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# SYSTEMATIC LITERATURE REVIEW OF COGNITIVE-BEHAVIORAL THERAPY (CBT) EFFECTIVENESS IN TREATING DEPRESSION AMONG ADULT MENTAL HEALTH PATIENTS

**Franklin E. Ibadin**
Faculty - Health Sciences, Public Health in Epidemiology, Purdue University Global, West Lafayette, Indiana, USA

**Excel Onajite Ernest-Okonofua**
California Institute of Behavioral Neuroscience and Psychology (CiBNP), Fairfield, California, USA

**Correspondence: Franklin E. Ibadin**

**Abstract**
A mental disorder that is common amongst adults is depression. Cognitive-behavioral therapy (CBT) is an intervention that has proved its efficacy in treating depressed adults. CBT approaches are multifaceted, as they include several mechanisms and can be delivered in different ways. This systematic review investigates the effectiveness of CBT in depression treatment among adult mental health patients, following PRISMA guidelines. The methodology is based on PRISMA guidelines. A thorough literature search was performed across several databases, including Google Scholar, PubMed and Cochrane Library to identify relevant studies published from 2015 to 2024. Overall, 8 studies complied with the inclusion criteria, including 10384 participants. The Inclusion criteria focused on studies comparing CBT with control conditions, pharmacotherapy or other psychological therapy, in adult mental health patients diagnosed with depression through a clinical diagnosis, self-report scale or depressive symptoms. Data extraction was performed, assessing potential factors that affect the outcomes such as, patient demographics, duration of therapy and existing comorbid conditions. Results direct that CBT considerably reduces depressive symptoms compared to control groups, with effective sizes ranging from small to large. In addition, this review also underscores that treatment duration plays an essential role in enhancing CBT outcomes. Limitations of the studies, including demographics of the participant and other characteristics such as, fewer follow-ups post-study and drop-out rates, are addressed. In conclusion, the review supports that CBT is, potentially, an effective intervention for alleviating depression among adults in combination with other treatment methods and personalized care, highlighting its implications for clinical practice and future possibilities.

**Keywords** Cognitive Behavioral Therapy; CBT, Efficacy; Major Depression; Depression; Adults; Mental Health.

## INTRODUCTION

Depression, a serious mental condition, is defined through a constant sad mood, lack of interest in pleasing activities, followed by various symptoms such as, fatigue, insomnia, low concentration, loss of weight, morbid thoughts of death and inapt

guilt.1,2 Depression is linked with distinct socio-economic morbidity, lack of productivity, and functionality which in turn links with developing substantial workload over workers.3 Furthermore, depression is linked with a substantially amplified risk of death.4 Around 20% of people suffer from depressive disorders eventually in their lives.5 The third major outcome of burden of disease around the world is depression. It is projected to rise over the following 20 years.6,7 Globally, depression is known as the biggest non-fatal burden of disease including a 12% of disability-lived life.8 Previous research has evaluated depression's point prevalence as 3.9% and dysthymia, a minor long-term variant of depression, to be at 1.1%.9 Over the last two decades, prescription of anti-depressants has tremendously increased among the Western world, primarily along the development of inhibitors of selective serotonin reuptake and anti-depressants for the primary clinical treatments of depression. 3,10 Although anti-depressants are an effective treatment for severe depression,11-16 the degree of patient adherence to medication stay lower due to the apprehensions regarding potential addiction and side effects of the medication.17,18 Psychological therapies are an essential and common substitute to pharmacotherapy such as anti-depressant medications in treating depression. Preceding meta-analyses found that psychological therapies are as effective as pharmacotherapy, as a sole treatment of alleviating mild to moderate depression symptoms.19,20 Psychological therapies have been established over the past few years including the cognitive-behavioral therapy.2 As recommended by clinical guidelines, psychological and pharmacological treatments in combination or as separate treatments are required to treat moderate to severe depression.3 Poor response to clinical interventions such as antidepressants among depressed patients, is quite common.21-23 This poor pharmacotherapy response is known to be treatment-resistant depression.24 While researchers have examined possibly the most adequate treatments for treatment-resistant depression since years, 22,23 no usual treatment intervention has been developed so far.25 Moreover, a substantial amount of patients suffering from chronic depression do not even follow a treatment.26 As a result, new treatment approaches are required for the chronically depressed patients.27

By a thorough review of existing literature, the efficacy of cognitive-behavioral therapy (CBT) shows a significant empirical evidence aiding its practice in clinical settings. CBT is substantially being recognized as an effectual psychological therapy approach for treating depression among adult mental health patients. CBT is an organized intervention centering on the association between emotions, thoughts and behaviors (cognitive restructuring), while targeting to challenge and alter cognitive distortions contributing to symptoms of depression.28 In addition, it enhances the functioning and behavioral change. Therapists utilizing CBT, highlight outdoor activities apart from the sessions and assignments as homework by a collaborative empiricism approach to precisely experience the significance of anticipated changes within therapy sessions.29 Moreover, CBT can be provided in several arrangements such as, class, individual, or guided self-help. Few studies have shown that CBT is also effective in various arrangements including self-help guidance.30,31 Previous study has compared the efficacy of CBT treatment and shown just as effective as solely a treatment of anti-depressant,29 even though merging both the treatments improves the treatment efficacy32,33. Although a study focusing on a CBT variant, the cognitive behavioral analysis system of psychotherapy (CBASP), to be effective if

combined with the antidepressant treatment,34 few studies found that CBASP has no benefit as a sole treatment of depression without medications.35,36 Similarly, mindfulness-based cognitive therapy for depression treatment without adding the medication treatment was not found beneficial.37 However, these research did not concentrate on treatment-resistant depression. The improvement shown while the duration of depression treatment is known as response whereas, remission is the complete normalization of symptoms.38 Relapse is the return of symptoms linked to a treated episode. Therefore, to diminish the relapse risk, the newly remitted patients are usually given pharmacotherapy for the next 6-12 months. Furthermore, the patients that do not relapse for a long period of time, with the presumption that the primary episode has finished, are said to have recovered.39 Although many research has proven the efficacy of depression treatments, under 50% of the patients attain a full remission following no substantial remaining symptoms post-psychological therapy,40 few research over follow-ups have shown that the incidence of relapse stays high.41

This paper targets to examine the efficacy of CBT for treating depression among adult mental health patients through a thorough literature review of existing studies to assess the effectiveness of CBT in alleviating depression among adults, taking into consideration factors such as treatment duration, patient demographics, and the presence of comorbid conditions. This study will evaluate the effectiveness of CBT in reducing symptoms and improving depression among adult mental health patients. This study will also explore potential moderators such as age, gender, therapy duration, existing comorbidities and treatment resistance that impact CBT effectiveness in treating depression. By combining outcomes from various research, this systematic review targets to deliver a distinct concept of how CBT can be personalized to augment therapeutic effects for adult patients suffering from depression, eventually supporting the enhancement of mental healthcare in clinical settings.

## RESEARCH QUESTIONS

How\why is CBT effective in the treatment of depression in adults?

What are internal/external factors associated with the effectiveness of CBT for depression?

## METHODOLOGY

This systematic review is executed based on the methodology permitting to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement.42

### Inclusion and Exclusion Criteria

### Inclusion Criteria

Studies were included if they met the following criteria: (1) Randomized controlled trials, meta-analyses, and other relevant studies. (2) Studies evaluating the effectiveness of CBT. (3) Studies comparing CBT with other treatments like psychological, pharmacotherapy treatments or a control condition. (4) Studies regarding diagnosed depression established by diagnostic interviews, self-report scale or depressive symptoms among adults. (5) Studies published in the English language only that were published from 2015 to 2024. (6) Analysis of short term (after test) and long term outcomes (follow ups) even though a few research outlined this information.

### Exclusion Criteria

Studies were not included if they met the following criteria: (1) Non-peer reviewed studies such as website or blog posts. (2) Studies including depression among adolescents or children (less than 18 years of age). (3) Studies not focusing on

CBT. (4) Studies without a control condition. (5) Studies published in languages other than English. (5) Relevant studies that were published before 2015.

### Search Strategy

Several electronic databases like Google Scholar, PubMed, and Cochrane Library were searched from 2015 to 2024 for randomized controlled trial, meta-analyses and other relevant papers regarding the cognitive-behavioral therapy's efficacy in depression treatment among adult mental health patients which meets the inclusion criteria. To additionally discover relevant studies, and unpublished studies that were not discovered through the search strategy, the included studies' reference lists were searched manually. Studies only published in the English language were included. Varying on the database, different combinations of free terms and MeSH terms were employed. The search terms included "cognitive behavioral therapy", "CBT", "efficacy", "major depression", "depression", "adults", "mental health".

### Data Extraction and Management

Screening of the abstracts and titles were performed by a reviewer. The titles and abstracts of the screened randomized controlled trials and relevant studies were reviewed to check if the studies complied with the inclusion criteria. Data extraction was performed independently employing the general data extraction methods comprising study attributes such as title, sample size and detailed information. The comprehensive information in the PICOS method includes the participation, treatment method, comparison, results, design of the study and other characteristics.

### Quality Assessment

In this review, the Cochrane Collaboration tool for evaluating the risk of biasness to assess the validity, quality and the potential bias of the included studies in methodologies of the randomized controlled trials.43 The Cochrane Collaboration tool offers seven items for assessing bias: allocation concealment (selection bias), selective reporting (reporting bias), blinding of outcome assessment (detection bias), random sequence generation (selection bias), blinding of participants and personnel (performance bias), incomplete outcome data (attrition bias) and other bias.43 As a result, each study was classified as low risk of bias and unclear (vagueness over the possibility for bias or missing information), shadowing the instructions from the Cochrane Guide. In addition, Robvis, Risk of bias visualization, is a variant of Cochrane Bias tool, for creating risk of bias plots and was therefore, utilized in this review.44

## RESULTS

Initially, 21 studies were overall identified and screened through comprehensive database searches. After implementing the inclusion and exclusion criteria, 8 articles were chosen for a thorough analysis, which included randomized controlled trials, meta analyses and other relevant studies available from 2015 to 2023. The combined sample size of these studies was approximately 10384 adult participants diagnosed with depression. Figure 1 shows the identified databases and screened studies included in this systematic review, meeting the inclusion and exclusion criteria. The PRISMA flow diagram was created using PRISMA2020.45

The results revealed that CBT diminishes depressive symptoms as compared to the control groups that received alternative therapies. Additionally, the results revealed that CBT and several variations of CBT showed moderate efficacy in treating depression among severely

depressed patients. Studies with follow up post-treatment, validated that the benefits of CBT were sustained over time, with reduction in depressive symptoms retained from 6 to 12 months after the successful completion of treatment. Adverse effects were minimal. These results highlight that CBT may be an effective treatment solely or may be highly effective if combined with other treatments for depression in adult mental health patients while underlining its prospective for long term effects. Table 1 shows the summary of results of CBT as an intervention compared with control groups and their study designs, follow-up duration and outcomes.

### CBT with Pharmacotherapy

In a study, it was shown that patients administered into CBT were 2.4 times possible to have treatment effectiveness at 16 weeks and showed milder depressive symptoms as compared to the usual treatment group which consisted of anti-depressive medications.24 Furthermore, the long-term effects that benefited through CBT were followed up for 12 months and confirmed the effective outcomes at 3 months. However, there was no treatment difference shown at 8 weeks. Similarly, no difference was found in the overall well-being in both treatment groups. Eventually, it was found that combining pharmacotherapy with CBT was effective in alleviating depressive symptoms in patients with treatment-resistant depression. A meta-analysis reported that pharmacotherapy showed minor improvement in depression as compared to CBT.46 In the same study, the randomized controlled trial samples may not be inclusive of patients with depression being treated in healthcare centers.47 Another systematic review and meta-analysis conducted, with women being the majority of the participants, comparing CBT with second generation anti-depressants showed no difference in treatment effects in both the treatment therapies, whether solely or in combination. The risks of response and remissions were almost similar to the comparisons of monotherapy. However, this study had a low evidence rate and its outcomes were moderated by small numbers. 48

### CBT with Other Psychological Interventions

In a clinical trial conducted only on depressed female patients comparing CBT with Positive Psychology Interventions (PPI), 71.8% of participants in CBT group were no longer applicable to the diagnostic criteria whereas, 67.6% of the participants in the PPI group were no more applicable to the criteria of diagnosis.49 Moreover, in the same study, results found that intention-to-treat analysis showed both treatment forms effectively diminishing the clinical depressive symptoms along with enhancing the quality of life. However, the main outcomes such as level of depressive symptoms and diagnosis and secondary outcomes such as, quality of life and positive and negative effects, in both the groups had no substantial difference. In addition, no difference between CBT and PPI was found even in severely depressed patients.49 Another study showed that CBT variations, Blended CBT and Face-to-Face CBT were both found effective in treating depression. The participants age range included 18-76 years, with 74% of them being females.50 At 6 months' follow up, no significant variation between both the treatment variations was found, whereas, a slight but non-significant difference was shown at 12 months follow up. Similarly, research comparing internet-based CBT (iCBT) with waiting list group found that internet-based CBT group showed diminished depressive and anxiety symptoms and enhanced quality of life. The mean participant age was 30.82, with 74% of females.51 Moreover, the ICBT group had higher (55%) remission rates.51 In a network meta-analysis comparing CBT, cognitive restructuring (CR) and behavioral activation (BA) with care as

usual and waiting list on depressed patients, no difference was found in the efficacy of CBT, CR, BA. Hence, the outcomes recommend that CR or BA solely or in combination with CBT may be effective treatments as compared to care as usual and waiting list.52 Furthermore, in a study conducting CBT as a treatment for depression among young adults, ranging from 22.4-51.7 years, and older adults, ranging from 66.4-77.5 years, showed that no substantial difference among the age groups is reported in context to CBT efficacy for depression in comparison to other treatments, provided the overall effect supporting CBT over other treatments. Hence, CBT is efficacious in both younger and older adults.53

### Quality Assessment Findings

The quality of the studies was moderate. The Cochrane risk of bias tool was utilized to assess the biasness of the included randomized controlled trials and is summarized and shown in Figure 2. Two studies reported overall adequacy whereas, the other did not. Two studies reported blinding of outcome assessors. In one study, intention to treat analysis was conducted. One study met all the inclusion criteria. Whereas, the other three had adequate quality, meeting four to five criteria.

## DISCUSSION

After a comprehensive literature review, only eight studies were included to improve the quality of the systematic analysis rather than quantity. Results combined from the eight studies showed CBT as comparatively an effective psychological therapy for depression.

The theory regarding CBT was developed in a research as, “participating in approaches targeted to modifying negatively biased beliefs and thinking styles result in cognitive change, which is the mechanism through which depressive symptoms are lowered.”54 Across multiple studies, evidence supports CBT as a successful treatment for depression in lowering the depressive symptoms.24,46,48-53 This supports the case for incorporating CBT into standard psychological therapeutic interventions for depressed adult mental health patients. Moreover, the findings of this research emphasize that although CBT is usually effectively, several characteristics like age, gender, the presence of comorbidities, and the severity of depression may affect the results of the treatment. Similar to findings of this review, research has shown that depression is generally more common amongst women compared to men.55 However, in context to this review, the results based on gender may not be relevant as several studies focused only on women. This is suggestive of developing personalized CBT approaches to provide the requirements based on the individual patient’s requirements and different demographics that may enhance the overall efficacy of the treatment. In addition, the significance of the duration of treatment in one study is highlighted showing that longer CBT interventions are linked to enhanced outcomes,24 indicating that sufficient time is critical for patients to completely participate in the procedure and achieve effective coping approaches. This outcome suggests that mental healthcare professionals should take application of longer treatment duration plans into consideration, specifically aimed at patients encountering more severe depressive symptoms.

This review acknowledges some limitations within the reviewed studies, such as the differences in sample sizes and study designs which affects the generalizability of the overall outcomes. Furthermore, several studies reported drop-out rates that may have tempered with the overall primary and secondary outcomes. The inadequate amount of recent studies consisting of randomized controlled trials makes it challenging to draw definitive conclusions, although several previous

studies have proven the efficacy of CBT on its own.56-59 As a result, further study is essential to examine the efficacy of CBT in randomized-controlled studies. In addition, few studies included the follow-up approaches in their study designs to monitor short-term and long-term effectiveness of CBT for the treatment of depression. Future research must aim on conducting more rigorous randomized controlled trials consisting of larger sample sizes, keeping in view the drop-out rates and individual patient demographics to explore the long-term effects of CBT and its adaptability in different characteristics.

## CONCLUSION

In conclusion, this systematic review accentuates that CBT not only provides alleviation from depressive symptoms but also provides patients with coping strategies for mental health improvement. Additional research is required to moderate characteristics like patient demographics and larger sample sizes are required for more definite conclusions. Moreover, future research must include treatment follow-ups after the completion of the treatment for achieving evidence of long-term and short-term benefits. Nevertheless, this study shows ample findings that prove CBT as a promising depression treatment whether as a monotherapy or combined with other therapies.

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## DISCLOSURE

The authors report no conflicts of interest or disclosure of financial interest in this work.

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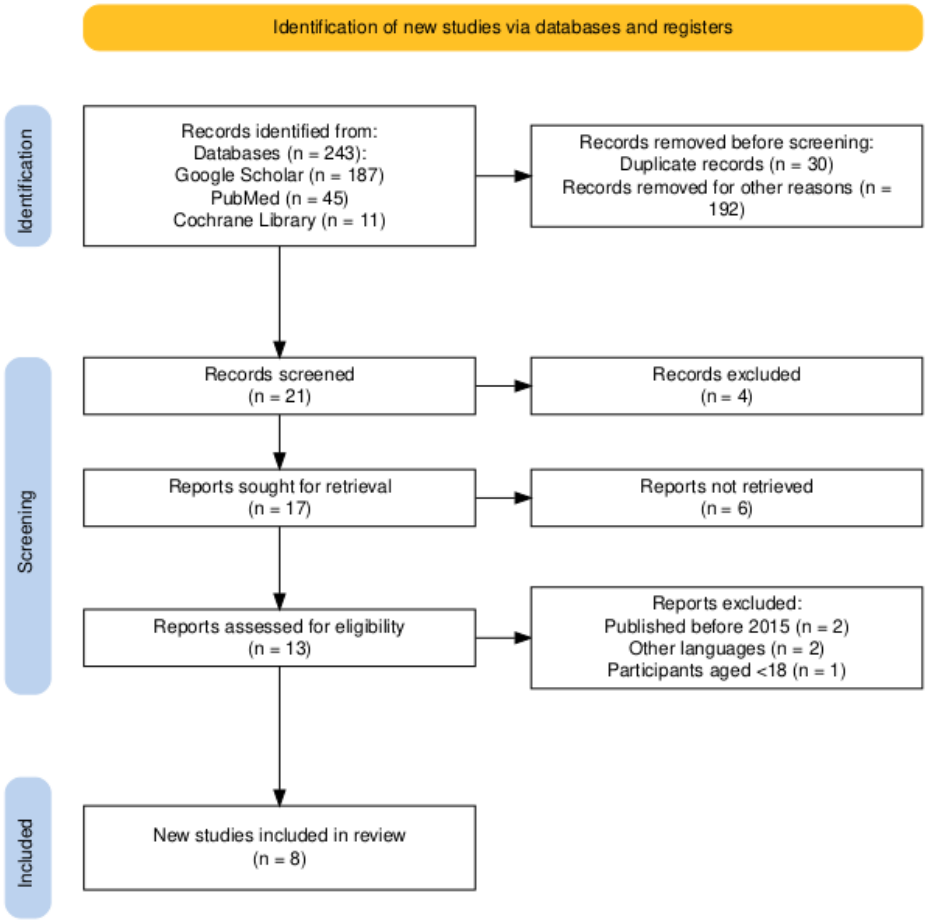


**Figure 1. PRISMA Flow Diagram detailing the process of study selection**

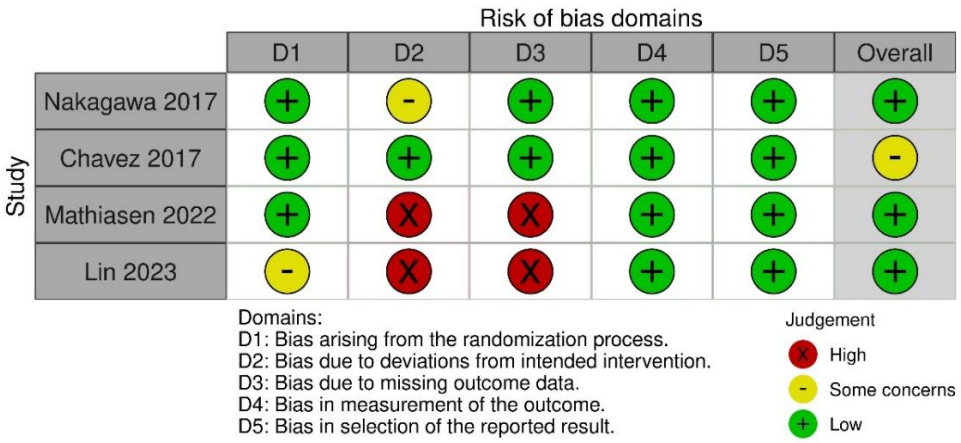


**Figure 2. Summary of the risk of bias: review of authors' judgements about each risk of bias item for included RCTs**

**Table 1. Summary of the results of the Efficacy of CBT in treating depression among adults**

| Author (s) | Year | Sample Size | Study Design | Comparison Group | Follow-up Duration | Key Findings |
|---|---|---|---|---|---|---|
| Nakagawa et al.[24] | 2017 | 80 | Randomized Controlled Trial | Treatment with anti-depressants | 12 months | Significant reduction in depressive symptoms through CBT |
| Weitz et al.[46] | 2015 | 1700 | Meta-analysis | Pharmacotherapy | - | Minor improvement in depression through pharmacotherapy |
| Chavez et al.[49] | 2017 | 96 | Controlled clinical trial | Positive Psychology Interventions | 3-6 months | Both treatments reduced depressive symptoms |
| Amick et al.[48] | 2015 | 1511 | Systematic review/Meta-analysis | Second generation antidepressants | 12-32 months | No difference in depressive effects in both groups |
| Ciharova et al.[52] | 2021 | 3,382 | Network meta-analysis | Waiting list and care as usual | - | Significant difference in treatment effectiveness through CBT, combined with cognitive restructuring and behavioral activation |
| Werson et al.[53] | 2022 | 3499 | Meta-analysis | CBT effectiveness in young and old adults | - | CBT effective in both young and old adults |
| Mathiasen et al.[50] | 2022 | 76 | Randomized controlled trial | Blended CBT and Face-to-Face CBT | 6-12 months | Both CBT variations produced treatment effects |
| Lin et al.[51] | 2023 | 40 | Randomized | Waiting list | - | Lowered depressive symptoms |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | controlled trial | | | |

This table summarizes the key information from the included studies, such as authors, year of publication, sample size, study design, comparison groups, follow-up durations, and key findings, adhering to PRISMA guidelines.

**Abbreviations:** CBT, Cognitive-Behavioral Therapy; CBASP, Cognitive Behavioral Analysis System of Psychotherapy; PPI, Positive Psychology Interventions; CR, cognitive restructuring; BA, behavioral activation; iCBT, Internet-based Cognitive-behavioral Therapy