

Psychotherapy for Depression in Adults: A Meta-Analysis of Comparative Outcome Studies

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Although the subject has been debated and examined for more than 3 decades, it is still not clear whether all psychotherapies are equally efficacious. The authors conducted 7 meta-analyses (with a total of 53 studies) in which 7 major types of psychological treatment for mild to moderate adult depression (cognitive–behavior therapy, nondirective supportive treatment, behavioral activation treatment, psychodynamic treatment, problem-solving therapy, interpersonal psychotherapy, and social skills training) were directly compared with other psychological treatments. Each major type of treatment had been examined in at least 5 randomized comparative trials. There was no indication that 1 of the treatments was more or less efficacious, with the exception of interpersonal psychotherapy (which was somewhat more efficacious; $d = 0.20$) and nondirective supportive treatment (which was somewhat less efficacious than the other treatments; $d = -0.13$). The drop-out rate was significantly higher in cognitive–behavior therapy than in the other therapies, whereas it was significantly lower in problem-solving therapy. This study suggests that there are no large differences in efficacy between the major psychotherapies for mild to moderate depression.

Keywords: psychotherapy, depression, meta-analysis, major depressive disorder, cognitive behavior therapy

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Whether all psychotherapies are equally efficacious for the same disorder has been studied and debated for more than 3 decades (Cuijpers, 1998; Luborsky, 1995; Luborsky, Singer, & Luborsky, 1975; Shadish & Sweeney, 1991; Stiles, Shapiro, & Elliott, 1986), and no definite answer has yet been found in empirical research. Early meta-analyses indicated that different types of psychotherapy were equally efficacious (Smith & Glass, 1977; Smith, Glass & Miller, 1980). One possible explanation for this finding is that most effects of psychological treatments are caused by common, nonspecific factors and not by particular techniques (Cuijpers, 1998). These common factors include the therapeutic alliance between therapist and client, belief in the treatment, and a clear rationale explaining why the client has developed the problems (Lambert, 2004; Spielmanns, Pasek & McFall, 2007). Another

possible explanation is that the effects of psychotherapy are realized by various therapy-specific mechanisms (Butler & Strupp, 1986) and that the number of possible mediators and moderators is so large that small differences between treatments in specific groups of patients remain unnoticed owing to insufficient statistical power or because research methods are not sensitive enough (Kazdin, 1998).

Many studies included in the early meta-analyses of psychotherapies did not focus on clear diagnostic populations, did not use interventions with strict protocols, and had poorer methodological quality than most current studies. One area in which a substantial number of better designed comparative psychotherapy studies have emerged concerns the treatment of mild to moderate depression. Some more recent systematic reviews and meta-analyses have examined differential efficacy of psychotherapies for depression. An example of an early meta-analysis on cognitive therapy for depression showed very positive outcomes (Dobson, 1989); however, a later meta-analysis highlighted the role of researcher allegiance in the earlier analysis as a possible confounder (Gaffan, Tsaousis, & Kemp-Wheeler, 1995). In another, more recent meta-analysis, some indications were found that cognitive–behavior therapy is more efficacious than other therapies (Gloaguen, Cottraux, Cucherat, & Blackburn, 1998), although this was not confirmed when cognitive–behavior therapy was compared with other high-quality therapies that were not explicitly designed as a control condition (Wampold, Minami, Baskin, & Callen Tierney, 2002).

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In the past 3 decades, more than 150 controlled and comparative studies have examined the efficacy of psychological treatments of depression (Cuijpers & Dekker, 2005). This large body of research would appear to provide worthwhile opportunities to examine once again whether all psychotherapies are actually equally efficacious. In a recent meta-regression analysis of 83 studies in which a psychological treatment for depression was compared with a control condition (Cuijpers, Van Straten, Warmerdam, & Smits, 2008), few indications were found that one type of psychotherapy was more efficacious than other types.

However, few meta-analyses in this area have focused on studies in which different types of psychological treatment are compared directly with each other in one and the same trial. In such trials, participants are randomized to one of two types of treatment, permitting the calculation of an effect size at posttest that indicates the difference between these two types of treatment directly. Most earlier meta-analyses focused mainly on the overall efficacy of specific types of treatment compared with control conditions and compared these with the overall efficacy of other types of treatment. The results of such meta-analyses may well have been influenced by factors that differed among the various studies, such as length of treatment, type of treatment, type of control group, or initial symptom severity (Shadish & Sweeney, 1991; Spielmans et al., 2007). This means that possible differences between the efficacy of different types of treatments may well be artifacts and do not reflect true superiority of one type of treatment over the others (Spielmans et al., 2007). Direct comparisons between different types of treatment, however, in which the effect size indicating the difference between two types of treatment at posttest is calculated, are better equipped to rule out the influence of study characteristics, and they certainly provide more reliable evidence about a possible superiority of one therapy over another (Spielmans et al., 2007).

Two older meta-analyses examined direct comparisons between different types of psychological treatment of adult depression. The first found some indications that cognitive and cognitive-behavioral therapies had higher effect sizes than general verbal therapies (Robinson, Berman, & Neimeyer, 1990). However, only very broad categories of psychological treatment were examined, and no clear definition of these treatments was presented. Furthermore, heterogeneity was not examined in this study, no subgroup analyses were conducted, and because most studies in this field have been published since 1990, only a small number of comparisons were included. Another, older meta-analysis (Gloaguen et al., 1998) examined whether cognitive therapy was more efficacious than other psychological therapies, but again only broad and undefined categories of psychological treatments were studied, no subgroup analyses were conducted, and the number of comparisons was small. As pointed out earlier, the results of that study indicated that cognitive therapy is more efficacious than other treatments, although a later reanalysis found that cognitive therapy was not more efficacious than other high-quality interventions (Wampold et al., 2002). One recent meta-analytic review of comparative studies of cognitive and behavioral psychotherapies has been conducted, but this was limited to anxious and depressed children (Spielmans et al., 2007). This study did not find evidence that cognitive-behavior therapy was more efficacious than other treatments.

Because no recent meta-analysis has focused on studies in which different types of psychological treatment for adults with depression are compared with each other directly, we decided to conduct precisely such a meta-analysis and to examine whether these different types of therapy are equally efficacious in treating depression. Because the number of comparative studies was relatively large, we were able to look beyond cognitive-behavior therapy alone (although most research has focused on this form of treatment) and examine other psychotherapies as well.

Method

Identification and Selection of Studies

Studies were selected by means of several methods. First, we used a database of 832 articles on the psychological treatment of depression in general (Cuijpers, van Straten, Warmerdam, & Andersson, 2008). This database was developed through a comprehensive literature search (from 1966 to May 2007) in which we examined a total of 6,947 abstracts. These were found in PubMed (1,244 abstracts), PsycINFO (1,736), EMBASE (1,911), and the Cochrane Central Register of Controlled Trials (2,056). We identified these abstracts by combining terms indicative of psychological treatment (e.g., *psychotherapy*, *psychological treatment*, *cognitive therapy*, *behavior therapy*, *interpersonal therapy*, *reminiscence*, and *life review*) and *depression* (both keywords and text words). For our database, we also collected the primary studies from 22 meta-analyses of psychological treatment for depression (Cuijpers & Dekker, 2005). We examined the abstracts of the resulting 832 studies and reviewed the reference lists of included articles.

The selection of studies for inclusion in this meta-analysis was conducted in several steps. In the first step, we selected studies in which (a) the efficacy of a psychological treatment (b) for adults (c) with a depressive disorder or an elevated level of depressive symptomatology (d) were compared with another psychological treatment (e) in a randomized trial. No language restrictions were applied. This resulted in a total of 91 studies.

In the second step of the selection of studies, the interventions described in these 91 studies were examined in detail. After the first reading of the articles, we examined which treatments were used in the studies. Treatments used in 5 or more studies were included in the main analyses. During a close reading of these 91 studies, we formulated definitions of the major types of psychological treatment that were found and checked whether the interventions from the studies met these descriptions. These definitions are presented in Table 1. We are experts in the research and practice of psychological treatments for depression, and we discussed the exact formulation of the definitions in detail. All studies (and the interventions described in them) were examined in detail by at least two of us. The categorization of the interventions according to type of treatment was discussed until consensus was reached. As can be seen in Table 1, we found seven types of treatment that had been examined in at least five randomized comparative trials.

The remaining interventions (the ones that did not fit into one of the seven categories) had all been examined in fewer than five studies. These treatments were therefore defined as "other" and only used as a comparison for the seven main types of treatment.

Table 1
 Definitions of Psychological Treatments of Depression

| Definition | N_{st} | N_{cp} |
|---|----------|----------|
| 1. <i>Cognitive-behavior therapy (CBT)</i> : In CBT, therapists focus on the impact a patient's present dysfunctional thoughts have on current behavior and future functioning. CBT is aimed at evaluating, challenging, and modifying a patient's dysfunctional beliefs (cognitive restructuring). In this form of treatment, the therapist mostly emphasizes homework assignments and outside-of-session activities. Therapists exert an active influence over therapeutic interactions and topics of discussion, use a psychoeducational approach, and teach patients new ways of coping with stressful situations. We distinguished two main types of CBT: (a) CBT in which cognitive restructuring is the core element of the treatment and (b) CBT in which cognitive restructuring is an important component, but in which at least two other components (such as behavioral activation, social skills training, relaxation, or coping skills) also have a prominent place. One example of this approach is the Coping with Depression course (Lewinsohn et al., 1984). Within the first subtype, we distinguished two variants. Variant a1: The manual developed by Beck et al. (1979) is the most widely used manual for CBT (which includes a module on behavioral activation; see below). Variant a2: In several studies, cognitive restructuring is used as a treatment (with or without a module on behavioral activation), but no explicit reference is made to Beck et al.'s manual. | 38 | 56 |
| 2. <i>Nondirective supportive therapy (SUP)</i> : We defined nondirective therapy as any unstructured therapy without specific psychological techniques other than those common to all approaches, such as helping people to ventilate their experiences and emotions and offering empathy. It is not aimed at solutions or acquiring new skills. It is based on the assumption that relief from personal problems may be achieved through discussion with others. These nondirective therapies are commonly described in the literature as either counseling or supportive therapy. We distinguished two main types of SUP: (a) SUP explicitly referring to the work of Rogers (1967); this is a specific form of nondirective therapy in which reflection is an important therapeutic technique to elicit feelings, and (b) this subtype included the SUP interventions that were not explicitly referring to the work of Rogers, but met the definition of SUP. | 20 | 30 |
| 3. <i>Behavioral activation therapy (BA)</i> : We considered an intervention to be activity scheduling when the registration of pleasant activities and the increase of positive interactions between a person and his or her environment were the core elements of the treatment. Social skills training could be a part of the intervention. Although this intervention was developed by Lewinsohn et al. (1976), we also included studies that used the principles of this intervention but did not refer directly to the work of Lewinsohn et al. Some studies referred to the behavioral activation component included in the manual for CBT by Beck et al. (1979). This component of CBT is based on similar principles. | 15 | 21 |
| 4. <i>Psychodynamic therapy (DYN)</i> : The primary objective in (short-term) psychodynamic therapy is to enhance the patient's understanding, awareness, and insight about repetitive conflicts (intrapsychic and intrapersonal). An assumption in DYN is that a patient's childhood experiences, past unresolved conflicts, and historical relationships significantly affect a person's present life situation. In this form of treatment, the therapist concentrates on the patient's past, unresolved conflicts, and historical relationships and the impact these have on a patient's present functioning. Furthermore, in DYN the therapists explore a patient's wishes, dreams, and fantasies. The time limitations and the focal explorations of the patient's life and emotions distinguish DYN from psychoanalytic psychotherapy. | 10 | 16 |
| 5. <i>Problem-solving therapy (PST)</i> : We defined PST as a psychological intervention in which the following elements had to be included: definition of personal problems, generation of multiple solutions to each problem, selection of the best solution, the working out of a systematic plan for this solution, and evaluation as to whether the solution has resolved the problem. There are several subtypes of PST, such as PST according to Nezu (1986) and Mynors-Wallis et al. (1995), but the number of studies for each of these subtypes was too small to include in this meta-analysis. | 7 | 7 |
| 6. <i>Interpersonal psychotherapy (IPT)</i> : IPT is a brief and highly structured manual-based psychotherapy that addresses interpersonal issues in depression to the exclusion of all other foci of clinical attention (http://www.interpersonalpsychotherapy.org). IPT has no specific theoretical origin, although its theoretical basis can be seen as coming from the work of Sullivan, Meyer, and Bowlby. The current form of the treatment was developed by the late Gerald Klerman and Myrna Weissman in the 1980s (Klerman et al., 1984). | 6 | 8 |
| 7. <i>Social skills training (SST)</i> : SST is a form of behavior therapy in which clients are taught skills that help in the building and attainment of social and interpersonal relationships. In most versions of SST, patients are trained in assertiveness. This means that the client is taught to stand up for his or her rights by expressing feelings in an honest and respectful way that does not insult people. | 5 | 7 |

Note. N_{st} = number of studies; N_{cp} = number of comparisons.

Accordingly, we excluded studies in which none of the seven major types were examined and only two or more other treatments could be compared with each other from our meta-analysis (see below).

In the next step, we selected the studies in which at least one of the treatments from the list of seven major types was compared with another psychological treatment. Out of the 91 selected studies, 53 met this criterion. The other 38 studies were excluded because either they examined different variants of the same type of treatment (mostly dismantling studies; 24 studies), the study did not examine one of the seven major types of treatment (9 studies), or the effect size could not be calculated (5 studies; see below). The 53 studies that met the criteria were included in the current meta-analysis.

Meta-Analyses

We conducted a separate meta-analysis for each of the seven major types of treatment. In these meta-analyses, we calculated the effect sizes (d) indicating the difference between the two treatments at posttest. We calculated the effect sizes by subtracting (at posttest) the average score of the treatment group from the average score of the other treatment group and dividing the result by the pooled standard deviations of the experimental and control groups. An effect size of 0.5 thus indicates that the mean of the first treatment group is half a standard deviation larger than the mean of the other treatment group. Effect sizes of 0.8 can be assumed to be large, effect sizes of 0.5 are moderate, and effect sizes of 0.2 are small (Cohen, 1988). When psychological treatments are compared

with control groups, effect sizes of 0.6 or larger are usually found (Cuijpers, van Straten, Warmerdam, & Smits, 2008; Robinson et al., 1990). The effect sizes of the 53 studies that were included in this study can be downloaded as supplemental material.

When means and standard deviations were not reported in the study, we estimated the effect sizes using the formulas provided by Wolf (1986). When means and standard deviations were not reported and no statistical test between the two relevant conditions was conducted or presented, the effect size could not be calculated. These studies were excluded from the meta-analyses.

In the calculations of effect sizes, we used only those instruments that explicitly measure symptoms of depression. If more than one depression measure was used, the mean of the effect sizes was calculated, so that each study (or contrast group) had only one effect size.

To calculate pooled mean effect sizes, we used the computer program Comprehensive Meta-Analysis (version 2.2.021; Biostat 2007), developed for support in meta-analysis. Both the random and the fixed effects models were used to see whether any differences would emerge. Under the fixed effect model, it is assumed that all studies in the meta-analysis are replications of each other. However, in the random effects model the more relaxed assumption is made that the included studies can be seen as a sample drawn from a population of studies, and each primary study is allowed to introduce its own amount of heterogeneity into the meta-analysis. This is reflected, for instance, in the broader 95% confidence intervals usually observed under the random effects model and its more conservative test results. In the presence of significant heterogeneity that cannot be explained by observed moderators, the safer choice is to rely on the random effects model (Hedges & Vevea, 1998).

Although we expected that the risk of publication bias was limited, we nevertheless tested for it. Publication bias is the tendency for the availability of research to depend on the results (Veeva & Woods, 2005). In its most extreme manifestation, publication bias could mean that only studies containing statistically significant results are published, and all other studies are not published. This can distort the results of meta-analyses considerably. Publication bias was tested by inspecting the funnel plots of the seven separate meta-analyses for each of the types of treatment, and by Duval and Tweedie's (2000) trim-and-fill procedure, which yields an estimate of the effect size after publication bias has been taken into account (as implemented in Comprehensive Meta-Analysis, version 2.2.021).

We also examined whether the drop-out from each of the interventions differed from the drop-out in the comparison treatment. Because drop-out is a dichotomous outcome, we calculated the relative risk (RR) of drop-out. The RR is the ratio of the probabilities of dropping out of the two treatments. Again, we conducted all meta-analyses both with the fixed effects model and with the random effects model, using the Comprehensive Meta-Analysis (version 2.2.021) computer program, and we calculated the Q statistic and the I^2 statistic to estimate heterogeneity between study outcomes.

Heterogeneity

As an indicator of homogeneity, we calculated the Q statistic. 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 heterogeneity; 50%, moderate; and 75%, high (Higgins, Thompson, Deeks, & Altman, 2003). If all psychotherapies are indeed equally efficacious, we would expect to find a very small between-treatments effect size and low levels of heterogeneity (all I^2 values are in the lower range).

Subgroup Analyses: Associations Between Effect Sizes and Study Characteristics

It could be possible that, for example, the difference between two types of treatment is larger in high-quality studies than in low-quality studies. Or it may be possible that one type of treatment is especially effective as individual treatment and that the attempts to deliver that therapy in group format have resulted in much smaller effect sizes (indicating the difference between two treatments). In such cases, a superior efficacy may not be found when all studies are pooled into one group of studies.

Therefore, we conducted a series of subgroup analyses in which we divided the studies into two (or more) subgroups. For each subgroup, the mean effect size (indicating the difference between the two treatments) is calculated, and a test is conducted to examine whether the effect sizes for the subgroups differ significantly from each other (which would indicate, e.g., that the difference between two types of treatment is significant in individual but not in group treatments and that the two mean effect sizes for the subgroups differ significantly from each other).

We conducted subgroup analyses according to the procedures implemented in Comprehensive Meta-Analysis (version 2.2.021). There are two methods of conducting subgroup analyses. In the fixed effects method, the studies within the subgroup are pooled with the fixed effects model, and the difference between subgroups is also tested with the fixed effects model. The second method for conducting subgroup analyses is the mixed effects method, which pools studies within subgroups with the random effects model but tests for significant differences between subgroups with the fixed effects model. Because we did not know in advance whether we could expect considerable heterogeneity, we conducted all subgroup analyses with both models. Because heterogeneity was low to moderate in all analyses and the results of the fixed and mixed effects models were comparable, we only report the results of the fixed effects model.

Subgroup analyses were only conducted for cognitive-behavior therapy, nondirective supportive treatment, behavioral activation treatment, and psychodynamic treatment. For the other three types of treatment (problem-solving therapy, interpersonal psychotherapy, and social skills training), the number of comparisons was considered to be too small ($N < 10$) to permit subgroup analyses. For each of the four types of treatment, we conducted the same subgroup analyses on a limited number of core characteristics of the studies. We selected variables for these subgroup analyses that were reported in the studies and that were considered main characteristics of the study:

1. Recruitment method (community recruitment vs. clinical or other methods of recruitment); community recruitment is defined as recruiting participants through media announcements, with the participants taking the initiative to participate in the study, and clinical recruitment occurred when participants actively sought help for depression in

- primary care or specialized mental health care and were then asked to participate in the study
2. Target group (depressed adults vs. a specific target population, such as depressed general medical patients or women with postpartum depression)
 3. Diagnosis (a depressive disorder was established with a diagnostic interview vs. depression operationalized as a high score on a self-report measure)
 4. Format of the intervention (individual vs. group intervention)
 5. Analyses (intention-to-treat analyses vs. completers-only analyses)
 6. Quality of included studies (high quality vs. lower quality); in the high-quality studies the participants met diagnostic criteria for a depressive disorder, the assessors did not know to which condition the respondents were assigned, the data were analyzed with intention-to-treat analyses, a treatment manual was used, the therapists were trained for the specific therapy, and treatment integrity was checked during the study (see below)
 7. Comparison treatment (is the treatment significantly different from each of the other major types of treatment?)

Some additional subgroup analyses were conducted. When subgroups of types of treatments were distinguished, we also examined whether these subtypes differed from each other. In the group of supportive therapies, three studies indicated clearly that the supportive therapy was used as a control condition (Beutler et al., 1991; Shaw, 1977; Verduyn, Barrowclough, Roberts, Tarrier, & Harrington, 2003). Therefore, we examined whether the effect sizes found in these three studies were significantly different from the effect sizes in the other studies of supportive therapies.

Results

Description of Included Studies

A total of 2,757 depressed patients participated in the 53 included studies. Selected characteristics of the studies are available as supplemental material to this article. These 53 studies analyzed a total of 124 psychological treatments that could be compared with another psychological treatment. The 53 studies examined cognitive-behavior therapy (38 studies; 56 comparisons with other treatments), nondirective supportive therapy (21 studies; 31 comparisons); behavioral activation therapy (15 studies; 21 comparisons); psychodynamic therapy (10 studies; 16 comparisons); problem-solving therapy (7 studies; 7 comparisons); interpersonal psychotherapy (6 studies; 8 comparisons); and social skills training (5 studies; 7 comparisons). Apart from these seven major types of psychotherapy, 15 studies (17 comparisons) included a psychological treatment that did not meet the definition of one of these seven types of treatment (a brief description is added as a footnote to the supplemental material).

Out of the 124 psychological treatments analyzed in these 53 studies, 51 treatments used a group treatment format, 68 used an

individual format, 3 used an individual format in which the intervention was delivered by telephone, and in 2 used a minimal contact format. The number of sessions per intervention ranged from 4 to 20.

In 31 studies, patients were recruited through community recruitment; in 10 studies, clinical patient samples were used; and in 4 studies both clinical and community recruitment methods were used. Systematic screening of patient samples was used in 7 studies to recruit patients (1 study did not report the recruitment method). In 31 studies, participants had to meet diagnostic criteria for a depressive disorder, and in the other 22 studies other inclusion criteria were applied (usually a high score on a self-rated or clinician-rated depression scale). Twenty-four studies were aimed at depressed adults in general; 4, at young adults or students; 5, at adult women in general; 5, at older adults; 6, at depressed patients with general medical disorders (3 HIV/AIDS, multiple sclerosis patients, dementia patients, and cancer patients); 2, at women with low socioeconomic status; 2, at women with postpartum depression; and 4, at other specific target groups (menopausal women, stimulant-dependent patients, young mothers, and family caregivers).

The quality of the included studies varied. In all studies, participants were assigned at random to the conditions (this was an inclusion criterion). In 27 studies, it was reported that assessors did not know to which condition the respondents were assigned, and another 15 studies only used self-report measures (in these cases, it was not relevant whether the assessors knew to which condition the respondents were assigned). Drop-out numbers ranged from 0% to 43%. Intention-to-treat analyses were conducted in 16 studies (the other studies were limited to completers-only analyses). In 38 studies, it was reported that a manual was used for the intervention, and in 5 studies a manual was used for at least one of the treatment conditions. In 10 studies, the use of a manual was not reported. In 39 studies, the therapists were specifically trained in the use of the intervention or they were professional therapists trained in the treatment under review. In 43 studies, treatment integrity was checked during the study by conducting supervision of the therapist, audiotaping of sessions, and/or observations of sessions. A total of 13 studies were considered to be high-quality studies.

Differences Between Types of Psychotherapy at Posttest

Overall effect sizes. For each of the seven major types of treatment, we conducted a separate meta-analysis in which we examined the mean difference per type of treatment compared with all the other treatments. The results of these analyses are presented in Table 2 (Overall results rows). As can be seen, we found no indication that cognitive-behavior therapy, psychodynamic therapy, behavioral activation therapy, problem-solving therapy, or social skills training differed significantly from the other psychological treatments. Furthermore, heterogeneity was zero to low in these analyses, except for the meta-analysis of studies on problem-solving therapy, in which it was high.

We did find indications that nondirective supportive therapies were significantly less efficacious than the other treatments ($p < .05$), although the overall difference was small. Heterogeneity was low to moderate. Interpersonal therapy was found to be significantly more efficacious than the other treatments, with low heterogeneity.

We found no indications for publication bias in any of the seven meta-analyses. Neither the funnel plots nor Duval and Tweedie's (2000) trim-and-fill procedure pointed at a significant publication bias in the seven analyses. The effect sizes indicating the difference between the treatments did not change significantly after adjustment for possible publication bias (the observed and adjusted d were the same or almost the same).

In most of the analyses, we examined studies in which more than two psychological treatments were compared with each other. This means that multiple comparisons from one study were included in the same analysis. These multiple comparisons are, however, not independent of each other, possibly resulting in an artificial reduction of heterogeneity. Therefore, we conducted a series of additional analyses in which we included only one comparison per study (Table 2; Multiple comparisons excluded

rows). From the studies with multiple comparisons, we included only the comparison with the largest effect size (i.e., the largest difference between the psychological treatments) because this was considered the most conservative approach in estimating heterogeneity in the meta-analyses. As can be seen in Table 2, these analyses did indicate that heterogeneity increased somewhat in a number of analyses, although this increase was small. For behavioral activation therapy, psychodynamic therapy, and social skills training, heterogeneity did not increase at all (remained zero). For cognitive-behavior therapy, nondirective supportive therapy, and interpersonal psychotherapy, heterogeneity increased somewhat, but not greatly (the largest increase was 20% for cognitive-behavior therapy). No multiple comparisons were present in the set of studies examining problem-solving therapy.

Table 2
Meta-Analyses of Studies Comparing the Efficacy of Different Types of Psychological Treatment: Overall Results at Posttest

| Study | Model used | N_{comp} | d | 95% CI | Z | Q | I^2 (%) |
|---|------------|------------|-------|--------------|---------|---------|-----------|
| Overall results | | | | | | | |
| Cognitive-behavior therapy | F/R | 56 | 0.03 | -0.04, 0.11 | 0.86 | 49.54 | 0 |
| Subtype A1 ^a | F/R | 35 | -0.02 | -0.13, 0.09 | -0.36 | 24.09 | 0 |
| Subtype A2 | F/R | 9 | -0.02 | -0.25, 0.21 | -0.20 | 2.39 | 0 |
| Subtype B | F | 12 | 0.13 | -0.00, 0.26 | 1.97* | 19.76 | 44.32 |
| | R | | 0.15 | -0.04, 0.33 | 1.54 | | |
| Nondirective supportive therapy | F | 30 | -0.13 | -0.24, -0.03 | -2.42* | 48.99* | 40.80 |
| | R | | -0.17 | -0.32, -0.03 | -2.29* | | |
| Subtype A ^a | F | 7 | -0.19 | -0.40, 0.03 | -1.69 | 12.15 | 50.63 |
| | R | | -0.30 | -0.62, 0.03 | -1.76 | | |
| Subtype B | F | 23 | -0.12 | -0.24, 0.01 | -1.81 | 36.53* | 39.78 |
| | R | | -0.14 | -0.31, 0.03 | -1.60 | | |
| Behavioral activation therapy | F/R | 21 | 0.14 | -0.02, 0.30 | 1.71 | 9.92 | 0 |
| Psychodynamic therapy | F/R | 16 | -0.07 | -0.21, 0.08 | -0.88 | 7.61 | 0 |
| Problem-solving therapy ^b | F | 7 | 0.09 | -0.11, 0.28 | 0.86 | 22.04** | 72.78 |
| | R | | 0.40 | -0.07, 0.88 | 1.68 | | |
| Interpersonal psychotherapy | F | 8 | 0.20 | 0.02, 0.38 | 2.18* | 8.97 | 21.98 |
| | R | | 0.21 | 0.01, 0.42 | 2.02* | | |
| Social skills training | F/R | 7 | 0.05 | -0.26, 0.36 | 0.32 | 1.69 | 0 |
| Multiple comparisons excluded^{b,c} | | | | | | | |
| Cognitive-behavior therapy | F | 38 | 0.04 | -0.05, 0.13 | 0.82 | 46.30 | 20.09 |
| | R | 38 | 0.04 | -0.07, 0.15 | 0.74 | | |
| Nondirective supportive therapy | F | 20 | -0.18 | -0.31, -0.04 | -2.61** | 44.91** | 57.69 |
| | R | | -0.26 | -0.48, -0.05 | -2.36* | | |
| Behavioral activation therapy | F/R | 15 | 0.19 | 0.01, 0.37 | 2.02* | 7.45 | 0 |
| Psychodynamic therapy | F/R | 10 | -0.09 | -0.28, 0.10 | -0.87 | 6.61 | 0 |
| Interpersonal psychotherapy | F | 6 | 0.19 | -0.01, 0.40 | 1.85 | 6.93 | 27.81 |
| | R | | 0.21 | -0.04, 0.46 | 1.67 | | |
| Social skills training | F/R | 5 | 0.07 | -0.29, 0.43 | 0.38 | 1.65 | 0 |
| Comparisons among 7 major types of treatment^d | | | | | | | |
| Cognitive-behavior therapy | F/R | 46 | 0.03 | -0.05, 0.11 | 0.70 | 42.53 | 0 |
| Nondirective supportive therapy | F | 27 | -0.12 | -0.24, -0.01 | -2.17* | 39.59* | 34.33 |
| | R | | -0.15 | -0.30, -0.01 | -2.05* | | |
| Behavioral activation therapy | F/R | 20 | 0.14 | -0.02, 0.30 | 1.67 | 9.92 | 0 |
| Psychodynamic therapy | F/R | 14 | -0.08 | -0.25, 0.08 | -0.99 | 7.40 | 0 |

Note. Positive effect sizes indicate that the type of treatment examined is more efficacious than the treatment with which it is compared. F/R = results of the random effects model and the fixed effects model are exactly the same. F = fixed effects model; R = random effects model; N_{comp} = number of comparisons; CI = confidence interval.

^a Subgroup analyses indicated that the mean effect sizes of the subtypes did not differ significantly from each other.

^b Multiple comparisons from one study are excluded; for each study, only one comparison (the one with the largest effect size) is retained.

^c No multiple comparisons were present in the group of studies on problem-solving therapies.

^d In these analyses, we included only the studies in which two of the seven major types of treatment (described in Table 1) were compared with each other.

* $p < .05$. ** $p < .01$.

We also conducted separate analyses of the studies in which any two of the seven major types of treatment (described in Table 1) were compared with each other. All comparisons in which one of the two treatments was not a major type of treatment were removed from the analyses. We limited these analyses to cognitive-behavior therapy, nondirective supportive therapy, behavioral activation therapy, and psychodynamic therapy. The number of available effect sizes for the other major types of treatment was too small to conduct these analyses. The results are presented in Table 2 (Comparisons among seven major types of treatment rows) and clearly point in the same direction as the overall analyses. The efficacy of cognitive-behavior therapy, behavioral activation therapy, and psychodynamic therapy did not differ significantly from the combined other therapies, and nondirective supportive therapy was significantly less efficacious.

Comparisons of Two Forms of Psychotherapy

In Table 3, we report the results of the studies in which two of the seven forms of psychotherapy were directly compared with each other. In these analyses, we compared cognitive-behavior therapy with nondirective supportive therapy, behavioral activation therapy, psychodynamic therapy, and interpersonal psychotherapy. For the other comparisons, the number of available effect sizes was too small ($N < 5$). The resulting effect sizes were small and not significant. Heterogeneity was low to zero in all analyses.

Subtype Analyses Within Forms of Psychotherapy

We also examined whether the mean effect sizes differed for the three subtypes of cognitive-behavior therapy (as described in Table 1; the results of these analyses are described in Table 2, Overall results rows). We conducted a subgroup analysis in which we compared the mean effect sizes of the three subtypes to each other.

In these analyses, we found that Subtype B was somewhat more effective than the other subtypes ($p < .05$), but only in the fixed effects model. No other indications were found that the effect sizes in these subgroups differed significantly from each other. Heterogeneity was zero for Subtypes A1 and A2 and low to moderate for Subtype B.

Subgroup analyses did not indicate that the two subgroups of supportive therapies differed significantly from each other (Table 2, Overall results row). However, the differences between these

subtypes and the other types of treatment were no longer significant, although the effect sizes were not smaller than the effect size for the whole group of supportive therapies.

Associations Between Effect Sizes and Study Characteristics

It could be possible that the effect sizes indicating the difference between psychotherapies are associated with characteristics of the studies. This is the case, for example, when the difference between two types of treatment is larger in high-quality studies than in low-quality studies or when one type of psychotherapy is especially effective as an individual treatment but not as a group treatment. Therefore, we conducted a series of subgroup analyses in which the studies were grouped according to specific characteristics. Then we examined whether there was a significant difference between the effect sizes (indicating the difference between types of psychotherapy) in these subgroups.

The results of these subgroup analyses are presented in Table 4. The subgroup analyses were conducted only for cognitive-behavior therapy, nondirective supportive therapy, behavioral activation therapy, and psychodynamic therapy. For the other three types of therapy, the number of available effect sizes was too small to permit subgroup analyses. In Table 4, we present only the subgroups with at least five effect sizes.

In none of the subgroup analyses was a significant difference between subgroups found. The p value of the difference between the subgroups was larger than .10 in all analyses (Table 4, last column). However, the number of available effect sizes was very small in several of the analyses we conducted, and problems with statistical power may have prevented us from finding significant differences.

In some subgroups of studies on nondirective supportive therapy, the (within-subgroup) effect size was significantly different from zero, indicating that this type of treatment is somewhat less effective than other treatments in these subgroups of studies (see Table 4). For example, nondirective supportive therapy was significantly worse than other treatments for high-quality studies, but not for low-quality studies. In all other subgroups, the effect sizes were small (<0.20) and not significantly different from zero.

In most analyses, heterogeneity was zero to low. An exception was seen in the subgroup analyses on nondirective supportive

Table 3
Meta-Analyses of Studies Comparing the Efficacy of Different Types of Psychological Treatment: Comparisons of Two Forms of Psychotherapy

| Study | N_{comp} | d | 95% CI | Z | Q | I^2 (%) |
|--|------------|-------|-------------|-------|-------|-----------|
| Cognitive-behavior therapy vs. nondirective supportive therapy | 18 | 0.05 | -0.08, 0.18 | 0.75 | 24.06 | 29.35 |
| Cognitive-behavior therapy vs. behavioral activation therapy | 11 | -0.08 | -0.29, 0.13 | -0.78 | 4.53 | 0 |
| Cognitive-behavior therapy vs. psychodynamic therapy | 7 | 0.15 | -0.08, 0.38 | 1.31 | 4.66 | 0 |
| Cognitive-behavior therapy vs. interpersonal psychotherapy | 5 | -0.12 | -0.33, 0.09 | -1.13 | 3.39 | 0 |

Note. Analyses were conducted according to the fixed effects model. Positive effect sizes indicate that the type of treatment examined is more efficacious than the treatment with which it is compared. CI = confidence interval; N_{comp} = number of comparisons.

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Table 4
Meta-Analyses of Studies Comparing the Efficacy of Different Types of Psychological Treatment: Subgroup Analyses Examining Associations Between Effect Sizes and Study Characteristics

| Study | N_{comp} | d | 95% CI | Z | Q | I^2 (%) | p^a |
|---|-------------------|-------|--------------|---------|---------|-----------|-------|
| Cognitive behavior therapy vs. other therapies | | | | | | | |
| Recruitment | | | | | | | |
| Community | 36 | 0.03 | -0.09, 0.15 | 0.50 | 33.63 | 0 | 0.93 |
| Other | 20 | 0.04 | -0.07, 0.14 | 0.70 | 15.90 | 0 | |
| Definition of depression | | | | | | | |
| Depressive disorder ^b | 33 | 0.08 | -0.02, 0.17 | 1.59 | 31.87 | 0 | 0.11 |
| Other definition | 23 | -0.07 | -0.21, 0.08 | -0.90 | 15.08 | 0 | |
| Target group | | | | | | | |
| Adults | 34 | -0.01 | -0.11, 0.10 | -0.10 | 16.79 | 0 | 0.23 |
| Specific group | 22 | 0.09 | -0.03, 0.21 | 1.46 | 31.33 | 32.97 | |
| Format | | | | | | | |
| Individual | 29 | 0.05 | -0.06, 0.15 | 0.86 | 23.41 | 0 | 0.31 |
| Group | 24 | -0.01 | -0.14, 0.12 | -0.17 | 23.02 | 0 | |
| Analyses | | | | | | | |
| Intention to treat | 18 | 0.05 | -0.06, 0.16 | 0.88 | 28.77* | 40.91 | 0.65 |
| Completers only | 38 | 0.02 | -0.10, 0.13 | 0.76 | 20.63 | 0 | |
| Quality of studies | | | | | | | |
| High | 14 | 0.10 | -0.03, 0.22 | 1.53 | 21.76 | 40.27 | 0.20 |
| Lower | 42 | -0.01 | -0.11, 0.09 | -0.16 | 26.14 | 0 | |
| Nondirective supportive therapy vs. other therapies | | | | | | | |
| Recruitment | | | | | | | |
| Community | 13 | -0.07 | -0.21, 0.07 | -1.01 | 14.46 | 16.99 | 0.17 |
| Other | 17 | -0.23 | -0.40, -0.06 | -2.59* | 32.66** | 51.01 | |
| Definition of depression | | | | | | | |
| Depressive disorder ^b | 15 | -0.14 | -0.28, 0.01 | -1.86 | 23.53 | 40.50 | 0.94 |
| Other definition | 15 | -0.13 | -0.29, 0.04 | -1.54 | 25.46** | 45.00 | |
| Target group | | | | | | | |
| Adults | 16 | -0.06 | -0.23, 0.11 | -0.68 | 18.79 | 20.16 | 0.27 |
| Specific group | 14 | -0.19 | -0.33, -0.04 | -2.57* | 28.98** | 55.14 | |
| Format | | | | | | | |
| Individual | 12 | -0.23 | -0.39, -0.06 | -2.72** | 17.81 | 38.23 | 0.33 |
| Group | 16 | -0.06 | -0.21, 0.10 | -0.72 | 28.82* | 47.95 | |
| Analyses | | | | | | | |
| Intention to treat | 15 | -0.16 | -0.29, -0.03 | -2.37** | 26.23** | 46.63 | 0.53 |
| Completers only | 15 | -0.08 | -0.28, 0.12 | -0.79 | 22.36 | 37.38 | |
| Quality of studies | | | | | | | |
| High | 10 | -0.17 | -0.33, -0.01 | -2.03* | 17.51* | 48.61 | 0.58 |
| Lower | 20 | -0.11 | -0.25, 0.04 | -1.43 | 31.16* | 39.03 | |
| Supportive therapy as control group | | | | | | | |
| Yes | 5 | -0.11 | -0.38, 0.17 | 0.76 | 0.29 | 0 | 0.83 |
| No/unknown | 25 | -0.14 | -0.26, -0.02 | -2.30* | 48.65** | 50.67 | |
| Behavioral activation therapy vs. other therapies | | | | | | | |
| Recruitment | | | | | | | |
| Community | 13 | 0.16 | -0.07, 0.39 | 1.42 | 5.20 | 0 | 0.79 |
| Other | 6 | 0.14 | -0.10, 0.38 | 1.17 | 3.67 | 0 | |
| Definition of depression | | | | | | | |
| Depressive disorder ^b | 12 | 0.13 | -0.05, 0.31 | 1.38 | 3.95 | 0 | 0.88 |
| Other definition | 9 | 0.16 | -0.15, 0.46 | 1.02 | 5.95 | 0 | |
| Target group | | | | | | | |
| Adults | 11 | 0.17 | -0.05, 0.38 | 1.49 | 6.01 | 0 | 0.72 |
| Specific group | 10 | 0.11 | -0.12, 0.34 | 0.92 | 3.78 | 0 | |
| Psychodynamic therapy vs. other therapies | | | | | | | |
| Recruitment | | | | | | | |
| Community | 9 | -0.10 | -0.30, 0.11 | -0.92 | 2.60 | 0 | 0.68 |
| Other | 7 | -0.03 | -0.25, 0.18 | -0.30 | 4.84 | 0 | |
| Target group | | | | | | | |
| Adults | 7 | 0.00 | -0.23, 0.23 | 0.02 | 0.00 | 0 | 0.44 |
| Specific group | 9 | -0.12 | -0.31, 0.08 | -1.17 | 7.01 | 0 | |

Note. Analyses were conducted according to the fixed effects model. Positive effect sizes indicate that the type of treatment examined is more efficacious than the treatment with which it is compared. None of the subgroup analyses indicated that any of the subgroups differed significantly from each other. CI = confidence interval; N_{comp} = number of comparisons.

^a These are the p s of the differences between the effect sizes of different subgroups. ^b Depressive disorder according to a diagnostic interview.

therapy in which considerable heterogeneity was found for all subgroups. This implies that the heterogeneity found for nondirective supportive therapy in the main analyses cannot be explained by any of the variables we examined in the subgroup analyses.

Drop-Out

Drop-out rates for the treatments were reported in 34 studies. The other studies either contained no data on drop-out rates or gave only overall drop-out rates (not specified for each of the conditions). The methods of calculating drop-out differed considerably. In some studies, clients who did not participate in any of the treatment sessions were included in the drop-out rate, whereas other studies did not include them. Furthermore, the number of sessions that had to be completed by clients varied considerably in the studies, and the difference between drop-out from the intervention and drop-out from the study was not always reported.

In Table 5, the results of the drop-out rate analyses in the comparative studies are presented. It is clear that the number of comparisons available for each of the major types of psychotherapy varied considerably, ranging from 5 (problem-solving therapy and social skills training) to 28 (cognitive-behavior therapy). The RR of dropping out was significantly higher in cognitive-behavior therapy than in comparison treatments, and heterogeneity was low. The risk of dropping out of problem-solving therapy was significantly lower than that of other therapies, with zero heterogeneity. No significant difference in drop-out rate was found for the other treatments.

Differences Between Treatments at Follow-Up

The differences between the treatments at follow-up were examined in two ways. First, we calculated the effect sizes indicating the differences between the treatment types at the respective follow-up points. We calculated the effect sizes at 1–3 months, 4–6 months, 7–12 months, and 13–24 months follow-up. The results of the analyses are presented in Table 6. We only calculated mean effect sizes at follow-up when three or more comparisons were available. For problem-solving therapy and interpersonal psychotherapy, no groups of three or more comparisons at follow-up were available. For the other five types of treatment, no

meta-analysis at any of the follow-up points indicated a significant difference between treatments. Some of these meta-analyses indicated considerable heterogeneity, however, implying that certain differences between subgroups of studies may exist at follow-up. The number of comparisons was too small to permit subgroup analyses, and no further analyses were conducted.

We used a second method to examine the differences between the treatments at follow-up. For each of the four major treatment types for which sufficient effect sizes were available, we entered all effect sizes from all studies for all follow-up measurement points together into one meta-analysis. We also entered the time period since the end of the treatment (in months) as a moderator. Then we conducted a metaregression analysis to examine whether the effect sizes (indicating the differences between the two treatments) were related to the time (in months) since the end of treatment. None of these analyses indicated that the effect sizes were significantly related to the time since follow-up.

We included multiple time points from one study into these analyses, which are not independent from each other. Therefore, we repeated these analyses, but this time we included only time point per comparison (a separate analysis in which we included the shortest follow-up for each comparison, and one in which we included the longest follow-up). Again, none of these analyses indicated a significant relation between effect size and time to follow-up. This can be interpreted as a lack of evidence that the difference between treatments increased or decreased over time.

Discussion

In this study, we found very few indications that the efficacy of several important types of psychological treatment for depression differ significantly from each other. No significant difference was found for cognitive-behavior therapy, psychodynamic therapy, behavioral activation treatment, problem-solving therapy, and social skills training. However, we did find that interpersonal psychotherapy was somewhat more efficacious than other psychological treatments and that nondirective supportive therapy was somewhat less efficacious than the other treatments. Although the effect sizes indicating the difference between interpersonal psychotherapy and other therapies ($d = 0.21$) and between nondirective supportive therapy and

Table 5
Drop-Out Rates in Comparative Studies of Psychological Treatments of Depression: Relative Risks (RR)

| Treatment and model used | N_{comp} | RR | 95% CI | Z | Q | I^2 |
|---------------------------------------|------------|------|------------|--------|-------|-------|
| Cognitive-behavior therapy | 28 | | | | | |
| F | | 1.17 | 1.02, 1.35 | 2.18* | 28.43 | 5.02 |
| R | | 1.16 | 0.99, 1.35 | 1.87 | | |
| Nondirective supportive therapy (F/R) | 16 | 0.94 | 0.77, 1.15 | -0.59 | 14.63 | 0 |
| Behavioral activation therapy (F/R) | 10 | 0.84 | 0.55, 1.28 | -0.80 | 9.10 | 1.05 |
| Psychodynamic therapy | 11 | | | | | |
| F | | 1.33 | 0.95, 1.88 | 1.64 | 14.78 | 32.34 |
| R | | 1.36 | 0.88, 2.11 | 1.40 | | |
| Problem-solving therapy (F/R) | 5 | 0.74 | 0.58, 0.95 | -2.40* | 2.74 | 0 |
| Interpersonal psychotherapy (F/R) | 6 | 0.80 | 0.58, 1.10 | -1.37 | 3.81 | 0 |
| Social skills training (F/R) | 5 | 1.11 | 0.53, 2.30 | 0.27 | 1.42 | 0 |

Note. N_{comp} = number of comparisons; RR = relative risk; F = fixed effects model; R = random effects model; F/R = the results of the random effects model and the fixed effects model are exactly the same; CI = confidence interval.

* $p < .05$.

Table 6
Meta-Analyses of Studies Comparing the Efficacy of Different Types of Psychological Treatments for Depression: Results at Follow-Up

| Study and model used | N_{comp} | d | 95% CI | Z | Q^a | I^2 (%) |
|---------------------------------|-------------------|-------|-------------|-------|----------|-----------|
| Cognitive-behavior therapy | | | | | | |
| 1–3 months (F/R) ^a | 22 | 0.07 | –0.10, 0.25 | 0.82 | 20.29 | 0 |
| 4–6 months | 12 | | | | | |
| F | | 0.12 | –0.06, 0.29 | 1.31 | 49.26*** | 77.67 |
| R | | 0.14 | –0.26, 0.54 | 0.69 | | |
| 7–12 months | 6 | | | | | |
| F | | –0.02 | –0.22, 0.17 | –0.24 | 20.75** | 75.90 |
| R | | 0.14 | –0.30, 0.58 | 0.62 | | |
| 13–24 months (F/R) | 3 | 0.05 | –0.19, 0.29 | 0.44 | 0.20 | 0 |
| Nondirective supportive therapy | | | | | | |
| 1–3 months | 9 | | | | | |
| F | | –0.16 | –0.41, 0.09 | –1.25 | 14.55 | 45.00 |
| R | | –0.22 | –0.57, 0.13 | –1.25 | | |
| 4–6 months | 6 | | | | | |
| F | | –0.16 | –0.37, 0.05 | –1.47 | 17.73** | 71.80 |
| R | | –0.22 | –0.64, 0.20 | –1.03 | | |
| 7–12 months | 3 | | | | | |
| F | | –0.23 | –0.51, 0.04 | –1.69 | 9.56** | 79.29 |
| R | | –0.33 | –0.96, 0.29 | –1.05 | | |
| Behavioral activation therapy | | | | | | |
| 1–3 months | 7 | | | | | |
| F | | –0.03 | –0.36, 0.30 | –0.18 | 6.81 | 11.94 |
| R | | –0.03 | –0.39, 0.32 | –0.18 | | |
| 4–6 months (F/R) | 6 | 0.18 | –0.10, 0.47 | 1.27 | 2.50 | 0 |
| Psychodynamic therapy | | | | | | |
| 1–3 months (F/R) | 4 | –0.17 | –0.60, 0.26 | –0.76 | 0.64 | 0 |
| 4–6 months | 5 | | | | | |
| F | | –0.12 | –0.38, 0.14 | –0.92 | 9.40 | 57.46 |
| R | | –0.17 | –0.62, 0.28 | | | |
| Social skills training | | | | | | |
| 1–3 months | 5 | | | | | |
| F | | 0.27 | –0.12, 0.66 | 1.37 | 10.20* | 60.80 |
| R | | 0.31 | –0.30, 0.93 | 0.99 | | |

Note. Positive effect sizes indicate that the type of treatment examined is more efficacious than the treatment with which it is compared. N_{comp} = number of comparisons; CI = confidence interval; F = fixed effects model; R = random effects model; F/R = results of the random effects model and the fixed effects model are exactly the same.

^a Results of the random effects model and the fixed effects model are exactly the same.

* $p < .05$. ** $p < .01$. *** $p < .001$.

other therapies ($d = -0.17$) are generally considered to be small (Cohen, 1988), it is not clear what the clinical relevance of these differences is.

To obtain an idea of the clinical relevance of these effect sizes, the use of the binomial effect size display is recommended (Rosenthal, 1990; Rosenthal & Rubin, 1982); this displays the difference in success rate between the two treatments. For interpersonal psychotherapy, the binomial effect size display (based on $d = 0.21$) indicates that the success rate increases from 0.45 to 0.55. When nondirective supportive therapy is used, the success rate decreases from 0.54 to 0.46 (based on $d = -0.17$).

It is not clear why interpersonal psychotherapy is more efficacious than the other types of treatment studied. This is clearly a subject for further research, especially because its comparative efficacy has been studied in considerably fewer studies than other treatments, such as cognitive-behavior therapy and psychodynamic therapy.

It is also not clear why nondirective supportive therapy is less efficacious than other therapies. It may be possible that support only is not enough to change problems in a client. However, our findings may also be explained by the fact that the group of

nonspecific supportive therapies contained many different types of interventions, ranging from client-centered therapies based on the work of Rogers (1967) to support groups for general medical patients and interventions that were clearly designed to be a control condition for a true psychological treatment. Although the content of these interventions could be categorized as nonspecific supportive, it is entirely possible that our attempt to group them into one category was not successful and that some subtypes of nonspecific supportive therapies are less efficacious, resulting in lower effect sizes for the whole category.

Earlier meta-analyses suggested that cognitive-behavior therapy is more efficacious than other types of psychological treatment of depression (Dobson, 1989; Gloaguen, Cottraux, Cucherat, & Blackburn, 1998), although this finding is not supported by all meta-analyses (Gaffan et al., 1995; Wampold et al., 2002). Our meta-analysis included several more studies and focused on those in which cognitive-behavior therapy was compared directly with other major types of psychological treatment. We found no indication that cognitive-behavior therapy is indeed more efficacious than other psychological treatments.

We found some indications that cognitive-behavior therapy in which not only cognitive restructuring but also other components (Subtype B in Table 1) are used may be more effective than cognitive-behavior therapy that focuses especially on cognitive restructuring. However, this was only found when the fixed effects model was used, which is not appropriate when there is heterogeneity (which was the case for these analyses). Furthermore, this difference was very small. Therefore, this result should be considered with caution.

Heterogeneity was low to very low in most of the analyses we conducted in this study, except in the meta-analysis on nondirective supportive therapy. Not only does this type of treatment appear less efficacious than other treatments, it is also associated with higher levels of heterogeneity. Although the difference between supportive treatments and other treatments is small, it is clearly significant, and the higher levels of heterogeneity indicate that there are systematic differences between the efficacy of supportive treatments in the different studies. Unfortunately, our subgroup analyses did not produce indications concerning which study characteristics are related to this heterogeneity.

With regard to the longer term, significant differences were no longer found between any of the treatments. However, the number of available effect sizes was considerably smaller for the longer term. Furthermore, we did not have sufficient effect sizes to examine the efficacy of interpersonal psychotherapy for the longer term. The effect sizes indicating the difference between nondirective supportive therapy and other therapies at follow-up are about the same as those at posttest, although the number of available effect sizes was smaller and these effect sizes were no longer significant. Because of the relatively small number of effect sizes, the outcomes for the longer term should be interpreted with caution.

Our results are complicated by the fact that many studies only reported completers-only analyses and did not contain intention-to-treat analyses. However, none of the subgroup analyses in which we examined whether studies with intention-to-treat analyses differed significantly from studies using completers-only analyses indicated any significant difference. However, in the analyses of drop-out rates, we did find some significant differences between studies. The drop-out rate appears to be higher in cognitive-behavior therapy and significantly lower in problem-solving therapy.

It may be possible that the drop-out rate is higher in cognitive-behavior therapy because some clients find it difficult to understand how cognitions work and how they can be changed and because the therapy requires homework to be efficacious. Problem-solving therapy could result in lower drop-out rates because it focuses directly on the problems as they are experienced by the client and not on other, more indirect issues. These findings are complicated by the fact that the number of studies examining cognitive-behavior therapy is considerably larger than the number of studies examining other types of therapy, resulting in more statistical power to find significant differences. For example, the drop-out rate for psychodynamic therapy seems to be higher than the drop-out rate for cognitive-behavior therapy, but is not statistically significant. The drop-out rate for social skills training is comparable to the drop-out rate for cognitive-behavior therapy, but does not reach significance levels either. Therefore, comparisons between the drop-out rates of treatment are complicated and should be considered with caution. These results should also be

interpreted with caution because the method of calculating drop-out rates differed considerably among studies.

Our study does not produce an answer to the question of whether all psychotherapies are equally efficacious. We did not find significant differences between most of the major types of psychotherapy, and this may be seen as support for the "Dodo Bird Verdict" that says that all psychotherapies are equally efficacious and "all should have prizes" (Luborsky et al., 1975; Wampold et al., 2002). Our findings do not mean, however, that these therapies are actually equally efficacious because small differences may have been missed owing to the limited number of available effect sizes. Although the efficacy is comparable, this does not imply that these were realized by the same mechanisms. Furthermore, we did find some significant differences in efficacy between the therapies we examined, with interpersonal therapy appearing more efficacious and nondirective supportive therapy appearing less efficacious. It is also known from research on psychological treatments for mental disorders other than depression that not all therapies are equally efficacious (Siev & Chambless, 2007).

This study has several important limitations. First, the number of studies was relatively large, but not large enough for all of the meta-analyses we conducted. In particular, the number of comparisons for social skills training, interpersonal psychotherapy, and problem-solving therapy and the number of comparisons available for most comparisons at follow-up was small. Second, the quality of many included studies was not optimal. Third, in a considerable number of studies the participants were selected on the basis of not diagnosis, but test scores. Although we did not find significant differences between these groups of studies in our subgroup analyses, these studies may have influenced the outcomes of our meta-analyses. Fourth, the description of the interventions was very brief in many studies, making it difficult to assign them reliably to a category of interventions. Fifth, most studies were conducted with primarily Caucasian populations; therefore, it is not known whether the results can be generalized to other populations. Because of these limitations, the results of our study have to be interpreted with caution.

More research is needed to explore our results further. It is especially important to examine the mechanisms through which the efficacy of the different psychological treatments is realized. These mediators of change could clarify why no indication of a difference between the efficacy of most treatments was found and why interpersonal therapy may be more efficacious and nondirective supportive therapy less efficacious. It is also worth further examining the differences between treatments in the longer term. Many depressive disorders are chronic, and relapse rates are high. The question of whether treatments are equally efficacious for the longer term is at least as important as their efficacy in the short term. More research is also needed on the reasons for dropping out of treatment. Research in this area can be improved considerably when consensus is reached on the definitions of drop-out.

Despite the limitations of our study, it seems safe to conclude that there are few significant differences in efficacy between most major types of treatments of mild to moderate depression, including cognitive-behavior therapy. Interpersonal psychotherapy may be somewhat more efficacious and nondirective supportive therapy somewhat less efficacious. They all should have prizes, but not all should have the same prize.

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Call for Nominations

The Publications and Communications (P&C) Board of the American Psychological Association has opened nominations for the editorships of **Developmental Psychology**, **Journal of Consulting and Clinical Psychology**, and **Psychological Review** for the years 2011–2016. Cynthia García Coll, PhD, Annette M. La Greca, PhD, and Keith Rayner, PhD, respectively, are the incumbent editors.

Candidates should be members of APA and should be available to start receiving manuscripts in early 2010 to prepare for issues published in 2011. Please note that the P&C Board encourages participation by members of underrepresented groups in the publication process and would particularly welcome such nominees. Self-nominations are also encouraged.

Search chairs have been appointed as follows:

- **Developmental Psychology**, Peter A. Ornstein, PhD, and Valerie Reyna, PhD
- **Journal of Consulting and Clinical Psychology**, Norman Abeles, PhD
- **Psychological Review**, David C. Funder, PhD, and Leah L. Light, PhD

Candidates should be nominated by accessing APA’s EditorQuest site on the Web. Using your Web browser, go to <http://editorquest.apa.org>. On the Home menu on the left, find “Guests.” Next, click on the link “Submit a Nomination,” enter your nominee’s information, and click “Submit.”

Prepared statements of one page or less in support of a nominee can also be submitted by e-mail to Emnet Tesfaye, P&C Board Search Liaison, at etesfaye@apa.org.

Deadline for accepting nominations is January 10, 2009, when reviews will begin.