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Original Article

# EFFECTIVENESS OF COGNITIVE BEHAVIORAL THERAPY(CBT) ON RELAPSE IN ADULTS WITH DEPRESSION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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## ABSTRACT

Depression is a prevalent condition manifested by prolonged sadness, functional impairment and an increased risk of relapse. Relapse prevention remains a primary concern for clinicians. Cognitive Behavioural Therapy (CBT) is widely recognized as an evidence-based treatment; thereby research is needed to comprehend its overall impact on depressive symptoms. The aim of this review was to analyze the effectiveness of Cognitive Behavioral Therapy (CBT) compared to Treatment as Usual (TAU) in preventing depressive relapse amongst the adult population. A systematic search was conducted on electronic databases like PubMed and Cochrane library, along with register Clinicaltrials.gov and other sources, for studies published between 2010 and 2025. Nine randomized controlled trials were selected with sufficient data to perform meta-analysis. Covidence was used for data extraction, while Cochrane Risk of Bias Tool (RoB 2) for evaluating study quality. The results showed no significant difference, and the effect size was negligible (Hedges' g = 0.068). Subgroup and meta-regression analyses evaluated that the outcome of CBT was not influenced by the number of CBT sessions or the duration of the follow-up. However, the severity of depression did have some degree of influence. From the evidence currently available, there is no indication that CBT is superior to TAU in preventing depressive relapse in adults. Future studies with longer follow-up periods and defined CBT frameworks are needed to better grasp the long-term effectiveness of CBT.

## I. INTRODUCTION

Depression is a serious mental health disorder marked by persistent sadness, loss of interest, hopelessness, negative thinking and, in severe cases, suicidal ideation. It significantly affects emotions, behavior, daily functioning and overall quality of life (Shumye et al., 2019). According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), major depressive disorder (MDD) is diagnosed when an individual experience at least five depressive symptoms for a minimum of two weeks (Moon et al., 2018). Depression develops through the interaction of biological, psychological and social factors, including neurotransmitter imbalances, genetic predisposition, stressful life events, trauma and maladaptive thinking patterns. The core features include persistent low mood, feelings of worthlessness, impaired concentration, sleep, appetite disturbances and recurrent thoughts of death or suicide (APA, 2022). These symptoms impair occupational, academic and social functioning, making depression one of the leading global public health concerns (Bertolote & Fleischmann, 2002). Approximately 10–20% of individuals' experience depression during their lifetime (Moreno, 2021). According to an

estimate, depression affects approximately 5% of the global adult population, representing nearly 280 million people (WHO, 2025; GBD 2019 Mental Disorders Collaborators, 2022).

Depressive disorders include several subtypes. Major depressive disorder is the most common form and is characterized by persistent depressed mood, loss of pleasure and impaired functioning (Marx, 2023). Persistent depressive disorder (dysthymia) involves chronic depressive symptoms lasting for years (Patel et al., 2024), while psychotic depression includes hallucinations or delusions and requires immediate clinical intervention (Dubovsky et al., 2021). Bipolar depression consists of depressive episodes alternating with mania or hypomania and therefore requires a distinct treatment approach. Depression is a treatable disorder, and treatment selection depends on symptom severity, depression subtype, medical history and individual needs. Evidence suggests that both pharmacological and psychological treatments effectively reduce depressive symptoms and lower relapse risk (Thase & Kupfer, 1996). Pharmacological treatment primarily involves antidepressant medications, particularly selective serotonin reuptake inhibitors (SSRIs), which are considered first-line treatment for major depression (Olfson & Klerman, 1993). Other medications include selective serotonin reuptake inhibitors (SSRI), serotonin norepinephrine reuptake inhibitors (SNRI). These medications improve mood, sleep, energy and concentration by regulating neurotransmitter activity, although side effects such as nausea, headaches and weight changes require careful medical supervision (Gabriel et al., 2020).

Psychological treatments involve structured psychotherapy delivered by trained mental health professionals. Cognitive Behavioral Therapy (CBT) and Interpersonal Therapy (IPT) are among the most commonly used approaches. These therapies help individuals identify maladaptive thoughts, improve coping skills and strengthen interpersonal relationships (Beck et al., 1979; Weissman et al., 2020). Combined treatment, involving both psychotherapy and medication, is often recommended for moderate to severe depression or when a single treatment approach is insufficient. Research indicates that combined therapy improves treatment adherence, remission rates and long-term functioning while reducing relapse risk (Hollon et al., 2014). Overall, psychological therapies and antidepressant medications demonstrate comparable effectiveness in reducing depressive symptoms (Bortolotti et al., 2008). Among psychological interventions, Cognitive Behavioral Therapy (CBT) is one of the most extensively researched and evidence-based treatments for depression. It is recognized as a first-line treatment for depression (NICE, 2022). Originally developed by Beck in the 1960s, CBT focuses on identifying and modifying dysfunctional thoughts, emotions and behaviors that contribute to depression. CBT is typically delivered in weekly sessions lasting 45–60 minutes over approximately 8–10 sessions (Beck et al., 1979). Treatment begins with assessment and formulation, during which therapists evaluate symptoms, mood patterns, daily functioning and contributing factors. Patients then learn to recognize automatic negative thoughts, challenge cognitive distortions and replace them with healthier thinking patterns. Behavioral activation and structured homework assignments encourage participation in enjoyable and meaningful daily activities, reinforcing positive behavioral change.

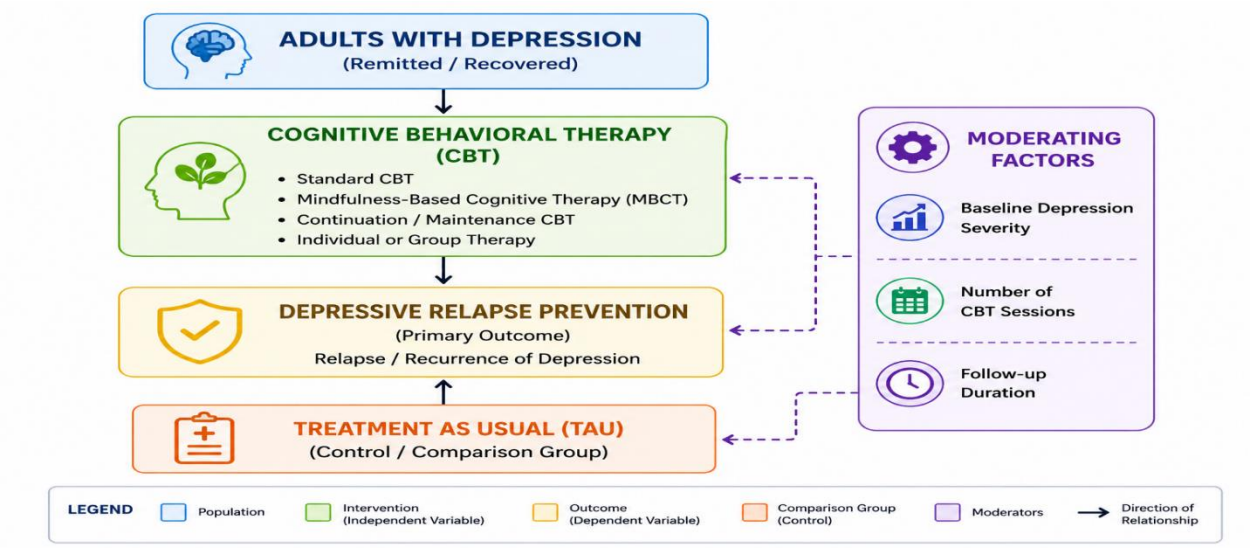
Extensive research supports CBT as an effective treatment for depression (Beck et al., 1979). Studies suggest that about 50–60% of individuals' experience significant symptom improvement following a complete course of CBT (Hollon et al., 2005). Meta-analyses and randomized controlled trials demonstrate reductions in depressive symptoms, improvements in daily functioning and enhanced quality of life (Butler et al., 2006; Cuijpers et al., 2013). Furthermore, treatment benefits frequently persist beyond therapy completion, promoting long-term emotional stability (Hofmann et al., 2012). Despite successful treatment, depression frequently recurs. **Relapse** refers to the return of depressive symptoms before full recovery, whereas **recurrence** refers to the onset of a new depressive episode after recovery (Frank et al., 1991). Individuals with residual symptoms, anxiety, rumination and recurrent depression are at greater risk of relapse (Buckman et al., 2018). Several interventions have been developed to reduce relapse risk. Mindfulness-Based Cognitive Therapy (MBCT) combines cognitive therapy with mindfulness practices and has been shown to reduce relapse by approximately 43% among individuals with recurrent depression (Segal et al., 2002; Piet & Hougaard, 2011). Continuation and maintenance cognitive therapies reinforce coping skills, address residual symptoms and provide long-term support for individuals at high risk of recurrence (Bockting et al., 2005). Relapse prevention is a key component of Cognitive Behavioral Therapy (CBT). It helps individuals recognize early warning signs, challenge negative thought patterns and apply coping strategies to maintain recovery (Chen et al., 2022). Evidence suggests that CBT reduces relapse rates more effectively than

medication alone, with individuals completing CBT being approximately 30–50% less likely to experience relapse within one to two years than those receiving pharmacotherapy alone (Boness, 2023). Consequently, CBT is considered one of the most effective evidence-based interventions for the long-term management and prevention of depressive disorders (Hofmann et al., 2012). The objectives are as follow:

1. To evaluate the effectiveness of Cognitive Behavioral Therapy (CBT) compared to Treatment as Usual (TAU) in reducing relapse rates among adults with depression.
2. To identify the factors associated with differential outcomes (relapse prevention, symptom reduction and functional improvement) among adults with depression receiving CBT compared to TAU.
3. To identify characteristics such as baseline severity, number of CBT sessions and follow-up duration that moderate the effectiveness of CBT versus TAU in adults with depression.

Rationale of the study explains that Depression is one of the most prevalent and recurrent mental health disorders, with a high risk of relapse. Consequently, many patients remain vulnerable to depression even after achieving remission, which results in reduced functioning, increased disability and healthcare burden. The chronic nature of depression highlights the need to identify interventions that provide more sustained protection against symptom recurrence. Although many pharmacological and psychological treatments are available for depression, relapse remains a significant challenge. Antidepressant medications effectively reduce symptoms, however long-term use may result in poor adherence, side effects and an increased risk of symptom recurrence after discontinuation. Therefore, distinguishing effective long-term strategies for relapse prevention is essential. Previous studies have reported inconsistent findings regarding the effectiveness of CBT in preventing relapse due to variations in treatment formats, follow-up periods and study methodologies. Moreover, much of the existing research has focused on symptom reduction rather than long-term relapse prevention. These limitations highlight the need for a systematic review and meta-analysis that synthesizes the available evidence on the effectiveness of CBT in preventing relapse among adults with depression. This study aims to systematically review and evaluate the existing research on the effectiveness of CBT in the prevention of depressive relapse in adults.

**Figure I: Conceptual Framework**



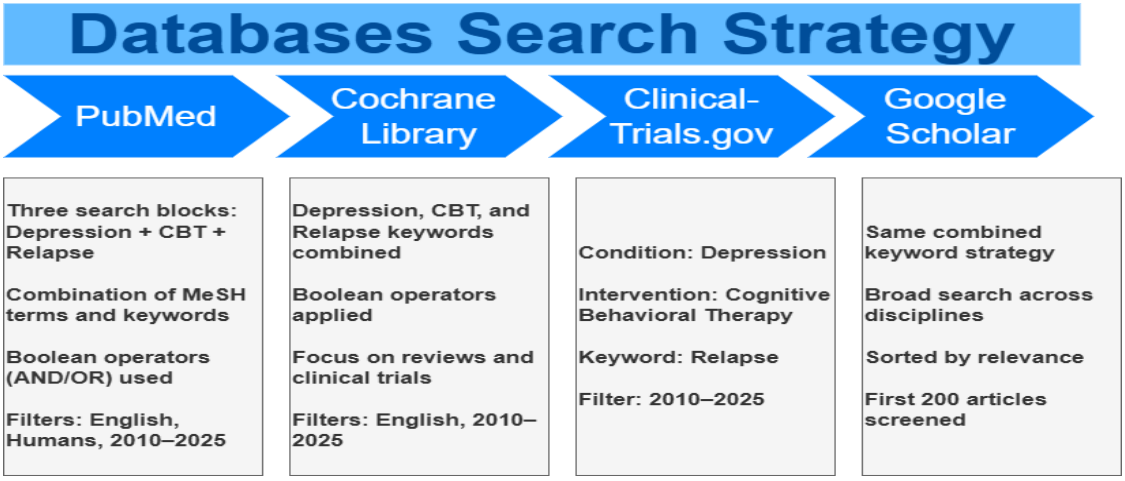

# II. METHOD

This study systematically synthesized the existing evidence on the effectiveness of CBT in preventing relapse among adults with depression. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, and was registered with PROSPERO (CRD420251274336). It included randomized controlled trials (RCTs) and quasi-experimental studies published between 2010 and 2025. A meta-analysis was conducted where appropriate to estimate the overall effect of CBT compared with TAU. The primary

objective was to evaluate the effectiveness of CBT in preventing depressive relapse among adults compared with TAU. The review also examined the effects of CBT on depressive symptoms and overall functioning, while exploring factors that may influence treatment outcomes, including baseline depression severity, the number of CBT sessions, and the duration of follow-up.

### Databases and Search Strategy

**Figure II: Search Strategy of different databases**




A comprehensive and systematic search was conducted on several electronic databases, such as PubMed and Cochrane Library. Moreover, registry i.e. Clinicaltrials.gov was also included for pertinent ongoing or completed trials. For extensive covering of relevant studies, other sources, comprising Google Scholar and reference lists of included studies were also consulted. The search strategy was drafted centering on keywords regarding depression, cognitive behavioral therapy (CBT), and relapse prevention, using controlled vocabulary. Synonyms and search terms were combined using Boolean operators. Systematic searching was made on PubMed, Cochrane Library, ClinicalTrials.gov, and Google Scholar. The eligibility criteria is as follow; The inclusion criteria of the study was: 1) Studies involving adults with age range of 18 to 65 years diagnosed with depression (either Major Depressive Disorder MDD or Dysthymia/Persistent Depressive Disorder), 2) Studies that examine Cognitive Behavioral Therapy (CBT) (Continuation, Maintenance, Preventive Cognitive therapy and MBCT either in individual or group formats), 3) Treatment As Usual (TAU), pharmacotherapy, standard or routine care, 4) Reported outcomes include reduction in relapse/ recurrence or depressive symptoms, 5) Randomized Controlled Trials (RCTs) and Quasi-Experimental Studies. The exclusion criteria of the study were: 1) Studies focusing solely on psychological interventions other than CBT, 2) Studies without a TAU or standard care comparator, 3) Children, adolescents and older adults, 4) Case reports, observations or editorials, 5) Studies published in languages other than English or published before January 2010.

### Treatment Fidelity

Treatment fidelity was assessed to determine whether CBT interventions were delivered according to the intended research protocols. Studies describing manual-based CBT with appropriate supervision were considered to have good treatment fidelity. Although treatment fidelity was not analyzed statistically, variations in session number, mode of delivery and therapist experience were taken into account during the interpretation of the findings.

### Study Selection and Data Extraction

All records retrieved from the selected databases were imported into Zotero to identify and remove duplicate records. Of the 2,525 records identified, 428 duplicates were removed, leaving 2,097 records for screening. Two reviewers independently screened the studies using predefined inclusion and exclusion criteria. After title and abstract screening, 90 studies were selected for full-text review. Following full-text assessment, nine studies met the eligibility criteria and were included in the final review and meta-analysis. Data extraction was conducted using a standardized Microsoft Excel form based on the *Cochrane Handbook for Systematic Reviews of Interventions*

(Higgins et al., 2024). Extracted information included study characteristics, participant demographics, intervention details (CBT format, sessions, delivery mode and comparator), follow-up duration and relapse outcomes. Missing or unclear data were verified where possible to ensure consistency and accuracy for the meta-analysis.

### Statistical Analysis

Relapse was analyzed as a binary outcome using Risk Ratios (RRs) with 95% confidence intervals. A random-effects model was applied because heterogeneity among studies was anticipated. Heterogeneity was assessed using Cochrane Q test and the $I^2$ statistic, while subgroup analyses were conducted based on CBT type, follow-up duration and number of CBT sessions where appropriate. All analyses were performed using Comprehensive Meta-Analysis (CMA) software, and results were presented as forest plots.

### Heterogeneity and Publication Bias

Subgroup analysis was performed to account for heterogeneity. Publication bias was assessed using funnel plots. As no evidence of publication bias or missing studies was identified, no additional analyses were performed.

## III. RESULTS

### Search Results and Study Selection

### Figure III: PRISMA Flow Diagram

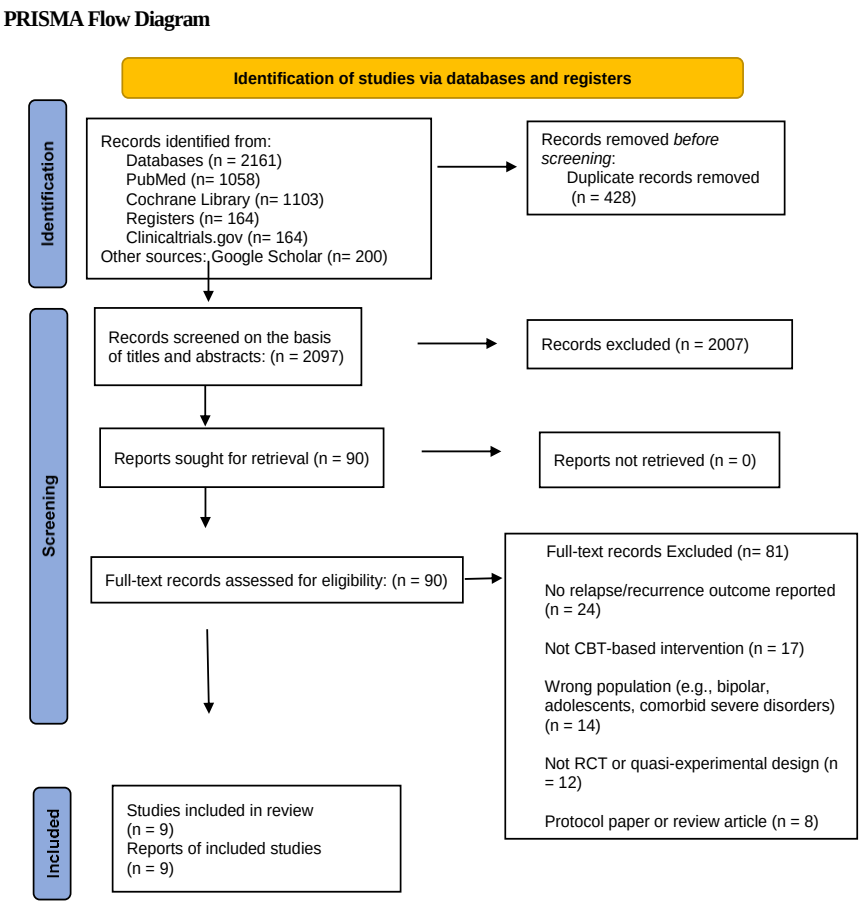



Figure 3 shows the study selection using a PRISMA flow diagram (Page et al., 2021)

### Study Characteristics

This meta-analysis included nine RCTs. Sample size, participant characteristics, CBT interventions, number of sessions and follow-up durations used in the reviewed studies were diverse. Sample size varied from 33 to 212 participants, average age of participants across studies was between 40 – 52 years. The percentage of female participants was 57– 82.7%. Based on HRSD scores (3.6 – 14.1), most participants were in the state of depression remission or partial remission. Participants were still at risk of relapse. Most studies had 8 sessions of CBT. The number of sessions in some studies was 10 or 16. Most of the studies had group-based CBT programs. Longer term follows up was done in most studies, with follow up periods between 14 and 24 months, while 1 study had a 20-year follow up to ascertain long term relapse prevention.

**Table I: Characteristics of Included Studies**

| Study | Design | Exp N | Ctrl N | Mean Age | Female % | Baseline HRSD | Sessions | Treatment Format | Follow-up | Outcome Measure |
|---|---|---|---|---|---|---|---|---|---|---|
| Huijbers et al. (2015) | RCT | 33 | 35 | 51.9 | 73% | 6 | 8 | Group | 15 months | IDS-C |
| Legemaat et al. (2023) | RCT | 97 | 90 | 45.9 | 73% | 3.8 | 8 | Group | 20 years | SCID-5 |
| Kuyken et al. (2015) | RCT | 212 | 212 | 50 | 71% | 4.8 | 8 | Group | 24 months | HRSD |
| Huijbers et al. (2016) | RCT | 121 | 33 | 50.3 | 67% | 6.5 | 8 | Group | 15 months | IDS-C |
| Huijbers et al. (2016) | RCT | 128 | 121 | 50.7 | 72% | 6.4 | 8 | Group | 15 months | IDS-C |
| Dunlop et al. (2019) | RCT | 37 | 53 | 40.4 | 57% | 14.1 | 16 | Individual | 18 months | HAM-D |
| Jarrett et al. (2013) | RCT | 172 | 69 | 48.7 | NR | ≥14 | 10 | Individual | 24 months | HRSD-17 |
| Bockting et al. (2018) | RCT | 104 | 100 | 47 | 69% | 3.6 | 8 | Individual | 24 months | HRSD |
| Godfrin and van Heeringen (2010) | RCT | 52 | 54 | 44.9 | 82.70% | 6.65 | 8 | Group | 14 months | HRSD |

*Note.* Exp N = experimental (CBT) group; Ctrl N = control group; HRSD = Hamilton Rating Scale for Depression; IDS-C = Inventory of Depressive Symptomatology Clinician–Rated; SCID-5 = Structured Clinical Interview for DSM-5**.**

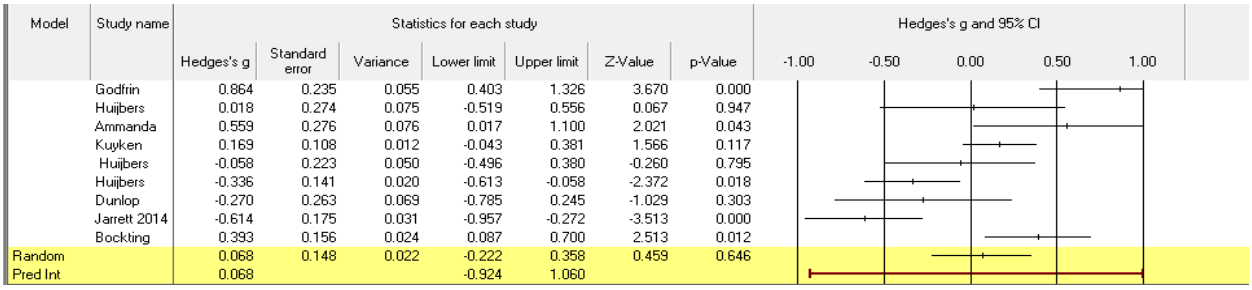
### Treatment Effects

The therapeutic efficacy of the treatment has been examined through meta-analysis. Risk Ratio (RR) was calculated, where RR < 1 indicated CBT group had a lower risk of relapse. It was a statistically insignificant difference, suggesting a lack of evidence in the preference of CBT over TAU. Although results in the favor of CBT were reported in some studies, a comparative lack of difference between the two programs was also reported.

### Overall Effect Size (Hedges' *g*)

Hedge's *g*, a standardized measure of difference, for overall treatment effect across the studies in the meta-analysis. With a g value of 0.068, the pooled analysis showed that relapse outcomes from participants in the CBT group provided a compare-and-contrast to relapse outcomes from participants in TAU group. Even though numerous studies preferred CBT, the overall effect was still non-significant, and the outcome was also non-significant ($Z = 0.459$, $p = 0.646$).

**Figure IV: Forest Plot Showing Comparison of CBT with TAU**




## Heterogeneity

The Cochran's Q test and $I^2$ statistic were employed to measure the extent of variability of treatment effects across studies. The $I^2$ = 82%, $Q$ = 44.938, and $p$ < 0.001 were the results of the analysis. An $I^2$ of 82% represents considerable heterogeneity, and this p value signifies that the majority of the variation across effect sizes was attributed to real differences between the studies, and not the sampling. The $Q$ statistic was significant confirming the variation across the studies. Given the high level of heterogeneity, the random-effects model was employed to estimate the overall treatment effect.

**Table II: Heterogeneity Table**

| Model | Effect Size | 95 % Confidence Interval | Q Statistic | P Value | $I^2$ (%) |
|---|---|---|---|---|---|
| Fixed Effect | -0.057 | -0.158 – 0.044 | -44.938 | <0.001 | 82% |
| Random Effect | 0.068 | - 0.358 – 0.222 | 44.938 | <0.001 | 82% |

## Subgroup Analysis

Subgroup analysis was performed to account for variability between studies and to determine the possible causes of heterogeneity. It is intended to explore the impact of factors such as follow up duration and number of sessions on the treatment.

## Subgroup: Follow-up

In the long-term follow-up subgroup, the resultant pooled study for this subgroup yielded a risk ratio (RR) of 0.97 (95% CI: 0.73–1.28, p = 0.97). CBT, as compared to TAU, in this subgroup, did not significantly reduce the risk of relapse in the long-term. The pooled study results showed no significant difference between the two modes of intervention, despite some studies favoring CBT while others favoring TAU.

**Table III: Subgroup Analysis of Follow Up**

| Study Name | Group by sub group | Risk Ratio | Lower Limit | Upper Limit | Z-Value | P-Value | Follow Up Category |
|---|---|---|---|---|---|---|---|
| Legemaat et al. (2023) | Long term | 0.895 | 0.806 | 0.933 | -2.20 | 0.036 | Long term |
| Kuyken et al. (2015) | Long term | 0.840 | 0.675 | 1.046 | -1.56 | 0.118 | Long term |
| Huijbers et al. (2016) | Medium term | 0.979 | 0.525 | 1.827 | -0.06 | 0.947 | Medium term |
| Huijbers et al. (2016) | Long term | 1.388 | 1.054 | 1.827 | 2.35 | 0.020 | Long term |
| Dunlop et al. (2019) | Long term | 1.432 | 0.725 | 2.831 | 1.03 | 0.301 | Long term |
| Jarrett et al. (2013) | Long term | 2.029 | 1.308 | 3.148 | 3.16 | 0.002 | Long term |
| Bockting et al. (2018) | Long term | 0.75 | 0.535 | 0.929 | -2.04 | 0.013 | Long term |
| Godfrin and van Heeringen (2010) | Medium term | 0.389 | 0.226 | 0.670 | -3.40 | 0.001 | Medium term |
| Huijbers et al. (2015) | Medium term | 1.068 | 0.646 | 1.768 | 0.25 | 0.797 | Medium term |
| Random | Overall | 0.972 | 0.733 | 1.28 | -0.19 | 0.846 | |

### Subgroup: No of sessions

Subgroup analysis focused on the number of CBT sessions (8–20 sessions), produced varied results. Some studies, e.g., Godfrin and van Heeringen (2010) and Legemaat et al. (2023) showed significantly low relapse rates with CBT. Most studies reported no significant differences, and one study reported significant preference for TAU. Overall, the number of CBT sessions have no significant influence on relapse prevention.

**Table IV: Subgroup analysis of No of Sessions**

| Study Name | Group by sub group | Risk Ratio | Lower limit | Upper limit | Z-value | P-value | Number of Sessions |
|---|---|---|---|---|---|---|---|
| Legemaat et al. (2023) | 8 | 0.895 | 0.806 | 0.933 | -2.20 | 0.036 | Short |
| Kuyken et al. (2015) | 8 | 0.840 | 0.675 | 1.046 | -1.56 | 0.118 | Short |
| Huijbers et al. (2016) | 8 | 0.979 | 0.525 | 1.827 | -0.06 | 0.947 | Short |
| Huijbers et al. (2016) | 8 | 1.388 | 1.054 | 1.827 | 2.35 | 0.020 | Short |
| Dunlop et al. (2019) | 16 | 1.432 | 0.725 | 2.831 | 1.03 | 0.301 | Medium |
| Jarrett et al. (2013) | 10 | 2.029 | 1.308 | 3.148 | 3.16 | 0.002 | Medium |
| Bockting et al. (2018) | 20 | 0.75 | 0.535 | 0.929 | -2.048 | 0.013 | Long |
| Godfrin and van Heeringen (2010) | 8 | 0.389 | 0.226 | 0.670 | -3.40 | 0.001 | Short |
| Huijbers et al. (2015) | 8 | 1.608 | 0.646 | 1.768 | 0.25 | 0.97 | Short |
| Random | Overall | 0.975 | 0.476 | 1.99 | | | |

### Meta-Regression (Moderator) Analysis

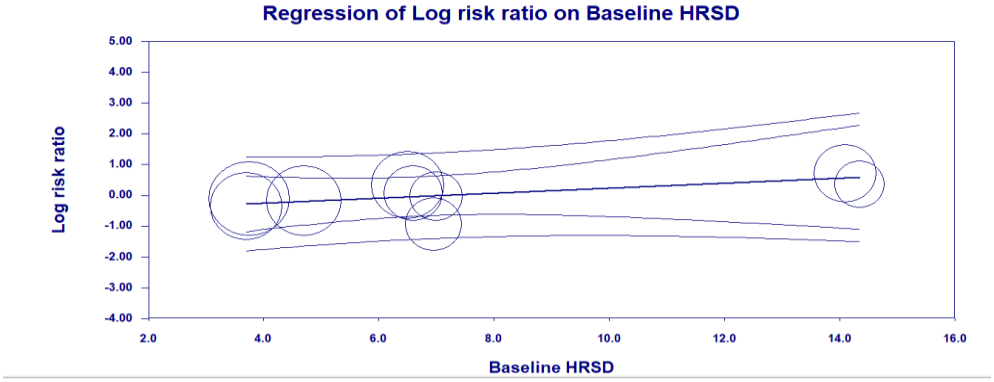
Meta-regression analysis was performed in this study to find out moderating role of the factors, such as the baseline HRSD score, follow-up length, and the number of CBT sessions, attributed to the study.

**Table V: Meta-Regression (Moderator) Analysis**

| Covariate | Coefficient | Standard Error | 95 % Lower | 95 % Upper | t-value df=5 | 2-sided P-value |
|---|---|---|---|---|---|---|
| Baseline HRSD | 0.0815 | 0.0453 | -0.0348 | 0.1979 | 1.80 | 0.1314 |
| Follow UP | 0.0012 | 0.0035 | -0.0079 | 0.0102 | 0.33 | 0.7523 |
| No of Session | -0.007 | 0.0347 | -0.0965 | 0.0820 | -0.21 | 0.8434 |

While the severity of depression at baseline had the strongest association of the three (coefficient = 0.0815, $p$ = 0.1314), it also had no statistically significant association. Follow-up duration ($p$ = 0.7523*) and the number of CBT sessions ($p$ = 0.8434*) also had no significant associations. The meta-regression analysis as a whole was not significant ($Q$ = 5.82, $p$ = 0.1205), and strong residual heterogeneity was observed.

**Figure V: Regression of log risk ratio on Baseline HRSD**



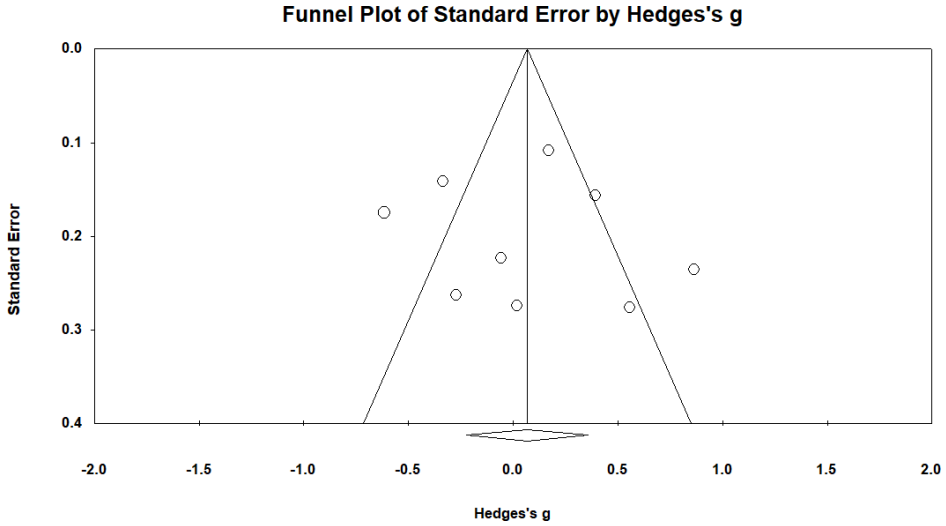

Meta-regression analysis considered how baseline depression severity acted as a moderator. The outcomes suggest baseline severity may have an impact on the effectiveness of the intervention. It is noticeable in the

regression plot that the recent analyses with a high baseline severity of depression tend to report a small range regarding the treatment effects margin. The bubble regression diagram shows each study as a circle, with the study weight indicated by the bubble size. The severity to the baseline and effect size correlation is depicted by the regression line. Even though the overall meta-regression model was statistically non-significant, the trend in the diagram suggests a relationship can be drawn regarding treatment effects and greater baseline depression severity.

### Publication Bias

The funnel plot depicts the relationship between the quality of the effect and the study's error (standard error). The studies are evenly distributed around the overall effect size and the funnel plot is almost symmetrical which indicates that there is no publication bias.

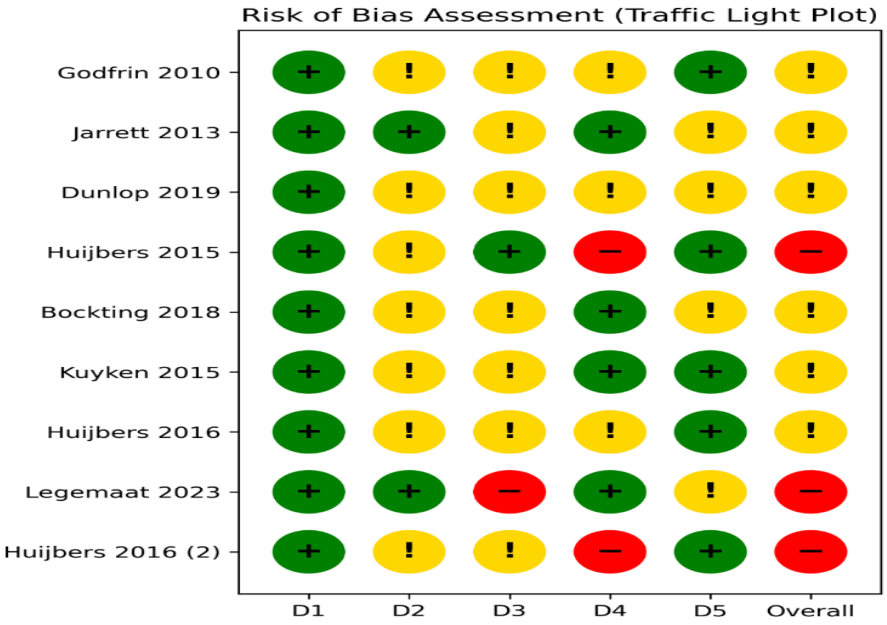
### Figure VI: Funnel Plot Showing Publication Bias




### Risk of Bias Assessment

The nine RCTs were evaluated with the Cochrane Risk of Bias Tool (RoB 2) (Sterne et al., 2019). The methodological quality was assessed in five domains. Overall, no study showed a low risk of bias in all domains.

### Figure VII: Risk of Bias Assessment (Traffic Light Plot)



# IV.DISCUSSION

This systematic review and meta-analysis aimed to assess the relative efficacy of Cognitive Behavioral Therapy (CBT) and Treatment as Usual (TAU) regarding adult depressive relapse. The pooled analysis produced an overall Risk Ratio (0.97), indicating no statistically significant difference between CBT and TAU in reducing relapse. Although several individual studies reported lower relapse rates among participants receiving CBT (Godfrin & van Heeringen, 2010; Bockting et al., 2018), the overall pooled effect was not statistically significant. A high level of heterogeneity was observed across the included studies ($I^2$ = 82%), indicating substantial variation in participant characteristics, CBT interventions, treatment duration and follow-up periods. Consequently, a random-effects model was used to account for this variability. Subgroup analyses based on follow-up duration and the number of CBT sessions showed no significant differences in treatment effects. While some studies using eight CBT sessions reported lower relapse rates, longer interventions did not consistently produce better outcomes, suggesting that increasing the number of sessions alone does not necessarily improve relapse prevention.

Meta-regression analysis further examined potential moderators of treatment effectiveness. Baseline depression severity, measured using the Hamilton Rating Scale for Depression (HRSD), (Hamilton, 1960), showed a moderate influence on treatment outcomes, indicating that individuals with more severe depression may respond differently to CBT. However, neither the number of CBT sessions nor follow-up duration significantly influenced the overall treatment effect. Although the overall findings did not demonstrate a statistically significant advantage of CBT over TAU, CBT remains an evidence-based intervention with established benefits in reducing depressive symptoms and developing long-term cognitive and behavioral coping skills (Gautam et al., 2020). The inconsistent findings across studies are likely attributable to differences in intervention protocols, patient characteristics and study methodologies rather than the ineffectiveness of CBT itself. Overall, this review suggests that current evidence does not demonstrate a clear superiority of CBT over Treatment as Usual in preventing depressive relapse among adults. Future research should include larger, high-quality randomized controlled trials with standardized CBT protocols, consistent relapse outcome measures and longer follow-up periods to better determine the conditions under which CBT is most effective for relapse prevention.

This review has several limitations that should be considered when interpreting the findings. First, substantial heterogeneity was observed among the included studies due to differences in participant characteristics, CBT interventions, treatment duration and follow-up periods. Second, the studies evaluated different forms of CBT, including standard CBT, MBCT, and continuation or maintenance CBT, as well as both individual and group therapy formats, which may have influenced treatment outcomes. The included studies also varied in follow-up duration, number of CBT sessions and methods used to assess relapse, limiting direct comparisons across studies. Furthermore, only nine studies met the inclusion criteria, reducing the statistical power of subgroup and meta-regression analyses. Some studies also showed methodological concerns, including risk of bias, incomplete outcome data and lack of participant blinding. Finally, as most studies were conducted in high-income countries, the findings may have limited generalizability to other healthcare settings and populations.

Although this meta-analysis did not find a statistically significant advantage of CBT over TAU in preventing depressive relapse, CBT remains an important evidence-based intervention that helps individuals develop coping skills and maintain long-term recovery. The findings support the continued use of CBT as part of comprehensive depression management, particularly for individuals at high risk of relapse. Future research ought to focus on conducting higher quality studies that will allow for greater findings reliability. To use uniform definitions and outcome measures for relapse and recurrence in order to allow for relative comparison across all studies. The researchers should include extended follow-up periods (two years or greater) in order to assess the sustained impact of CBT. Further research is needed to consider the moderators such as therapist level, treatment adherence, along with integrated psychological and pharmacological interventions. Moreover, it is recommended to investigate which particular components of CBT are optimal in the prevention of depressive relapse to maximize treatment strategies.

# V. CONCLUSION

This systematic review and meta-analysis aimed to analyze that CBT is beneficial than TAU in preventing depression relapse. The analysis included nine randomized controlled trials and the results indicated that the CBT did not achieve a statistically significant lower rate of relapse as compared to the treatment as usual. Even though the general outcome of the studies was not statistically significant, the studies reported some positive outcomes of CBT. This implies that the patients can be treated with CBT in order to give them the coping strategies and cognitive skills which may decrease the likelihood of future relapse. The high degree of heterogeneity in the studies is due to the fact that there are differences in the outcomes based on the specific format of the treatment, the patients, and the follow-up assessment done after the treatment. Evidence supports that CBT as a psychological treatment for depression is still paramount. However, as CBT has shown to have a variable effect on depression relapse, more studies with a standardized methodology and prolonged follow-up are warranted to explore the conditions under which CBT is effective for the prevention of depression relapse.

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