# Effect of Cognitive Behavioral Therapy Versus Interpersonal Psychotherapy in Patients with Major Depressive Disorder: A Meta-analysis of Randomized Controlled Trials

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## Abstract

**Background:** Practice guidelines have recommended cognitive behavioral therapy (CBT) and interpersonal psychotherapy (IPT) as the treatment of choice for major depression disorder (MDD). However, whether one therapy is better than the other remains inconclusive. The aim of this study was to compare the treatment efficacy of the two treatment approaches for MDD.

**Methods:** Using the terms "cognitive behavior therapy or cognitive therapy or CBT or CT or cognitive behavioral therapy" and "interpersonal psychotherapy or IPT," we systematically searched PubMed, Psyclnfo and Chinese National Knowledge Infrastructure databases up to February 2017. The language was restricted to be English and Chinese. Therapeutic outcomes, characteristics, and research quality were then extracted and analyzed independently. In accessing the included studies, we followed the criteria suggested by the Cochrane Handbook for Systematic Reviews of Interventions.

**Results:** Data for 946 patients from 10 randomized controlled trials were included in the study. Methodological quality was not optimal in most trials. Meta-analysis showed a mean difference (MD) of −1.31, 95% confidence interval (CI) (−2.49, −0.12) ($P < 0.05$) in favor of CBT according to the Beck Depression Inventory (BDI), and however, we did not found any statistically significant difference between CBT and IPT on the Hamilton Rating Scale for depression (HRSD) (MD −0.90, 95% *CI* [−2.18, 0.38]). Subgroup analyses for the studies in which patients were treated only by psychotherapy (MD −1.26, 95% *CI* [−2.78, 0.35]) and for those which offered more sessions of therapies (MD −0.82, 95% *CI* [−2.23, 0.59]) showed there was no significant difference between CBT and IPT according to BDI.

**Conclusions:** Differences in treatment efficacy seem to vary according to different outcome measures. CBT shows an advantage over IPT for MDD according to BDI, and there is no significant difference between the two according to HRSD. These results should be interpreted with caution.

**Key words:** Cognitive Therapy; Major Depression Disorder; Psychotherapy

## Introduction

Major depression disorder (MDD) is one of the most prevalent disorders worldwide, as it affects about 25% women and 12% men over the lifespan.[1-3] It increases the psychological strain,[4] impacts the quality of life,[5] impairs the role functioning,[6] reduces productivity,[7] and is considered to be one of the leading causes of disability worldwide.[8] Depressive disorders are associated with high levels of health service usage,[9] and are projected to rank first in disease burden among high-income countries by 2030.[10]

Psychotherapies and pharmacotherapies are common treatments for depression. It has been shown that psychotherapies are about equally effective as pharmacotherapies for depression.[11] Although more and more patients prefer psychotherapies,[12] a number of different treatment options have been developed, including cognitive behavioral therapy (CBT) and interpersonal psychotherapy (IPT), which are

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recommended as two psychological treatment choices in the practice guidelines.[13]

CBT refers to a range of different interventions that share the same core idea and the general approach. As pioneered by Beck,[14] CBT holds the idea that depression results from maladaptive information processing strategies and is maintained by dysfunctional behavioral responses. The therapy focuses on identifying and changing the function, content, and structure of cognitions associated with negative affect. The intervention also teaches patient alternative methods of thinking or behaving.[15] CBT is one of the most widely used forms of psychotherapies supported by strong empirical evidence.[11]

IPT was developed for the treatment of major depression. It is time-limited, symptom-targeted, and is structured just like CBT. The therapy focuses on interpersonal disputes, role transitions, grief, and interpersonal deficits. It believes that if the patient can solve the interpersonal problem or is able to change the relation to this problem, the depressive symptoms should resolve as well.[16] A lot of studies have shown IPT is effective in treating depression.[17]

Although both CBT and IPT can be effective treatments for MDDs, it is not yet clear whether one therapy is better than the other. In a meta-analysis comparing CBT and IPT, Jakobsen *et al*.[18] found that the effects of the two therapy did not seem to differ significantly. However, the study had a number of limitations. First, when compared the two therapies on Hamilton Rating Scale for Depression (HRSD), the count on the number of patients in the trial of Bellino *et al*.[19] was not correct. Second, the data collected from randomized comparisons of cognitive therapy and IPT was insufficient to reliably determine whether the two therapies have differential effects. Third, only five studies were included. It is thus necessary to conduct an updated systematic review with new studies on this topic, to better address the question of which treatment approach is the better one.

## Methods

### Search strategy and eligibility criteria

We used several methods to search the literature. First, a literature search was performed in February 2017. The databases selected were PubMed, PsycInfo, and Chinese National Knowledge Infrastructure. The following terms were used to find the eligible trials: cognitive behavior therapy or cognitive therapy or CBT or CT or cognitive behavioral therapy and interpersonal psychotherapy or IPT. The language was restricted to be English and Chinese. Second, we also collected the studies included by the previous meta-analysis on the comparison of the effects between CBT and IPT.

We included studies of randomized controlled trials in which the effects were compared between CBT and IPT for adults with depression disorder. All forms of psychotherapies, such as individual therapy, group therapy, and psychotherapy combined with pharmacotherapy were included in the study. Studies in adolescents or children were excluded, and so as those aimed on patients with comorbid somatic illness (e.g., cancer) or with human immunodeficiency virus-positive. Eligibility judgment was performed independently by two reviewers, and the disagreements were resolved by discussion.

### Data extraction

Two investigators collected the information from all eligible publications independently, including first authorship, year of publication, diagnostic criteria of depression, the country where the trial was conducted, characteristics of the participants (sample size, mean age), profiles of the interventions (concept, format, number of sessions), and outcome measures. For each study, we extracted data of mean value and standard deviation from each treatment. A standardized form was used to collect data.

### Quality assessment

We assessed the quality of the included studies according to the basic criteria suggested by the Cochrane Handbook for Systematic Reviews of Interventions:[20] adequate sequence generation (the randomization scheme was generated correctly), allocation concealment, blinding of assessors of outcomes, intention-to-treat analysis, and no selective outcome reporting. Two reviewers conducted the assessment independently, and the disagreements were resolved by the adjudicating senior authors.

### Outcome measures

The comparison of interest for the present study was CBT versus IPT for treating depression. All outcome measures of the included studies were collected and analyzed. If one outcome measure was used in more than three studies, the meta-analysis would be conducted according to the measure. As Beck Depression Inventory (BDI)[21,22] and HRSD[23] are the two most widely used measures of depression, and can explicitly measure the depressive symptoms, we took scores on the two scales as our primary outcome measures.

### Statistical analysis

This meta-analysis was performed using Review Manager 5.0 (Cochrane Collaboration, Oxford, UK). We used the mean difference (MD) with a 95% confidence interval (*CI*) to compare the continuous outcomes with fixed-effect or random-effects models. Each outcome measure was analyzed separately.

The Q-test was used to assess statistical heterogeneity and $I^2$ was calculated as an indicator of heterogeneity in percentages. A value of 25%, 50%, and 75% indicates low, moderate, and high heterogeneity, respectively.[24] If the studies are heterogenetic (Q-test $P < 0.1$ or $I^2 > 50\%$), the random-effects model will be used; otherwise, the fixed-effect model will be used.

Subgroup analyses were conducted to explore the differences according to the medication use, the form of

the psychotherapy, the duration of the psychotherapy and the quality of the studies. No analysis was performed on subgroups that contained fewer than three studies. All subgroup analyses followed the same meta-analysis procedure. Sensitivity analyses were performed for high-quality studies. Publication bias was examined by inspecting the funnel plot.

## Results

### Study identification and selection

Using the search strategy described in the method section, a total of 563 articles were obtained for review of title and abstract. Among the 563 articles, 22 were duplicates, 305 were not relevant and 160 did not directly compare CBT with IPT. Totally 76 studies were then retrieved for review of the full text. Of these, 21 were duplicate reports, 40 were irrelevant topics, 1 was not on randomized controlled trials, 2 were in adolescent and 2 were aimed on patients with the comorbid somatic illness. A total of 10 studies met all the inclusion criteria. The eligible studies are summarized in Figure 1.

### Characteristics of included studies

The 10 studies were published between 1989 and 2016. Studies were conducted in the USA (2/10), Canada (3/10), Netherlands (1/10), Switzerland (1/10), New Zealand (1/10), UK (1/10), and Italy (1/10). The sample size for the included studies ranged from 16[19] to 91,[25] with a total of 946 patients (472 in CBT conditions, 474 in IPT conditions). Most of the patients were female. All patients from these studies met criteria for the depressive disorder according to the diagnostic interviews. All studies used treatment manual and the sessions of the treatment range from 8 to 20. One study[19] compared the effect of group CBT combined with pharmacotherapy versus group IPT combined with pharmacotherapy. For outcome measures, 10 studies used BDI, 5 studies used HRSD, and 3 studies used 6-Item HRSD. There were some other outcome measures used in the included studies, but each of those was used only once. Three studies compared the effect of the two therapies with follow-up of 3–18 months. The essential characteristics of the 10 included studies are summarized in Table 1.

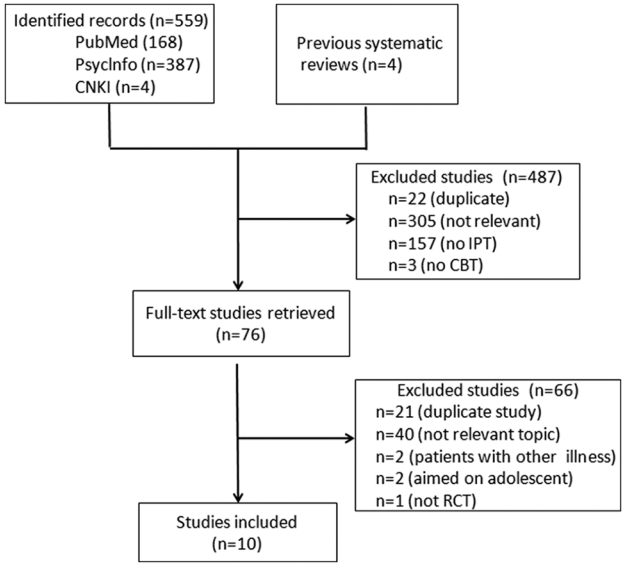


**Figure 1:** Study search, selection, and inclusion flowchart.

### Study quality and publication bias

The risk of bias of the studies varied. All the 10 studies have reported adequate sequence generation. Seven of them have the allocation sequence concealed from the investigators, therapists, and patients. Four studies conducted intent-to-treat analyses, and 5 studies reported blind assessment of the outcome. Nonselective reporting was found in 9 studies. Therefore, all the included trials were deemed to have a risk of bias. The quality of each study is summarized in Table 2.

### Effects of cognitive behavioral therapy compared with interpersonal psychotherapy

We compared the effects of CBT with IPT on BDI in 10 studies. Of these, 9 studies reported mean scores (standard deviation), and 1 study reported average treatment difference (standard error). A pooled data of all the studies showed a MD of −1.31 (−2.49, −0.12) ($P = 0.03$) in favor of CBT. The $I^2$ was 0% indicating no statistical heterogeneity in the studies [Figure 2]. A funnel plot of included studies was created to explore the publication bias. The funnel plot was roughly symmetric around the effect estimation, indicating the possibility of potential publication bias was relatively small.

We also compared the effects of CBT with IPT on HRSD in 5 studies [Figure 3]. Meta-analysis with the fixed-effect model on the data showed that there was no significant difference between CBT and IPT on BDI (MD in favor of CBT −0.90, 95% *CI* [−2.18, 0.38], $P = 0.17$, $I^2 = 0$). The funnel plot was roughly symmetric.

There were 3 studies that compared the effects of CBT with IPT on Ham-$D_6$. Meta-analysis was conducted on the data with the fixed-effect model. The analysis showed that there was no significant difference between CBT and IPT (MD in favor of CBT −0.02, 95% *CI* [−0.98, 0.94], $P = 0.96$, $I^2 = 0$).

### Follow-up

There were only 3 studies which carried out follow-ups. In these 3 studies, the length of the follow-up phase was between 5 months and 18 months. BDI was used as one of the outcome measures in these studies. We were able to compare the follow-up effects of CBT with IPT on BDI. Meta-analysis with the fixed-effect model showed that CBT was more effective than IPT on BDI in follow-up (MD in favor of CBT −3.97, 95% *CI* [−4.99, −2.94]). Nevertheless, inspection of the data showed that the heterogeneity for the analysis was high ($P = 0.01$, $I^2 = 71\%$). Therefore, random-effects model was used, which showed that there was no significant difference between the effect of CBT and IPT (MD in favor of CBT −1.40, 95% *CI* [−5.18, 2.37], $P = 0.47$).

### Subgroup analyses

Subgroup analyses were conducted according to the medication usage, the form of the treatment, the sessions

**Table 1: Basic characteristics of included studies**

| Studies | Criteria/country | Exclusion criteria | Participants: Male/female (*n*); age (years) | |
|---|---|---|---|---|
| | | | CBT | IPT |
| Ekeblad *et al.*[26] | MDD (DSM-IV), 18–65 years; USA | Psychosis, substance abuse, serious neuropsychiatric disorder, active self-harming behavior, disability pension | Male: 15/female: 33 (48), 18–65 | Male: 15/female: 33 (48), 18–65 |
| Bernecker *et al.*[27] | MDD (DSM-IV), 20–62 years, HRSD >16, free of medication; Canada | Bipolar disorder, schizoaffective disorder, substance abuse, borderline or antisocial personality disorder, organic brain syndrome | Male: 8/female: 28 (36), 42.89 ± 12.51 | Male: 9/female: 24 (33), 34.06 ± 10.40 |
| Lemmens *et al.*[15] | MDD (DSM-IV); Netherlands | Bipolar or chronic (current episode >5 years) depression, elevated acute suicide risk, concomitant pharmacological or psychological treatment, drugs and alcohol abuse/dependence, mental retardation | Male: 22/female: 54 (76), 41.2 ± 12.4 | Male: 29/female: 46 (75), 41.3 ± 11.8 |
| McBride *et al.*[28] | MDD (DSM-IV), 18–60 years, free of antidepressant medication; Canada | Bipolar disorder, psychotic disorders, substance abuse or dependence disorders, organic brain syndrome, borderline or antisocial personality disorder, received electroconvulsive therapy | Male: 8/female: 21 (29), 41 ± 12.75 | Male: 7/female: 20 (27), 40.10 ± 13.2 |
| Bodenmann *et al.*[29] | MDD or dysthymia (DSM–IV) and BDI ≥18, in a close relationship ≥1 year; Switzerland | Bipolar disorder, psychotic or manic symptoms, secondary depression or highly suicidal | Male: 7/female: 13 (20), 44.35 ± 11.31 | Male: 8/female: 12 (20), 47.33 ± 10.60 |
| Luty *et al.*[25] | a nonpsychotic MDD (DSM-IV), ≥18 years, free of medication; New Zealand | A history of mania (bipolar I disorder), schizophrenia, major physical illness, current alcohol or drug dependence, antisocial personality disorder, failed to respond to intervention (within 1 year) | Male: 17/female: 69 (86), 35.2 ± 10.0 | Male: 15/female: 76 (91), 35.2 ± 10.5 |
| Elkin *et al.*[30] | MD (RDC) and HRSD ≥14; USA | Additional psychiatric disorders, schizophrenia, organic brain syndrome, mental retardation, concurrent treatment etc. | Male: ?/female: ? (59), 35.0 ± 8.5 | Male: ?/female: ? (61), 35.0 ± 8.5 |
| Quilty *et al.*[31] | MDD (DSM-IV), 18–60 years, free of medication; Canada | Bipolar disorder, psychotic disorders, substance abuse disorders, organic brain syndrome, borderline or antisocial personality disorder | Male: 12/female 33 (45), 42.07 ± 12.34 | Male: 16/female: 30 (46), 42.70 ± 13.14) |
| Hardy *et al.*[32] | MDD (DSM–III) and BDI >15; United Kingdom | A continuous history of psychiatric disorder, more than three sessions of formal psychological treatment during the previous 5 years, a significant change in psychotropic medication during the previous 6 weeks | Male: ?/female: ? (57), NR | Male: ?/female: ? (57), NR |
| Bellino *et al.*[19] | MDD and BPD (DSM-IV-TR); Italy | Delirium, dementia, amnestic and other cognitive disorders, schizophrenia or other psychotic disorders, bipolar disorder | Male: ?/female: ? (16), NR | Male: ?/female: ? (16), NR |

| Studies | Intervention: Format; concept; sessions | | Outcome measure | Follow-up |
|---|---|---|---|---|
| | CBT | IPT | | |
| Ekeblad *et al.*[26] | CBT: Beck *et al.* (1979), Martell *et al.* (2010), 14 sessions | IPT: Weissman *et al.* (2000), 14 sessions | BDI-II, MADRS | - |
| Bernecker *et al.*[27] | CBT: Greenberger and Padesky (1995), 16 sessions | IPT: Weissman *et al.* (2000), Stuart and Robertson (2003), 16 sessions | BDI-II, Ham-$D_6$ | - |
| Lemmens *et al.*[15] | CT: Beck *et al.* (1979), 16–20 sessions | IPT: Klerman *et al.* (1984), 16–20 sessions | BDI-II, BSI, WSAS, RAND-36, EQ-5D | 5 months |
| McBride *et al.*[28] | CBT: Greenberger and Padesky (1995), 16–20 sessions | IPT: Weissman *et al.* manual (2000), 16–20 sessions | BDI-II, Ham-$D_6$ | - |
| Bodenmann *et al.*[29] | CBT: Beck *et al.* (1979), 20 sessions | IPT: Weissman *et al.* (2000), 20 sessions | BDI, HRSD | 6 months, 1 year, 1.5 years |
| Luty *et al.*[25] | CBT: Beck *et al.* (1979, 1987), 8–19 sessions | IPT: Klerman *et al.* (1984), 8–19 sessions | MADRS, BDI, HRSD, SCL-90 | - |
| Elkin *et al.*[30] | CBT: Beck *et al.* (1979), 16–20 sessions | IPT: Klerman *et al.* (1984), 16–20 sessions | HRSD, GAS, BDI, HSCL | - |
| Quilty *et al.*[31] | CBT: Greenberger and Padesky (1995), 16–20 sessions | IPT: Weissman *et al.* (2000), 16–20 sessions | BDI-II, HRSD, Ham-$D_6$ | - |

*Contd...*

**Table 1: Contd...**

| Studies | Intervention: Format; concept; sessions | | Outcome measure | Follow-up |
|---|---|---|---|---|
| | CBT | IPT | | |
| Hardy *et al.*[32] | CBT: Firth and Shapiro (1985), Shapiro and Firth (1985), | IPT: Firth and Shapiro (1985), Shapiro and Firth, (1985), 8 or 16 sessions | BDI, SCL-90, IIP, SAS-M, SE | 3 months, 1 year |
| Bellino *et al.*[19] | CT-G + Fluoxetine: Beck *et al.* (1979), 24 sessions | IPT-G + Fluoxetine: Klerman *et al.* (1984), 24 sessions | CGI, HRSD, HARS, BDI-II, etc. | - |

CBT: Cognitive behavioral therapy; MDD: Major depressive disorder; DSM: Diagnostic and Statistical Manual; CT: Cognitive therapy; CT-PHT: Cognitive therapy and pharmacotherapy; IPT-PHT: Interpersonal psychotherapy and pharmacotherapy; RDC: Research Diagnostic Criteria; CBT-I: Individual format of CBT; CBT-G: Group format of CBT; IPT-I: Individual format of IPT; IPT-G: Group format of IPT; SASCA: Social Adjustment Scale for Children and Adolescents; FEICS: Family Emotional Involvement and Criticism Scale; BDI-II: Beck Depression Inventory-II; MADRS: Montgomery-Asberg Depression Rating Scale; HRSD: Hamilton Rating Scale for Depression; Ham-$D_6$: 6-item version of the Hamilton Rating Scale for Depression; BSI: Brief Symptom Inventory; WSAS: Work and Social Adjustment Scale; GAS: Global Assessment Scale; HSCL: Hopkins Symptom Checklist; CDI: Children's Depression Inventory; PHCSCS: Piers-Harris Children's Self-Concept Scale; CBCL-A and CBCL-P: Child Behavior Checklist, Adolescent and Parent version; IIP: Inventory of Interpersonal Problems; SAS-M: Social Adjustment Scale-Modified version; SE: Self-esteem; BPD: Borderline personality disorder; CGI: Clinical Global Impression scale; HARS: Hamilton Anxiety Rating Scale; NR: Not reported; ?: Data cannot be obtained from the reference or the authors.

**Table 2: The quality of included studies**

| Items | Ekeblad *et al.* (2016) | Bernecker *et al.* (2016) | Lemmens *et al.* (2015) | Bodenmann *et al.* (2008) | Quilty *et al.* (2008) | Bellion *et al.* (2007) | Hardy *et al.* (1995) | Luty *et al.* (2007) | McBride *et al.* (2006) | Elkin *et al.* (1989) |
|---|---|---|---|---|---|---|---|---|---|---|
| A | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| B | Yes | Yes | Yes | Yes | Yes | Unclear | Unclear | Yes | Yes | Unclear |
| C | Unclear | Yes | Yes | Unclear | Unclear | Yes | Yes | Yes | Unclear | Unclear |
| D | Yes | No | Yes | No | No | No | No | Yes | Yes | No |
| E | Yes | Yes | Yes | Yes | Yes | Unclear | Yes | Yes | Yes | Yes |
| F | Yes | Yes | Yes | Yes | Unclear | Unclear | Unclear | Unclear | Yes | Unclear |
| Total score | 5 | 5 | 6 | 4 | 3 | 2 | 3 | 5 | 5 | 2 |

A: Adequate allocation sequence generation; B: Allocation concealment; C: Blinding of assessors of outcome; D: Intention - to - treat analysis; E: Free of selective outcome measure reporting; F: Other sources of bias; "Yes" for a low risk of bias; "No" for a high risk of bias; "Unclear" otherwise.

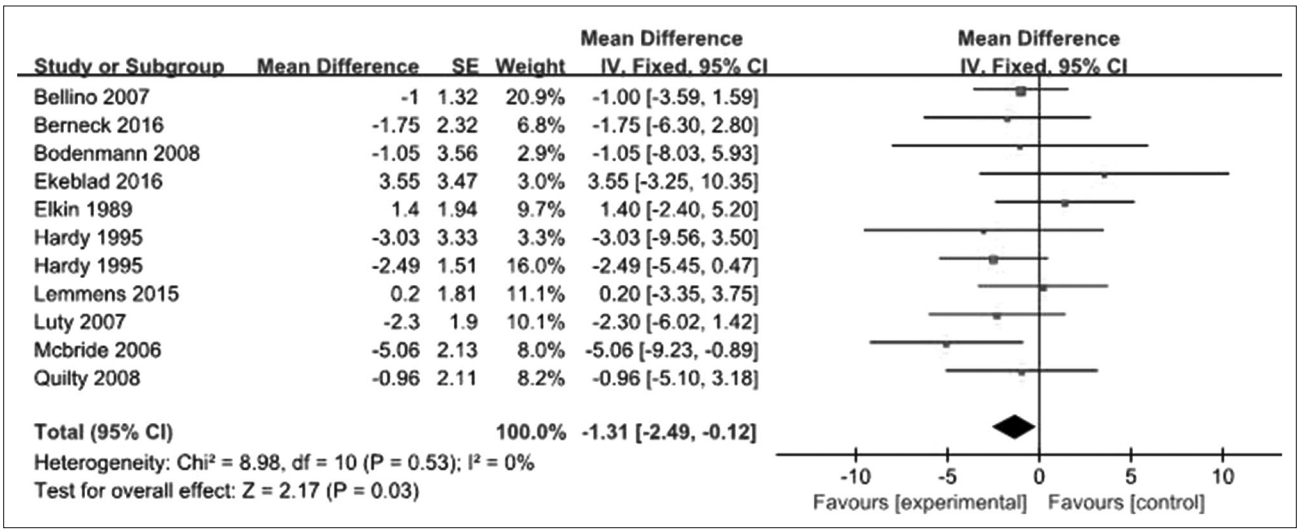


**Figure 2:** Effect of CBT versus IPT on BDI for MD. CBT: Cognitive behavioral therapy; IPT: Interpersonal psychotherapy; BDI: Beck Depression Inventory; MD: Mean difference.

of the treatment and the quality of the studies. There were 6 studies in which patients were treated solely by psychotherapy and no antidepressant medication. Four studies were excluded from the analyses, because in 1 study patients were treated by psychotherapy combined with antidepressant medication, in another 2 studies part of the patients were on antidepressant medication while treated by psychotherapy, and in the final one part of the patients completed medication before beginning treatment, but there was no washout time. The analyses on the free of medication studies showed that there were no significant differences between the effect of the two therapies on

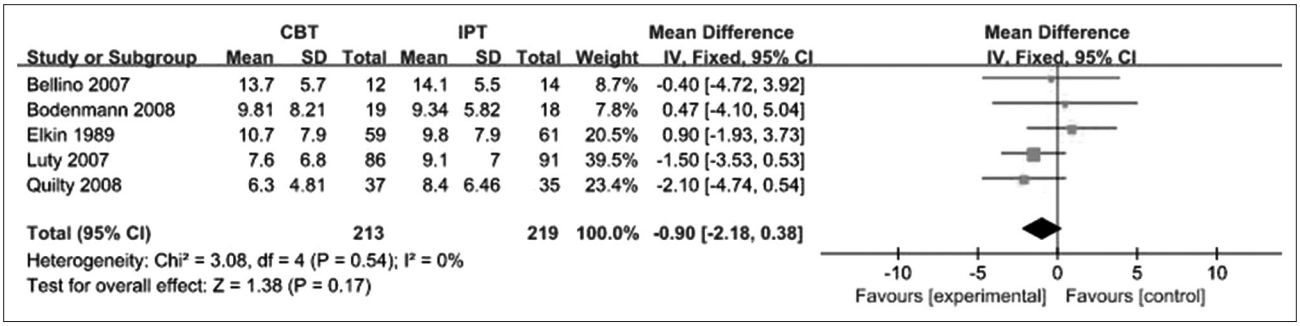


**Figure 3:** Effect of CBT versus IPT on HRSD for MD. CBT: Cognitive behavioral therapy; IPT: Interpersonal psychotherapy; HRSD: Hamilton Rating Scale for Depression; MD: Mean difference.

BDI (MD in favor of CBT −1.26, 95% *CI* [−2.87, 0.35], $P = 0.13$, $I^2 = 18\%$).

There was one trial which used group therapy in both treatment groups. The remaining nine trials used only individual therapy. The subgroup analyses for the studies used only individual therapy showed that CBT had an advantage over IPT on BDI (MD in favor of CBT −1.39, 95% *CI* [−2.72, −0.06], $P = 0.04$, $I^2 = 0\%$).

There were two trials in which part of participants completed <12 sessions of psychotherapies. In the other eight trials, the patients completed at least 14 sessions of therapies. Subgroup analyses for the studies offered more sessions of therapies showed that CBT was noninferior to IPT (MD in favor of CBT −0.82, 95% *CI* [−2.23, 0.59], $P = 0.25$, $I^2 = 5\%$).

We also conducted analysis on high-quality studies. The analyses showed that CBT was more effective than IPT for MDD according to BDI (MD in favor of CBT −1.78, 95% *CI* [−3.20, −0.36], $P = 0.01$, $I^2 = 0$). To assess the influence of individual studies on the pooled result, we conducted a sensitivity analysis by omitting one study in each turn. We found that the pooled MD changed when the study of Hardy *et al*. (MD in favor of CBT −1.57, 95% *CI* [−3.18, 0.05], $P = 0.06$, $I^2 = 0$) and the study of Mcbride *et al*. (MD in favor of CBT −1.35, 95% *CI* [−2.86, 0.16], $P = 0.08$, $I^2 = 0$) were excluded. Although the effect of the two therapies did not differ significantly after omitting these two studies, the direction of the results did not change, suggesting the qualities of the two studies were high, and the result of the meta-analysis was reliable. The combined MDs were consistent and without apparent fluctuation when the other study was excluded.

## Discussion

This review examined the therapeutic effects of CBT versus IPT for major depressive disorder. Although an extensive search strategy was conducted, we only identified 10 studies that provided a direct comparison between CBT and IPT. We conducted meta-analysis according to different outcome measures such as BDI, HRSD and Ham-$D_6$. Based on BDI, we found that CBT seems to be more efficacious than IPT for treating major depressive disorder. This finding was further supported by the subgroup analyses in high-quality studies based on BDI. However, we did not found any statistical difference between CBT and IPT on the two other outcome measures.

Some studies found that when using different outcome measures, the effect of different forms of therapies may change. When short-time psychodynamic psychotherapy and CBT were compared in the treatment of generalized anxiety disorder, for the primary outcome measure (Hamilton Anxiety Rating Scale) and two other measures of anxiety (the Beck Anxiety Inventory and the Hospital Anxiety and Depression Scale) and for interpersonal problems (Inventory of Interpersonal Problems), no significant differences in outcome between the two treatments were found, but CBT was superior in measures of trait anxiety (State-Trait Anxiety Inventory), worrying (Penn State Worry Questionnaire), and depression (BDI).[33] These are in line with our findings here.

Although BDI and HRSD are the most commonly used measures in depression research, they have a lot differences.[34,35] The BDI is a self-report questionnaire, and the HRSD is an observer-dependent interview. The theoretical assumption of the original BDI relied on the belief that negativistic distorted cognition is the core characteristic of depression.[36] Although the BDI-II does not reflect any particular theory of depression, its psychometric quality is different with that of the HRSD. The BDI focuses on the subjective experience, whereas the HRSD emphasizes the somatic and behavioral symptoms of depression.[34,35] CBT focuses on correcting the patients' distorted views and maladaptive beliefs that can give rise to depressive mode, and hence, the therapy will do a lot of work on reducing the feeling of depression directly. The patients may feel more efficient on relieving depressive thoughts. In contrast, IPT focuses on helping patients to connect with social supports and to improve the quality of their relationships associated with the depressive symptoms. The therapy will do more work on solving interpersonal problems. The patients may feel more efficient on improving social function. Hence, according to subjective experience, there may be some differences between the two therapies, but according to the assessment of observer, there may be no significant difference.

However, the results have to be interpreted with caution. First, subgroup analyses for the studies in which patients were treated only by psychotherapy and for the studies

offered more sessions of therapies showed that there was no significant difference between CBT and IPT according to BDI. Second, taking the discrepancies between BDI and HRSD into account, HRSD is thought to be a more sensitive measure of symptom change than the BDI.[37,38] However, there were only 5 studies used HRSD as an outcome measure. Third, the combined MDs were not consistent when some studies excluded.

Meta-analysis to compare the effect of CBT versus IPT at follow-up on BDI showed there is no major difference. The results should also be interpreted cautiously. There were only 3 studies which compared the effect of the two therapies after the cessation of treatment. What is more, the length of the follow-up phase is different. There was a need for more research in which the effect of the two therapies at follow-up will be compared.

The present review has the following limitations that should be taken into account. The main limitation is that the quality of the included studies was not optimal. None of the included studies met all quality criteria suggested by the Cochrane Handbook for Systematic Reviews of Interventions. Although it is difficult to conduct trials of psychotherapy according to quality criteria, and the quality of most studies about trials of psychotherapy was low, we still recommend that future research comparing the effect of CBT versus IPT for MDD use adequate randomization methods, correct blinding of outcome assessors, and intent-to-treat analyses.

Second, the types of the outcome measures of the included studies were too few. Most of the studies just used and reported BDI and HRSD as the outcome measures which mainly reflected the improvement of depressive symptoms. There is a need for trials assessing and reporting more clinically relevant outcome measures, especially measures reflecting the improvement of a social function which may demonstrate the difference between the two psychotherapies.

Third, although the concept of all the intervention was similar, there were some differences about the interventions of the included studies in detail, such as some interventions combinated with pharmacotherapy, some not, some interventions delivered in individual, some in group. There were also some differences on the experience of the therapist and the sessions of the intervention.

Fourth, most of the patients were female in the included studies. Research consistently has documented that the emergence of the sex difference in depression occurs in adolescence and adulthood.[39] The analysis of sex differences in the effects of the two psychotherapies would be an important question. We tried to conduct the subgroup analysis according to the sex of the patients. However, we could not get the information to conduct the analysis. Future research should take the sex into account when compare the effect of the two therapies.

Despite these limitations, the review adds to the literature in several ways. First, the present analysis included more studies, and the results can be assumed to be more up-to-date. Second, it compared the effect between the two psychotherapies according to the type of the outcome measures. This may highlight the difference between types of treatment outcomes. Third, it compared the effect between the two psychotherapies in high-quality studies and in follow-up which have not been done before.

We conclude that differences in treatment efficacy between CBT and IPT for MDD seem to vary according to outcome measure. CBT shows an advantage over IPT for MDD according to BDI, although there is no significant difference according to HRSD. These results have to be interpreted cautiously. Future research should be conducted with low risk of bias, more kinds of outcome measures, more standard intervention and longer follow-up.


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## Conflicts of interest

There are no conflicts of interest.

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