening process consisted of three phases. At first the selection criteria were applied to the citations generated from the searches independently by two raters. Disagreements were discussed and resolved in consensus. A third reviewer was consulted about cases with unresolved disagreements. Unless they could be definitely excluded, titles identified as potentially relevant were requested in full text. During the second screening phase two independent raters applied the selection criteria to the full-text papers to make the final inclusion/exclusion decision. Disagreements were discussed and resolved in consensus. In cases of unresolved disagreements, a third reviewer was consulted. During the third phase, the included papers were checked by two of the authors (FdJ and SdM) to confirm the therapy used met the criteria for STPP.

2.3. Meta-analysis

We conducted different meta-analyses, assessing the pre- to post-treatment change and the post-treatment to follow-up change in the STPP conditions, and assessing the comparison of STPP with control conditions or alternative treatments at post-treatment and follow-up. Therefore, different effect sizes (*d*) were computed for each of the primary studies. The pre- to post-treatment STPP effect size was calculated by subtracting the average post-treatment score from the average pre-treatment score and dividing the result by the pooled standard deviations of both groups. The effect size of STPP at follow-up was calculated by subtracting the average follow-up score from the average post-treatment score and dividing the result by the pooled standard deviations of both groups. The comparative effect sizes of STPP with control groups and other treatments at post-treatment and follow-up were calculated by subtracting the average score of the alternative condition from the average score of the STPP condition and dividing the result by the pooled standard deviations of both conditions. Effect sizes of 0–0.32 are assumed to be small, whereas effect sizes of 0.33–0.55 are considered moderate, and effect sizes of 0.56–1.2 are large (Lipsey & Wilson, 1993).

Although all the studies reported on depression, other outcome measures (e.g., anxiety symptoms, general psychiatric symptoms, interpersonal functioning, cost effectiveness) were included irregularly. Therefore, we used depressive symptoms as the sole outcome measure for this meta-analysis. Only instruments explicitly measuring depression were used in the calculation of effect sizes. When means and standard deviations were not reported, we used other statistics (e.g., *t*-value, *p*-value) to compute the effect sizes ($n = 1$). When means and standard deviations were not present and no statistical test between the relevant scores was presented, the effect size could not be calculated and the study was excluded from the meta-analysis ($n = 9$). If more than one depression measure was used, the mean effect size from the different measures was computed for the study ($n = 13$). If the treatment conditions included different subgroups (for instance typical and atypical depressed participants) a single mean effect size from the different groups was computed for the study ($n = 6$). As a result, each study was represented by only one effect size in the meta-analysis.

To calculate the pooled mean effect sizes, we used the computer program Comprehensive Meta-analysis (version 2.2.021; Biostat, Englewood, NJ, USA), developed for support in meta-analysis. As considerable heterogeneity of the included studies was expected, we computed the pooled mean effect sizes using the random effects model. In the random effects model the included studies are seen as a sample drawn from a population of studies, rather than replications of each other, so that not only the random error within the studies, but also the true variations of effect sizes from one study to the next are taken into account. Consequently, the random effects model results in broader 95%-confidence intervals (95% CI) and more conservative results.

As an indicator of homogeneity, we calculated the *Q*-statistic. A significant *Q*-value rejects the null hypothesis of homogeneity. We also calculated the I^2-statistic, which is an indicator of heterogeneity in percentages. A value of 0% indicates no observed heterogeneity, and larger values show increasing heterogeneity, with 25% indicating low, 50% indicating moderate, and 75% indicating high heterogeneity (Higgins, Thompson, Deeks, & Altman, 2003).

We tested publication bias by means of Duval and Tweedie's trim and fill procedure (Duval & Tweedie, 2000; as implemented in Comprehensive Meta-analysis, version 2.2.021). This procedure yields an estimate of the effect size after publication bias has been taken into account, by calculating adjusted values of the pooled mean effect sizes and 95%-confidence intervals. In this procedure, we used the random effects model too.

2.4. Subgroup analyses

Subgroup analyses were conducted according to the procedures implemented in Comprehensive Meta-analysis version 2.2.021. In subgroup analyses, studies are divided into two or more subgroups. For each subgroup the pooled mean effect size is calculated, and a test is conducted to examine whether the subgroups' effect sizes differ significantly from one another. We used the mixed effects method of subgroup analyses, which pools studies within subgroups with the random effects model, but tests for significant differences between the subgroups with the fixed effects model.

We conducted subgroup analyses for the following characteristics, which were reported in most of the studies, and which we considered to be core characteristics:

- Study type: randomized controlled trial (RCT), non-random controlled study or open study;
- Use of antidepressants during STPP: yes (antidepressant use was permitted during STPP or no information on antidepressant use was reported) or no (antidepressant use was not permitted during STPP);

- Blinding of the outcome assessor: yes or no (outcome assessors were not blinded or blinding was not reported);
- Outcome analyses: intention-to-treat analyses or completers-only analyses;
- Recruitment method: community (recruiting participants from general community through local media announcements or flyers, with participants taking the initiative to participate in the study), clinical (recruiting participants from general practice populations or outpatient samples, who actively sought help for depression first and were then asked to participate in the study) or other (for instance systematic screening, recruiting participants from hospital populations, a combination of methods, or no recruitment method reported);
- Depression diagnosis: major depressive disorder or other (general mood disorders or a high score on a standardized depression measure);
- Target group: adults or older adults (mean age > 55);
- Intervention format: individual or group;
- Use of a treatment manual: yes or no (no manual used or no manual reported);
- Treatment integrity check: yes (integrity check by means of supervision of the therapists during treatment and/or the recording of treatment sessions) or no (no integrity check used or no check reported);
- Therapist training: yes (therapists were specifically trained for the treatment in general, or received specific training for the study intervention) or no (therapists were not trained or no training was reported);
- STPP mode: supportive or expressive, according to the definition described above and rated by two of the authors (FdJ and SdM).

Meta-regression analyses were conducted to assess whether pre-treatment BDI-score, gender, mean age, and number of sessions predicted the effect sizes.

3. Results

3.1. Inclusion of studies

The literature search resulted in 5073 citations and 43 reviews including potentially relevant references. The majority of these citations and references were excluded in the first screening phase. A total of 218 titles were requested in full-text and screened by two raters independently in the second screening phase. The most important reason for exclusion in this phase was a heterogeneous research population that did not include depressed patients exclusively ($n = 59$). In the case of a heterogeneous study sample including more than 10 participants diagnosed as depressed in an open study, the authors were contacted with a request for subgroup data. The second screening phase resulted in 84 papers, a number of which reported on the same study population. After removing redundant studies, 42 primary studies remained. Nine studies were excluded because treatment consisted of a combination of STPP and placebo or STPP and other treatments, such as antidepressants (Bellack, Hersen, & Himmelhoch, 1981; Burnand, Andreoli, Kolatte, Venturini, & Rosset, 2002; Covi, Lipman, Derogatis, Smith, & Pattison, 1974; Franke, Hoffmann, & Frommer, 2005; Lesgourgues, Birmes, Sterck, Gillieron, & Schmitt, 2000; Lesse, 1978; Maina et al., 2004; Maina, Rosso, Crespi, & Bogetto, 2007; Molenaar et al., 2007). Nine studies did not report the requisite data for effect size calculation (Barkham et al., 1996; Covi & Lipman, 1987; Gallagher-Thompson & Steffen, 1994; Huber, Henrich, & Klug, 2007; LaPointe & Rimm, 1980; Lopez Rodriguez, Lopez Butron, Vargas Terrez, & Salcedo, 2004; McLean & Hakstian, 1979; Sanchez, Lewinsohn, & Larson, 1980; Schwarz, 1982). One study was excluded, because STPP was not focused on the treatment of depression, but on the treatment of complicated grief (Ogrodniczuk, Piper, & Joyce, 2004). Accordingly, a total of 23 studies were included in the meta-analyses.

3.2. Study characteristics

The 23 included studies encompassed a total of 1365 subjects (713 in the STPP conditions, 551 in the alternative psychotherapy conditions, and 101 in the control conditions). Table 1 outlines the characteristics of the included studies. The majority of the studies ($n = 20$) included adult subjects, and three studies included older adults. Nine studies recruited participants from the community, whereas 10 studies recruited participants from clinical populations. In the four remaining studies, other recruitment methods were used or the recruitment method was not described. The included studies applied different depression diagnoses, generally combining a diagnosis for major depressive disorder or mood disorder with elevated scores on a standardized depression measure as inclusion criteria. Mean pre-test scores on the Beck Depression Inventory (BDI) ranged from 13.54 to 27.63, suggesting study participants had mild to moderately severe depression.

The majority of studies ($n = 16$) compared STPP with a control condition (waiting list or care as usual) or with an alternative treatment condition (e.g. CBT or ST); seven studies included a STPP condition only. The number of patients in the STPP conditions ranged from 5 to 106. The majority of the studies used an individual treatment format ($n = 16$), but seven studies employed STPP in groups or in a combination of individual and group therapy. Different STPP types were used, 12 of which were rated as supportive and 11 as expressive. The number of therapy sessions in the STPP conditions ranged from 3 to 80. A number of different outcome measures were used to assess depression; the most frequently used instruments were the Beck Depression Inventory (BDI), the Hamilton Depression Rating Scale (HAMD), the Zung Depression Scale (ZDS), the depression subscale of the Brief Symptom Inventory (BSI-D) and depression subscale of the Symptom Checklist (SCL-90D). In addition to pre- and post-treatment assessments, 13 studies reported follow-up assessments ranging from 3 weeks to 5 years.

The quality of the 23 included studies was not optimal. Although 13 studies were randomized controlled trials, three studies used a non-random comparative design and seven studies used a naturalistic design without a control group. The use of antidepressants during psychotherapy was not permitted in nine studies, whereas 14 did accept the use of antidepressants or did not report on it. Four studies blinded the outcome assessors, but the other 19 studies did not blind the assessors or did not report on it. Intention-to-treat analyses were used in seven studies; sixteen studies used completers-only analyses or did not report on the analyses used. Treatment manuals were used in 10 studies, and not used or not reported in the other 13. Treatment integrity was checked in 16 studies, and not checked or reported in seven studies. Therapists were trained for the therapies in 21 studies; they were not trained in two studies.

3.3. STPP versus control conditions

STPP could be compared to control groups at post-treatment in five studies (Table 2), totaling 196 subjects (97 in the STPP conditions and 99 in the control conditions). The control conditions consisted of waitlist control groups ($n = 4$) and care as usual ($n = 1$). The effect sizes and 95%-confidence intervals of the included studies are plotted in Fig. 1. The pooled effect size indicating the difference between STPP and the control conditions at post-treatment was 0.69 (95% CI: 0.30–1.08), significantly in favor of STPP. Heterogeneity was low ($Q = 6.01$, $p = .20$; $I^2 = 33.42\%$). Comparing STPP with control groups in RCTs only resulted in a higher post-treatment effect size ($d = 0.80$, 95% CI: 0.32–1.28), also significantly in favor of STPP.

Table 2
Meta-analyses of studies examining the effects of STPP for depression.

Comparison	*N*	*d*	95% CI	*Z*	*Q*	I^2
All studies						
STPP vs. control groups at post-treatment						
All studies	5	0.69	0.30–1.08	3.47**	6.01	33.42
STPP pre- to post-treatment change						
All studies	21	1.34	1.13–1.55	12.42**	49.36**	59.48
Outliers excluded[a]	18	1.30	1.17–1.43	19.46**	15.56	0.00
Only BDI	12	1.35	1.10–1.61	10.31**	22.69*	51.51
Only HAMD	10	1.87	1.47–2.27	9.16**	28.49**	68.41
STPP post-treatment to follow-up change						
Posttest — 3 months	6	0.03	−0.20–0.26	0.26	0.90	0.00
Posttest — 6 months	5	0.05	−0.25–0.35	0.33	3.28	0.00
Posttest — 12 months	8	−0.04	−0.21–0.12	−0.52	5.92	0.00
STPP vs. other psychotherapies at post-treatment						
All studies	13	−0.30	−0.54 to −0.06	−2.41*	24.35*	50.72
One ES per study	13	−0.30	−0.54 to −0.05	−2.39*	23.93*	49.86
Only BDI	9	−0.32	−0.64 to −0.01	−2.01*	17.99*	55.54
Only HAMD	5	−0.09	−0.41–0.24	−0.53	2.73	0.00
STPP vs. other psychotherapies at follow-up						
3 months	6	−0.05	−0.29–0.19	−0.44	5.28	5.34
12 months	4	−0.29	−0.61–0.02	*−1.84*	3.94	23.83
RCTS only						
STPP vs. control groups at post-treatment						
All studies	4	0.80	0.32–1.28	3.27**	5.19	42.18
STPP pre- to post-treatment change						
All studies	11	1.30	1.13–1.46	15.52**	8.35	0.00
Outliers excluded	11	1.30	1.13–1.46	15.52**	8.35	0.00
Only BDI	8	1.39	1.14–1.64	10.99**	8.89	21.22
Only HAMD	6	1.57	1.19–1.96	7.99**	*10.46*	52.19
STPP post-treatment to follow-up change						
Posttest — 3 months	5	0.03	−0.20–0.26	0.25	0.90	0.00
Posttest — 6 months	3	0.21	−0.36–0.77	0.71	2.56	21.73
Posttest — 12 months	5	0.02	−0.22–0.26	0.15	4.62	13.41
STPP vs. other psychotherapies at post-treatment						
All studies	10	−0.35	−0.64 to −0.06	−2.37*	22.08*	59.24
One ES per study	10	−0.35	−0.63 to −0.07	−2.44*	20.58*	56.26
Only BDI	7	−0.35	−0.65 to −0.05	−2.30*	*11.01*	45.48
Only HAMD	3	−0.14	−0.53–0.26	−0.68	1.23	0.00
STPP vs. other psychotherapies at follow-up						
3 months	5	−0.09	−0.32–0.15	−0.73	3.75	0.00
12 months	4	−0.29	−0.61–0.02	*−1.84*	3.94	23.83

Note. BDI = Beck Depression Inventory; ES = effect size, HAMD = Hamilton Depression Rating Scale; RCT = Randomized Controlled Trail; STPP = Short-term Psychodynamic Psychotherapy.
*$p < .05$; **$p < .01$; Italic numbers indicate a non-significant trend ($p < .10$).
[a] Abbass, 2006; Gilbert, 1982; Reis and Grenyer, 2004.

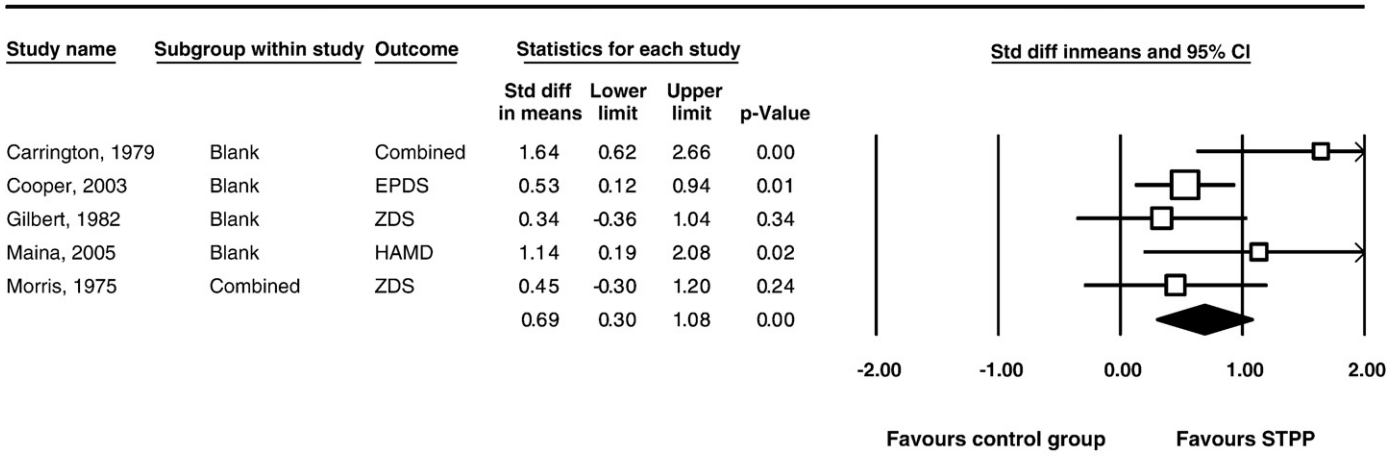

Fig. 1. STPP vs. control groups at post-treatment. *Note.* EPDS = Edinburgh Postnatal Depression Scale; HAMD = Hamilton Depression Rating Scale; STPP = Short-term Psychodynamic Psychotherapy; ZDS = Zung Depression Scale.

Because of the small number of studies, we did not conduct subgroup analyses. STPP was compared with a control condition at follow-up in only one study (Cooper, Murray, Wilson, & Romaniuk, 2003), which reported effect size data at 4.5 months ($d = -0.06$, $p = .79$), 1 year ($d = -0.04$, $p = .85$) and 5 year ($d = 0.17$, $p = .50$) follow-up. Therefore, we did not conduct a meta-analysis comparing STPP with control groups at follow-up.

3.4. STPP pre- to post-treatment change

We could compare the STPP pre- to post-treatment depression change in 21 studies, totaling 641 subjects (Table 2). The mean pooled effect size was 1.34 (95% CI: 1.13–1.55). Heterogeneity was moderate ($Q = 49.36$, $p = .00$; $I^2 = 59.48\%$). The effect sizes and 95%-confidence intervals of the included studies are plotted in Fig. 2, which shows that the 95%-confidence intervals of three studies did not overlap with the confidence interval of the pooled mean effect size (Abbass, 2006; Gilbert, 1982; Reis & Grenyer, 2004). When these outliers were excluded, the pooled mean effect size was 1.30 (95% CI: 1.17–1.43). When only the BDI was used as outcome measure, the pooled mean effect size was 1.35 ($n = 12$; 95% CI: 1.10–1.61). The effect size was 1.87 when only the HAMD was used as outcome measure ($n = 10$; 95% CI: 1.47–2.27). All these pooled mean effect sizes were significant and indicate a large pre- to post-treatment decrease of depression in the STPP conditions. Repeating these analyses including RCTs only resulted in similar pre- to post-treatment effect sizes (all studies: $d = 1.30$; one ES per study: $d = 1.30$; BDI only: $d = 1.39$), although the effect size was lower using the HAMD as outcome measure only ($d = 1.57$; Table 2).

We conducted subgroup analyses (Table 3). Studies in which treatment format was individual yielded significantly higher effect sizes than studies in which STPP was provided in group format ($d = 1.48$ vs. $d = 0.83$; $p = .01$). No significant differences in pre- to post-treatment effect size were found between the subgroups of RCTs, non-random controlled studies and open studies (respectively, $d = 1.30$; $d = 1.01$; $d = 1.55$, $p = .48$). The supportive and the expressive STPP modes resulted in equal pre-treatment to post-treatment effect sizes (respectively, $d = 1.36$; $d = 1.30$, $p = .79$). In addition, no significant differences were found for the use of anti-depressants during treatment (yes: $d = 1.33$; no: $d = 1.33$, $p = .97$), blinding of the outcome assessors (yes: $d = 1.22$; no: $d = 1.36$; not described: $d = 1.28$, $p = .77$), outcome analyses (intention-to-treat: $d = 1.31$; completers-only/unclear: $d = 1.34$; $p = .87$), subject recruitment method (community: $d = 1.37$; clinical: $d = 1.33$; other/unclear: $d = 1.24$, $p = .96$), depression diagnosis (major depression: $d = 1.37$; other definition: $d = 1.30$, $p = .73$), target group (adults: $d = 1.37$; older adults: $d = 1.19$, $p = .47$), use of a treatment manual (yes: $d = 1.32$; no/unclear: $d = 1.36$, $p = .86$), the inclusion of a treatment integrity check (yes: $d = 1.38$; no: $d = 1.26$, $p = .71$), and therapist training (yes: $d = 1.37$; no: $d = 0.99$, $p = .18$). Meta-regression of the pre-treatment BDI scores (slope = 0.006), the percentage of women (slope = 0.005), the number of sessions (slope = −0.003), and mean age (slope = 0.001) on the pooled mean effect size revealed no significant effects ($p = .80$; $p = .17$; $p = .42$ and $p = .87$ respectively).

3.5. STPP post-treatment to follow-up change

We compared the post-treatment STPP depression scores with the scores at follow-up (Table 2). We could calculate the change between post-treatment and 3-month follow-up from six studies, including 150 subjects. The effect size was 0.03 (95% CI: −0.20–0.26) indicating a very small and non-significant decrease in depression scores at

Study name	Subgroup within study	Outcome	Statistics for each study			
			Std diff in means	Lower limit	Upper limit	p-Value
Abbass, 2002	Combined	BDI	1.42	0.99	1.84	0.00
Abbass, 2006	Blank	Combined	2.93	1.66	4.19	0.00
Barber, 2005	Blank	BDI	1.34	0.95	1.74	0.00
Barkham, 1999	Blank	BDI	1.34	0.93	1.76	0.00
Carrington, 1979	Blank	Combined	1.36	0.35	2.36	0.01
de Jonghe, 2004	Blank	Combined	1.16	0.87	1.46	0.00
Gallagher, 1982	Blank	Combined	0.99	0.04	1.94	0.04
Gilbert, 1982	Blank	ZDS	0.03	-0.69	0.75	0.94
Hilsenroth, 2007	Combined	Combined	1.56	1.01	2.12	0.00
Kornblith, 1983	Blank	Combined	2.59	0.84	4.35	0.00
Lehto, 2008	Combined	Combined	1.29	0.59	1.99	0.00
Liberman, 1981	Blank	Combined	0.73	-0.10	1.56	0.08
Lotz, 2006	Blank	SCL-90D	0.75	0.18	1.33	0.01
Maina, 2005	Blank	HAMD	1.28	0.32	2.24	0.01
Philips, 2006	Group	SCL-90D	1.13	0.06	2.19	0.04
Reis, 2004	Blank	HAMD	2.24	1.78	2.71	0.00
Salminen, 2008	Blank	Combined	2.04	1.33	2.75	0.00
Shapiro, 1994	Combined	Combined	1.50	1.09	1.92	0.00
Steuer, 1984	Blank	Combined	1.08	0.34	1.82	0.00
Thompson, 1987	Blank	Combined	1.33	0.76	1.89	0.00
Thyme, 2007	Blank	Combined	1.15	0.50	1.81	0.00
			1.34	1.13	1.55	0.00

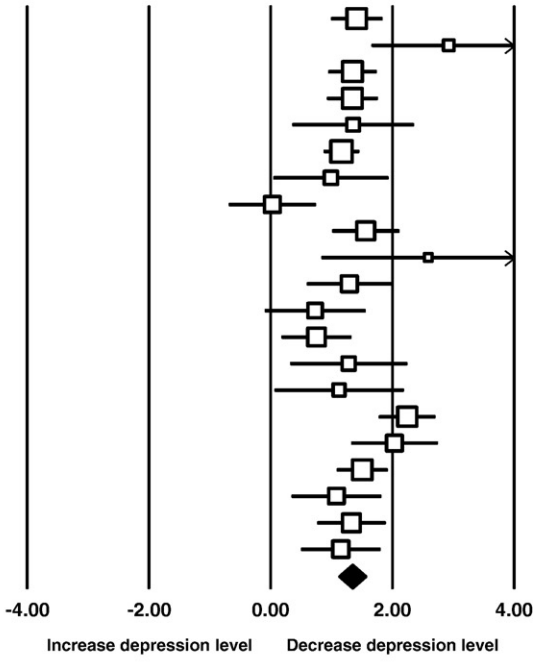

Fig. 2. STPP pre- to post-treatment depression change. *Note.* BDI = Beck Depression Inventory; HAMD = Hamilton Depression Rating Scale; SCL-90D = Symptom Checklist, depression subscale; STPP = Short-term Psychodynamic Psychotherapy; ZDS = Zung Depression Scale.

Table 3
Subgroup analyses STPP pre- to post-treatment change.

Subgroups	N	d	95% CI	Z	Q	I^2	p
Study characteristics							
Study type							0.48
RCT	11	1.30	1.13–1.46	15.52**	8.35	0.00	
Non-random controlled study	3	1.01	−0.15–2.17	*1.71*	8.86**	77.42	
Open study	7	1.55	1.13–1.97	7.19**	22.41**	73.22	
Antidepressant use							0.97
Yes	12	1.33	1.00–1.66	7.91**	39.01**	71.80	
No	9	1.33	1.10–1.57	11.21**	10.17	21.31	
Blinding							0.77
Yes	4	1.22	0.95–1.49	8.98**	2.57	0.00	
No	7	1.36	1.08–1.65	9.32**	*10.93*	45.10	
Not described	10	1.28	0.88–1.67	6.31**	34.68**	74.05	
Outcome analyses							0.87
Intention-to-treat	7	1.31	0.98–1.63	7.89**	10.01	40.05	
Completers-only/ unclear	14	1.34	1.06–1.62	9.44**	38.39**	66.14	
Participant characteristics							
Recruitment							0.96
Community	9	1.37	1.17–1.57	13.51**	3.74	0.00	
Clinical	9	1.33	1.01–1.65	8.17**	17.46*	54.19	
Other/unclear	3	1.24	0.17–2.31	2.27*	26.56**	92.47	
Diagnosis							0.73
Major depression	10	1.37	1.00–1.75	7.13**	35.84**	74.89	
Other definition	11	1.30	1.08–1.51	11.75**	13.17	24.09	
Target group							0.47
Adults	18	1.37	1.13–1.60	11.19**	48.29**	64.80	
Older adults	3	1.19	0.79–1.60	5.78**	0.48	0.00	
Intervention characteristics							
Format							0.01*
Individual	15	1.48	1.28–1.67	14.85**	25.64*	45.41	
Group	6	0.83	0.36–1.30	3.45**	*9.37*	46.64	
Treatment manual							0.86
Yes	9	1.32	1.16–1.48	16.28**	3.03	0.00	
No/unclear	12	1.36	0.93–1.79	6.21**	46.09**	76.13	
Integrity check							0.71
Yes	14	1.38	1.19–1.58	13.63**	23.95*	45.73	
No	7	1.26	0.65–1.87	4.04**	24.04**	75.04	
Training							0.18
Yes	19	1.37	1.15–1.60	12.00**	46.84**	62.17	
No	2	0.99	0.48–1.50	3.78**	0.61	0.00	
STPP mode							0.79
Supportive	10	1.36	1.06–1.67	8.72**	32.31**	72.14	
Expressive	11	1.30	1.00–1.60	8.56**	*16.74*	40.26	

Note. RCT = Randomized Controlled Trail; STPP = Short-term Psychodynamic Psychotherapy.
*$p<.05$; **$p<.01$; Italic numbers indicate a non-significant trend ($p<.10$).

follow-up when compared to post-treatment. At 6-month follow-up, the effect size could be calculated from five studies, totaling 101 subjects, and resulting in a small non-significant decrease of depression level as well ($d=0.05$; 95% CI: −0.25–0.35). Eight studies, encompassing 300 subjects, reported depression scores at 1-year follow-up. Depression level increased 1 year after treatment when compared to post-treatment, but the effect size was small and non-significant ($d=-0.04$; 95% CI: −0.21–0.12). Heterogeneity was low in all three post-treatment to follow-up analyses ($Z=-0.52$–0.33 ns, $I^2=0.00$). Including RCTs in the analyses only, resulted in non-significant post-treatment to follow-up changes in depression level at 3-month ($d=0.03$), 6-month ($d=0.21$) and 1-year ($d=0.02$) follow-up as well (Table 2). Because of the small number of studies, we did not conduct subgroup analyses.

3.6. STPP versus other psychotherapies at post-treatment

STPP was compared with other treatments in 15 studies. One study compared STPP with antidepressants (Salminen et al., 2008) and one study compared STPP with combined STPP and antidepressants (de Jonghe et al., 2004). Because these numbers were too small to calculate separate analyses, we compared STPP with other psychotherapies only. We could compare STPP with other psychotherapies at post-treatment in 13 studies, totaling 17 comparisons over 735 subjects (303 in the STPP conditions and 432 in the other psychotherapy conditions). The other psychotherapies consisted of cognitive behavioral therapy ($n=5$), cognitive therapy ($n=3$), behavior therapy ($n=6$), supportive therapy ($n=1$), non-directive counseling ($n=1$), and art therapy ($n=1$). Table 2 shows the results of this comparison and Fig. 3 reports the effect sizes and 95%-confidence intervals of the included studies. The pooled mean effect size for the difference at post-treatment was −0.30 (95% CI: −0.54 to −0.06), indicating a small but significant superiority of the other psychotherapies. Heterogeneity was moderate ($Q=24.35$, $p=.02$; $I^2=50.72\%$). The effect size was significantly in favor of the other psychotherapies as well when only one comparison per study was used ($d=-0.30$; 95% CI: −0.54 to −0.05). Using only the BDI as outcome measure ($N=9$), the pooled mean effect size indicating the difference at post-treatment was −0.32 (95% CI: −0.64 to −0.01), significantly in favor of the other psychotherapies. Using only the HAMD as outcome measure ($n=5$), no significant differences between STPP and other treatments at post-treatment were found ($d=-0.09$; 95% CI: −0.41–0.24). Comparing STPP with other psychotherapies in RCTs only resulted in a similar pattern of post-treatment effect sizes (all studies: $d=-0.35$; one ES per study: $d=-0.35$; BDI only: $d=-0.35$; HAMD only: $d=-0.14$; Table 2).

In subgroup analyses (Table 4), we found no significant post treatment effect size differences ($p=.48$) in STPP versus other psychotherapies between RCTs ($d=-0.35$) and non-random controlled studies ($d=-0.16$). The supportive and the expressive STPP modes resulted in equal STPP versus other psychotherapies post-treatment effect sizes too (respectively, $d=-0.25$; $d=0.47$, $p=.51$). Furthermore, we found no significant differences for the use of antidepressants during treatment (yes: $d=-0.30$; no: $d=-0.29$, $p=.99$), blinding of the outcome assessors (yes: $d=-0.25$; no/not described: $d=-0.30$, $p=.57$), outcome analyses (intention-to-treat: $d=-0.45$; completers-only: $d=-0.27$; $p=.57$), subject recruitment method (community: $d=-0.32$; clinical: $d=-0.46$; other/unclear: $d=0.03$, $p=.25$), depression diagnosis (major depression: $d=-0.20$; other definition: $d=-0.50$, $p=.30$), target group (adults: $d=-0.31$; older adults: $d=-0.28$, $p=.93$), treatment format (individual: $d=-0.19$; group: $d=-0.50$, $p=.30$), use of a treatment manual (yes: $d=-0.24$; no/unclear: $d=-0.38$, $p=.64$), the inclusion of a treatment integrity check (yes: $d=-0.31$; no: $d=-0.30$, $p=.98$), and therapist training (yes: $d=-0.30$; no: $d=-0.36$, $p=.93$). Meta-regression of the pre-treatment BDI level (slope = −0.035), the percentage of women (slope = 0.002), the number of sessions (slope = −0.010), and mean age (slope = −0.001) on the pooled mean effect size revealed no significant effects ($p=.08$; $p=.57$; $p=.27$ and $p=.89$ respectively).

3.7. STPP versus other psychotherapies at follow-up

Six studies compared STPP with other psychotherapies at 3-month follow-up (Table 2). The effect size was −0.05 (95% CI: −0.29–0.19), indicating a small and non-significant superiority of the other psychotherapies. Only two studies reported a comparison of STPP with other psychotherapies at 6-month follow-up. Therefore, no effect size was computed for this assessment moment. Four studies reported STPP versus other psychotherapies at 1-year follow-up, resulting in a non-significant trend favoring the other psychotherapies ($d=-0.29$; 95% CI: −0.61–0.02; $p=.07$). Similar effect sizes for 3-month ($d=-0.09$) and 1-year follow-up ($d=-0.29$; Table 2) were found when including only RCTs.

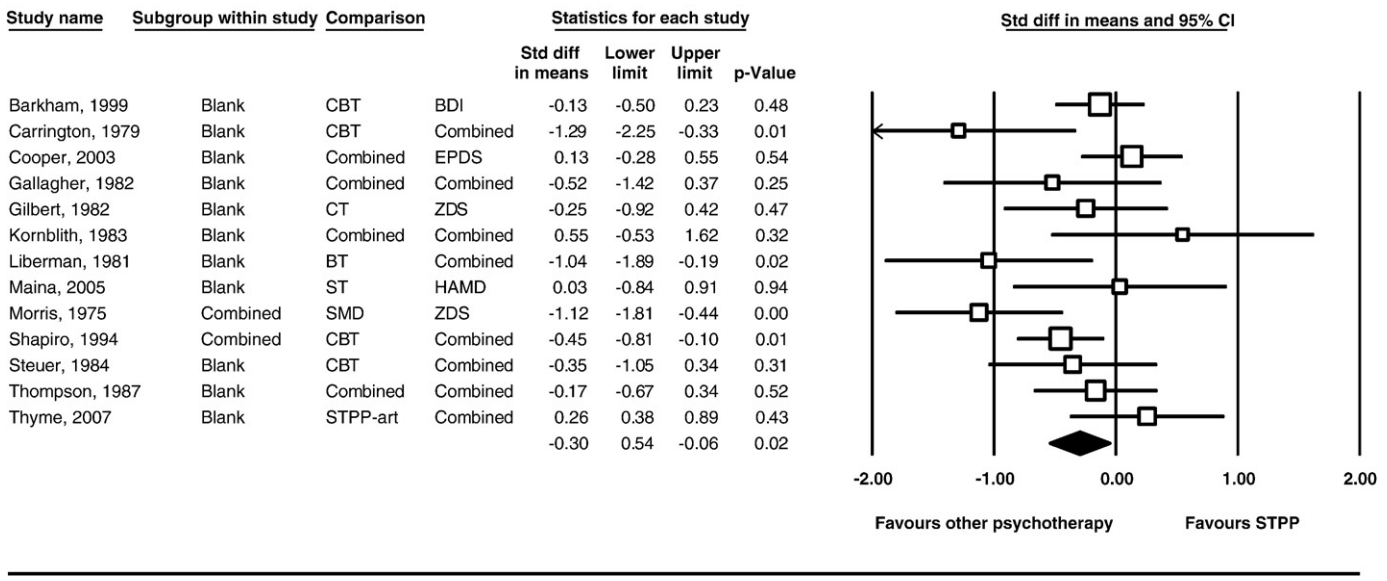

Fig. 3. STPP vs. other psychoterapies at post-treatment. *Note.* BDI = Beck Depression Inventory; BT = Behavioral Therapy; CBT = Cognitive Behavioral Therapy; CT = Cognitive Therapy; EPDS = Edinburgh Postnatal Depression Scale; HAMD = Hamilton Depression Rating Scale; SCL-90D = Symptom Checklist, depression subscale; SMD = Self-instruction Method for Depression; ST = Supportive Therapy; STPP = Short-term Psychodynamic Psychotherapy; STPP = Short-term Psychodynamic Art Therapy; ZDS = Zung Depression Scale.

3.8. Publication bias analyses

Publication bias analyses were performed for all of the main comparisons, using the Duval and Tweedie's trim and fill procedure (Duval & Tweedie, 2000). Some evidence for publication bias was found. The effect size comparing STPP with control groups at post-treatment was lower when adjusted for publication bias ($d = 0.56$; 95% CI: 0.11–1.02; number of trimmed studies = 1). The adjusted STPP pre-treatment to post-treatment effect size, on the other hand, was higher ($d = 1.48$; 95% CI: 1.26–1.71; number of trimmed studies = 4). In addition, the post-treatment to follow-up change was lower at 3 months ($d = -0.07$; 95% CI: −0.26–0.11; number of trimmed studies = 3) and 1 year ($d = -0.02$; 95% CI: −0.18–0.14; number of trimmed studies = 2), still indicating a non-significant change, however. When comparing STPP with other psychotherapies at 1-year follow-up, the effect size adjusted for publication bias was lower ($d = -0.24$; 95% CI: −0.55–0.05; number of trimmed studies = 1).

Some evidence for publication bias was also found in the analyses including the RCTs only. The effect size comparing STPP with control groups at post-treatment was lower when adjusted for publication bias ($d = -0.63$; 95% CI: 0.09–1.18; number of trimmed studies = 1). In addition, the post-treatment to follow-up change was lower at 3 months ($d = -0.09$; 95% CI: −0.28–0.09; number of trimmed studies = 3) and higher at 1 year ($d = 0.05$; 95% CI: −0.18–0.27; number of trimmed studies = 1), both still indicating a non-significant change. When comparing STPP with other psychotherapies, the effect size adjusted for publication bias was lower at post-treatment ($d = -0.29$; 95% CI: −0.58–0.00; number of trimmed studies = 1) and 1-year follow-up ($d = -0.24$; 95% CI: −0.54–0.06; number of trimmed studies = 1). Although these results suggest some publication bias, the results of this study were not significantly altered after adjusting for this publication bias.

4. Discussion

In this study we found clear indications that STPP is effective in the treatment of depression in adults. The pre- to post-treatment effect sizes were consistently large, indicating a significant reduction of depressive symptoms after STPP. These reductions were maintained at 3-month, 6-month and 1 year follow-up. Moreover, in STPP conditions post-treatment depression levels were significantly lower than in waiting list or care as usual conditions. These results are in line with earlier reviews on the efficacy of STPP for general psychiatric disorders, which generally found STPP superior to minimal or no treatment as well (Svartberg & Stiles, 1991; Crits-Christoph, 1992; Anderson & Lambert, 1995; Leichsenring et al., 2004; Abbass et al., 2006). An extensive and methodologically rigorous meta-analysis on CBT for depression (Gloaguen, Cottraux, Cucherat, & Blackburn, 1998) reported a post-treatment effect size of CBT vs. control conditions of .82, which is similar to the post-treatment effect size of STPP vs. control groups we found including RCTs only ($d = .80$). The only available meta-analysis of IPT for depression (de Mello, de Jesus Mari, Bacaltchuk, Verdeli, & Neugebauer, 2005) reports a weighted mean difference (WMD) of IPT vs. placebo (WMD = −3.57; 95% CI: −5.98–1.16). Using this outcome measure, we found WMD = −2.77 (95% CI: −4.18–1.37) comparing STPP with control groups effect size at post-treatment. We could not compare the pre-treatment to post-treatment effect sizes of STPP with that of CBT and IPT, as pre-treatment to post-treatment effect sizes were not reported in these meta-analyses.

Comparing STPP to other treatments, the different effect size calculations indicated significantly lower post-treatment depression scores in other psychotherapy conditions than in the STPP conditions (all studies: $d = -0.30$; RCTs only: $d = -0.35$). Using the HAMD as the only outcome measure, no significant difference was found between STPP and other psychotherapies at post-treatment (all studies: $d = -0.09$; RCTs only: $d = -0.14$). Rerunning the analyses in this subgroup of studies using the BDI as outcome measure, however, also resulted in smaller and non-significant effect sizes (all studies: $d = -0.14$; RCTs only: $d = -0.20$), suggesting that this finding is more likely the consequence of the selection of studies in this subgroup, rather than the consequence of using an objective outcome measure instead of a self-report questionnaire.

No significant differences between STPP and other psychotherapies were apparent at 3-month follow-up, but a non-significant trend

Table 4
Subgroup analyses STPP vs. other psychotherapies at post-treatment.

Subgroups	*N*	*d*	95% CI	*Z*	*Q*	I^2	*P*
Study characteristics							
Study type							0.48
RCT	10	−0.35	−0.64 to −0.06	−2.37*	22.08*	59.24	
Non-random controlled study	3	−0.16	−0.60–0.29	−0.70	2.02	1.18	
Antidepressant use							0.99
Yes	9	−0.30	−0.57 to −0.03	−2.15*	18.20*	56.05	
No	4	−0.29	−0.94–0.36	−0.87	6.05	50.45	
Blinding							0.93
Yes	3	−0.25	−1.30–0.80	−0.47	6.97*	71.31	
No/not described	10	−0.30	−0.54 to −0.05	−2.39*	17.38*	48.21	
Outcome analyses							0.57
Intention-to-treat	3	−0.45	−1.03–0.12	−1.54	3.09	35.18	
Completers-only	10	−0.27	−0.54–0.01	−1.90*	20.55*	56.21	
Participant characteristics							
Recruitment							0.25
Community	7	−0.32	−0.58 to −0.05	−2.36*	8.50	29.39	
Clinical	4	−0.46	−1.20–0.27	−1.23	11.45*	73.80	
Other/unclear	2	0.03	−0.33–0.38	0.15	0.88	0.00	
Diagnosis							0.30
Major depression	7	−0.20	−0.43–0.03	*−1.71*	6.96	13.77	
Other definition	6	−0.50	−1.00–0.01	*−1.91*	16.66*	70.00	
Target group							0.93
Adults	10	−0.31	−0.62–0.01	−1.91*	23.82**	62.21	
Older adults	3	−0.28	−0.65–0.09	−1.49	0.52	0.00	
Intervention characteristics							
Format							0.30
Individual	8	−0.19	−0.45–0.06	−1.49	*12.19*	42.58	
Group	5	−0.50	−1.02–0.02	*−1.88*	*9.01*	55.59	
Treatment manual							0.64
Yes	7	−0.24	−0.49–0.02	*−1.84*	9.87	39.21	
No/unclear	6	−0.38	−0.91–0.15	−1.40	13.76*	63.66	
Integrity check							0.98
Yes	10	−0.31	−0.58 to −0.04	−2.22*	18.56*	51.52	
No/unclear	3	−0.30	−0.99–0.40	−0.83	*5.74*	65.15	
Training							0.93
Yes	11	−0.30	−0.55 to −0.05	−2.37*	18.57*	46.16	
No	2	−0.36	−1.63–0.91	−0.56	5.73*	82.55	
STPP mode							0.51
Supportive	8	−0.25	−0.51–0.01	*−1.86*	*13.36*	47.61	
Expressive	5	−0.47	−1.07–0.14	−1.52	10.55*	62.10	

Note. RCT = Randomized Controlled Trail; STPP = Short-term Psychodynamic Psychotherapy.
*$p < .05$; **$p < .01$; Italic numbers indicate a non-significant trend ($p < .10$).

did indicate a possible superiority of the other psychotherapies at 1-year follow-up ($d = -0.29$, $p = .07$). These results are in line with the review of Churchill et al. (2001), but contradict the results of Leichsenring (2001), who found STPP equally efficacious as CBT. Leichsenring included six studies comparing STPP and CBT specifically, whereas the current analyses of STPP versus other psychotherapies were based on 13 studies comparing STPP with various psychotherapy methods. The different inclusion criteria and the larger number of studies in the current review may have caused these differences in results.

The effect size favoring other therapies over STPP at post-treatment is small by statistical standards (Lipsey & Wilson, 1993). The clinical relevance of this result might be better reflected in two other effect size measures: number needed to treat (NNT) and area under the receiving operator characteristic curve (AUC; Kraemer & Kupfer, 2006). The NNT is defined as the number of patients one would expect to treat with the other psychotherapies to have one more successful outcome than if the same number of patients were treated with STPP. The AUC refers to the probability that the patient receiving STPP has a treatment outcome preferable to the patient receiving the other psychotherapy. If AUC = .50, the STPP outcome is as likely as not to be better than that the other therapy's outcome, and no difference in treatment effects exists. If AUC = 1.00, every patient receiving STPP has a better outcome than every patient receiving other psychotherapy; and AUC = 0.00 means that every other psychotherapy patient has a better treatment outcome than every patient receiving STPP. When converting the *d*-value into these effect size measures (see Kraemer & Kupfer, 2006), a $d = -0.30$ is equivalent to NNT = −5.95 and AUC = 0.42. Therefore, if approximately 6 patients were treated with other psychotherapies, one would expect one more success than if 6 patients were treated with STPP. The probability that STPP would result in a preferable treatment outcome compared to other psychotherapies is 42%, and the probability that other psychotherapies would result in a better outcome than STPP is 58%. Thus, although the results of this meta-analysis suggest a significant superiority of other psychotherapies over STPP directly at post-treatment, the effect size differences are small, and no significant differences between STPP and the other therapies were found at follow-up.

Subgroup analyses of the pre- to post-treatment change in depression suggested that STPP was more effective in studies where the treatment was employed individually as opposed to group format. This finding is consistent with a recent meta-analysis comparing individual and group therapies in the treatment of depression in adults (Cuijpers, van Straten, & Warmerdam, 2008). In individual therapy, the specific needs of the patient might be better attended to and the therapeutic relationship, which is considered an important therapeutic factor in psychotherapy, might be built more easily,

resulting in more symptom relief when compared to group therapy. This finding might be relevant in optimizing STPP outcomes in clinical practice.

Subgroups analyses further revealed no efficacy differences between recruitment methods, patient diagnosis and target groups, suggesting STPP is well suited to community as well as clinically recruited patients, patients diagnosed with major depressive disorder as well as mood disorders in general, and younger adults as well as older adults. Meta-regression analyses suggested that mean age, pre-treatment BDI scores, and the percentage of women did not predict treatment effects, indicating that STPP is equally suited for people from different age groups, different depression severity levels, and male as well as female patients. Moreover, no differences in effects were found between primarily supportive and primarily expressive STPPs, indicating that both variants are effective.

The results of this meta-analysis should be interpreted with caution, however, because of the limitations of the analysis and the body of studies within it. First, although much effort was made to retrieve a maximum number of relevant studies, we cannot rule out the possibility that we have missed studies meeting the inclusion criteria. We have tried to minimize this possibility by using an extensive search strategy and contacting authors in the case of missing data. Publication bias analyses suggest that, although some studies might have been missed, publication bias did not influence the results significantly. Second, some of the included studies had a very small sample size. Third, the quality of the included studies was not optimal. The number of RCTs included in this meta-analysis is small ($n = 13$). In addition, a number of studies did not include a treatment integrity check or treatment manual; they permitted the use of anti-depressants in addition to psychotherapy, did not train the therapists, or did not include a control group. Despite this, the results from the meta-analyses including RTCs only were similar to the results from the meta-analyses including non-random controlled studies and open studies as well. Furthermore, the subgroup analyses revealed no indications that random allocation to treatment condition and the other factors mentioned influenced treatment effects significantly. Fourth, different STPP methods were used in the included studies. Unfortunately, the number of studies using the same STPP variant was too small to perform subgroup analyses. However, we did find indications that supportive and expressive STPP modes did not differ in their efficacy for the treatment of depression. Fifth, this meta-analysis used depression level as the sole outcome measure. Although additional outcome measures (e.g., social functioning, general psychopathology, quality of life) would have been desirable, reliable effect sizes could not be computed due to the diverse use of these measures in the primary studies.

One might argue that, in addition to the expressive–supportive continuum, STPP types could also be differentiated in more emotion-focused and more interpretive therapy modes. With emotion-focused STPPs the main therapy factor is to mobilize (unconscious) emotions and work through these emotions by challenging the defenses against emotional experiencing. Interpretation is not used or is downplayed in significance. By contrast, the main therapy factor of interpretive STPP modes is the use of interpretation and insight building. Resistances are handled indirectly or bypassed through free association or other supportive techniques, as opposed to challenging them. The role of emotional experiencing is underplayed and emotional focus is not highlighted. In additional subgroup analyses, we found a numerical difference in pre-treatment to post-treatment effect size favoring the emotion-focused STPPs, which did not prove statistically different ($d = 1.71$ vs. $d = 1.26$; $p = .17$). However, the results of this analysis are difficult to interpret due to the small number of studies using emotion-focused STPPs ($n = 3$).

Chambless and Hollon (1998) have provided stringent criteria for empirically supported psychological treatments. These criteria require the demonstration of the superiority of an intervention over placebo, no-treatment control, or alternative treatment, or the demonstration of equal efficacy to an alternative evidence-based treatment by at least two independent research groups using adequate research methods (e.g., RCT-design, the use of treatment manuals, appropriate data analytic procedures). Recently, Connolly Gibbons, Crits-Christoph and Hearon (2008) argued that STPP for depression currently does not meet these criteria, due to the different STPP types studied and the methodological quality of the studies. Our findings confirm that the quality of STPP research so far is not optimal. However, this study also provides clear indications that STPP results in a large and enduring decrease of depression levels, and that STPP is more effective than control conditions. On the basis of these findings, STPP may be considered to be an empirically validated treatment method for depression. Although well-controlled and methodologically sound studies are necessary to assess the efficacy of the STPP variants within different patient groups, the current findings add to the evidence-base of STPP for depression.

Acknowledgements

The authors wish to thank P. Crits-Christoph, G. H. Franke, H. H. Jensen, H. Karlsson, M. Lotz, and A. Werbart for providing additional information or data regarding their studies. Our thanks are also due to I. Jansma for her help in designing the search strategies and Y. Boom, S. I. Lentjes, S. M. Wagemans, and D. Westra, for their help in the screening process.

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