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SCHIZOPHRENIA LIBRARY

Cognitive Behavioural Therapy

Introduction

There is increasing acknowledgement that for many patients, pharmacological therapies alone may provide insufficient respite from the disabling symptoms of schizophrenia. Antipsychotic medication may be most effective for positive symptoms, such as delusions and hallucinations, while other symptoms may remain largely untreated, such as social withdrawal, impairments in cognition and social functioning.

Psychosocial therapies such as cognitive behavioural therapy (CBT) can provide a clinical adjunct to pharmacological therapy. CBT aims to generate links between patterns of thoughts, feelings and behaviours, using cognitive restructuring to facilitate the understanding and management of these patterns. It can be utilised to target both positive and negative symptoms, as well as other associated experiences and outcomes such as reducing relapse, managing co-morbid depression or anxiety, and improving coping. Patients are encouraged to correct misperceptions, evaluate beliefs and challenge the underlying habitual thought patterns which lead to distress and worsening symptoms. Patients are taught to use reasoning and personal experience to generate rational alternative explanations and interpretations of these thoughts. A variety of interventions can be labelled as CBT but the primary approaches focus on coping strategies and problem solving skills.

Method

We have included only systematic reviews (systematic literature search, detailed methodology with inclusion/exclusion criteria) published in full text, in English, from the year 2000 that report results separately for people with a diagnosis of schizophrenia, schizoaffective disorder, schizophreniform disorder or first episode schizophrenia. Reviews were identified by searching the databases MEDLINE, EMBASE, CINAHL, Current Contents, PsycINFO and the Cochrane library. Hand searching reference lists of identified reviews was also conducted. When multiple copies of reviews were found, only the most recent version was included. Reviews with pooled data are given priority for inclusion.

Review reporting assessment was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist that describes a preferred way to present a meta-analysis[1]. Reviews reporting less than 50% of items have been excluded from the library. The PRISMA flow diagram is a suggested way of providing information about studies included and excluded with reasons for exclusion. Where no flow diagram has been presented by individual reviews, but identified studies have been described in the text, reviews have been checked for this item. Note that early reviews may have been guided by less stringent reporting checklists than the PRISMA, and that some reviews may have been limited by journal guidelines.

Evidence was graded using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group approach where high quality evidence such as that gained from randomised controlled trials (RCTs) may be downgraded to moderate or low if review and study quality is limited, if there is inconsistency in results, indirect comparisons, imprecise or sparse data and high probability of reporting bias. It may also be downgraded if risks for the intervention or other matter under review are high. Conversely, low quality evidence such as that gained from observational studies may be upgraded if effect sizes are large, there is a dose dependent response or if results are reasonably consistent, precise and direct with low associated risks (see end of table for an explanation of these terms)[2]. The resulting

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table represents an objective summary of the available evidence, although the conclusions are solely the opinion of staff of NeuRA (Neuroscience Research Australia).

Results

We found six systematic reviews that met our inclusion criteria[3-8].

- Moderate to low quality evidence shows small improvements in global state with CBT in the long-term (>1 year), but not in the short-term (<6 months). There may also be some improvements in symptoms, but no consistent benefit for reducing relapse or rehospitalisation rates, or for improving overall functioning. There may be greater compliance with medication with CBT than with treatment as usual.
- High quality evidence finds individually tailored CBT (rather than CBT guided by a standardised protocol) has a medium-sized effect for improving hallucinations when compared to treatment as usual or supportive therapy/social activity. Moderate to high quality evidence finds a small effect for improving delusions when compared to treatment as usual, but not when compared to supportive therapy/social activity.
- High quality evidence shows CBT improves positive and negative symptoms for people in early psychosis by 2 years follow up, but not immediately after treatment, compared to standard care. Moderate quality evidence suggests no differences in relapse and hospital admission rates by 2 years follow up.
- High quality evidence shows a medium-sized effect of CBT compared to treatment as usual for improvement of positive and general symptoms in patients who are medication-resistant. This evidence is moderate to high quality in the comparison that included active control conditions.
- Moderate quality evidence suggests CBT combined with motivational interviewing, but not CBT alone, improves general life and client satisfaction, with no benefit for quality of life, functioning, arrests, study retention, mental state or substance use in people with dual diagnosis.

Cognitive Behavioural Therapy

Bird V, Premkuma P, Kenall T, Whittington C, Mitchell J, Kuipers E

Early intervention services, cognitive-behavioural therapy and family intervention in early psychosis: systematic review

The British Journal of Psychiatry 2010; 197(5): 350-356

View review abstract online

Comparison	**Between 5 weeks and 12 months of CBT (3 RCTs used individual CBT, 1 RCT used group CBT) vs. standard care.** **The samples were all in their first or second episode of psychosis.**
Summary of evidence	**High quality evidence (large samples, precise, consistent, direct) shows CBT improves positive and negative symptoms for people in early psychosis by 2 years follow up, but not immediately after treatment, compared to standard care. Moderate quality evidence (imprecise, some inconsistency) suggests no differences in relapse and hospital admission rates by 2 years follow up.**

Positive Symptoms

No difference in positive symptoms at end of treatment;

4 RCTs, N = 536, SMD† = -0.05, 95%CI -0.22 to 0.12, *p* not reported, I^2 = 0%, *p* = 0.92

Significant medium effect of reduced positive symptoms for the CBT group at up to 2 years follow-up;

3 RCTs, N = 442, SMD = -0.60, 95%CI -0.79 to -0.41, *p* not reported, I^2 = 0%, *p* = 0.44

Negative Symptoms

No difference in negative symptoms at end of treatment;

3 RCTs, N = 398, SMD = 0.03, 95%CI -0.17 to 0.23, *p* not reported, I^2 = 0%, *p* = 0.41

Significant medium effect of reduced negative symptoms for the CBT group at up to 2 years follow-up;

3 RCTs, N = 442, SMD = -0.45, 95%CI -0.80 to -0.09, *p* not reported, I^2 = 62%, *p* = 0.07

Relapse and hospital admission rates

No difference in relapse rates within the 2 year follow-up period;

2 RCTs, N = 454, RR = 0.67, 95%CI 0.24 to 1.85, *p* = 0.44, I^2 = 79%, *p* = 0.03

No difference in hospital admission rates within the 2 year follow-up period; 2 RCTs, N = 294, RR = 1.01, 95%CI 0.76 to 1.35, $p = 0.94$, $I^2 = 0\%$, $p = 0.36$	
Consistency in results‡	Inconsistent for relapse rates, consistent for all other outcomes
Precision in results§	Precise
Directness of results‖	Direct

Burns AMN, Erickson DH, Brenner CA

Cognitive-Behavioral Therapy for Medication-Resistant Psychosis: A Meta-Analytic Review

Psychiatric Services 2014; 65: 874-880

View review abstract online

Comparison	**Between 10 and 20 weeks of CBT vs. treatment as usual, psychoeducation, supportive therapy or befriending.** **The samples were all medication resistant.**
Summary of evidence	**High quality evidence (medium to large samples, precise, consistent, direct in the comparison with treatment as usual) shows a medium-sized effect of CBT compared to treatment as usual for improvement of positive and general symptoms in patients who are medication-resistant. This evidence is moderate to high quality (indirect) in the overall comparison that included active control conditions.**
Positive and general symptoms	
Significant, medium sized effect of improved positive and general symptoms with CBT; Positive symptoms post-treatment: 9 RCTs, N = 465, $g = 0.47$, 95%CI 0.27 to 0.67, $p < 0.05$, Q-test $p > 0.05$ Positive symptoms at follow-up: 7 RCTs, N = 365, $g = 0.41$, 95%CI 0.20 to 0.61, $p < 0.05$, Q-test $p = 0.05$ General symptoms post-treatment: 12 RCTs, N = 639, $g = 0.52$, 95%CI 0.35 to 0.70, $p < 0.05$, Q-test $p > 0.05$ General symptoms at follow-up: 7 RCTs, N = 381, $g = 0.40$, 95%CI 0.20 to 0.60, $p < 0.05$, Q-test p	

> 0.05 Subgroup analyses showed no significant differences in results according to trial quality (blinded vs. non-blinded) or control conditions (treatment as usual vs. psychoeducation, supportive therapy or befriending combined). Authors report no indication of publication bias.	
Consistency in results	Consistent
Precision in results	Precise
Directness of results	Indirect comparison for overall analysis where control conditions were combined, and in the comparison with active treatments combined, direct for subgroup analysis of treatment as usual.

Hunt GE, Morley K, Sitharthan T, Siegfried N, Cleary M

Psychosocial interventions for people with both severe mental illness and substance misuse

Cochrane Database of Systematic Reviews 2013, Issue 10. Art. No.: CD001088. DOI: 10.1002/14651858.CD001088.pub3

View review full text online

Comparison 1	**Cognitive behavioural therapy (CBT) plus motivational interviewing (MI) vs. treatment as usual for people with dual diagnosis.**
Summary of evidence	**Moderate quality evidence (small to medium-sized samples, consistent where applicable, imprecise, direct) suggests CBT combined with motivational interviewing may improve general life and client satisfaction, but has little effect on overall quality of life, functioning, arrests, study retention, mental state or substance use in people with dual diagnosis.**
Study retention: lost to treatment	
No significant effect of CBT + MI on retention rates; By 3 months, N = 218, 2 RCTs, RR = 3.37, 95%CI 0.20 to 57.79, $p = 0.40$, $I^2 = 75\%$, $p = 0.05$ By 6 months, N = 605, 3 RCTs, RR = 1.02, 95%CI 0.68 to 1.54, $p = 0.91$, $I^2 = 52\%$, $p = 0.13$	

By 9 months, N = 139, 2 RCTs, RR = 0.73, 95%CI 0.42 to 1.23, p = 0.23, I^2 = 0%, p = 0.75 By 12 months, N = 327, 1 RCT, RR = 0.99, 95%CI 0.62 to 1.59, p = 0.98
Study retention: lost to evaluation
No significant effect of CBT+ MI on evaluation rates; By 3 months, N = 130, 1 RCT, RR = 1.25, 95%CI 0.35 to 4.45, p = 0.73 By 6 months, N = 259, 3 RCTs, RR = 1.02, 95%CI 0.35 to 2.94, p = 0.97, I^2 = 8% p = 0.20 By 9 months, N = 36,1 RCT, RR = 0.67, 95%CI 0.13 to 3.53, p = 0.63 By 12 months, N = 254, 3 RCTs, RR = 1.35, 95%CI 0.87 to 2.08, p = 0.97, I^2 = 0%, p = 0.40 By 18 months, N = 363, 3 RCTs, RR = 0.92, 95%CI 0.61 to 1.38, p = 0.68, I^2 = 0%, p = 0.49 By 24 months, N = 327, 1 RCT, RR = 0.76, 95%CI 0.52 to 1.11, p = 0.15
Substance use: average number of drugs used during the previous month
No significant effect of CBT + MI on number of drugs used; By 3 months, N = 119, 1 RCT, WMD = 0.37, 95%CI -0.01 to 0.75, p = 0.058 By 6 months, N = 119, 1 RCT, WMD = 0.19, 95%CI -0.22 to 0.60, p = 0.37
Mental state
No significant effect of CBT + MI on relapse rates; By the end of 9 months of treatment, N = 36, 1 RCT, RR = 0.50, 95%CI 0.21 to 1.17, p = 0.11 By 3 months follow up, N = 36, 1 RCT, RR = 0.50, 95%CI 0.24 to 1.04, p = 0.063 By 9 months follow up, N = 36, 1 RCT, RR = 0.58, 95%CI 0.30 to 1.13, p = 0.11 *No significant effect of CBT + MI on PANSS total scores* End of 6 months treatment: N = 77, 2 RCTs, WMD = 0.99, 95%CI -5.91 to 7.89, p = 0.78, I^2 = 0%, p = 0.40 End of 9 months treatment: N = 92, 2 RCTs, WMD = -6.59, 95%CI -16.04 to 2.86, p = 0.17, I^2 = 0%, p = 0.40 End of 12 months treatment: N = 274, 1 RCT, WMD = 2.52, 95%CI -0.68 to 5.72, p = 0.12 End of 24 months treatment: N = 247, 1 RCT, WMD = 2.71, 95%CI -0.58 to 6.00, p = 0.11 *No significant effect of CBT + MI on PANSS positive scores;* End of 12 months treatment: N = 274, 1 RCT, WMD = 0.03, 95%CI -1.18 to 1.24, p = 0.96

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End of 24 months treatment: N = 247, 1 RCT, WMD = 0.52, 95%CI -0.80 to 1.84, *p* = 0.11 *No significant effect of CBT + MI on PANSS negative scores;* End of 12 months treatment: N = 274, 1 RCT, WMD = 0.39, 95%CI -0.65 to 1.43, *p* = 0.46 End of 24 months treatment: N = 247, 1 RCT, WMD = 0.16, 95%CI -0.84 to 1.16, *p* = 0.75
Functioning
No significant effect of CBT + MI on functioning; By 3 months of treatment, N = 177, 2 RCTs, WMD = -1.17, 95%CI -4.57 to 2.23, *p* = 0.50, I^2 = 7%, *p* = 0.30 By 6 months, N = 119, 1 RCT, WMD = -0.09, 95%CI -3.70 to 3.52, *p* = 0.96 By 12 months, N = 445, 4 RCT, WMD = 1.24, 95%CI -1.86 to 4.34, *p* = 0.43, I^2 = 42%, *p* = 0.16 By 18 months, N = 28, 1 RCT, WMD = 6.68, 95%CI -5.24 to 18.60, *p* = 0.27 By 24 months, N = 234, 1 RCT, WMD = -0.21, 95%CI -2.93 to 2.51, *p* = 0.88 *Significant effect of CBT + MI for improved social functioning at 3 months follow up only;* At end of 9 months treatment, N = 32, 1 RCT, WMD = 5.01, 95%CI -0.55 to 10.57, *p* = 0.077 By 3 months follow up, N = 32, 1 RCT, WMD = 7.27, 95%CI 0.86 to 13.68, *p* = 0.026 *No significant effect of CBT + MI for reducing number of arrests;* By 6 months, N = 110, 1 RCT, RR = 0.49, 95%CI 0.22 to 1.10, *p* = 0.083
Satisfaction and quality of Life
Significant improvement in general life and client satisfaction, but not quality of life; General life satisfaction score By 6 months treatment, N = 110, 1 RCT, WMD = 0.58, 95%CI 0.00 to 1.16, *p* = 0.049 Client satisfaction score By 10 months treatment, N = 62, 1 RCT, WMD = 6.40, 95%CI 3.87 to 8.93, *p* = 0.00001 Overall quality of life score By 6 months treatment, N = 110, 1 RCT, WMD = -0.02, 95%CI -0.61 to 0.57, *p* = 0.95 By 10 months treatment, N = 61, 1 RCT, WMD = 0.90, 95%CI -3.73 to 5.53, *p* = 0.70

Risks	No differences in death rates. No other adverse effects reported.
Consistency in results	Most outcomes only 1 RCT, consistent for all other outcomes except lost to treatment at 3 months.

Cognitive Behavioural Therapy

Precision in results	Imprecise for dichotomous outcomes, unable to assess continuous outcomes (WMD not standardised).
Directness of results	Direct
Comparison 2	**CBT vs. treatment as usual for people with dual diagnosis.**
Summary of evidence	**Moderate to low quality evidence (small samples, mostly 1 RCT, imprecise, direct) suggests no benefit of CBT for study retention, substance use, insight, functioning or medication compliance.**
Study retention: lost to treatment	
No significant effect of CBT on retention rates; By 3 months, N = 152, 2 RCTs, RR = 1.12, 95%CI 0.44 to 2.86, p = 0.81, I^2 = 0%, p = 0.95	
Study retention: lost to evaluation	
No significant effect of CBT on evaluation rates; By 6 months, N = 47, 1 RCT, RR = 1.04, 95%CI 0.43 to 2.51, p = 0.92	
Substance use	
No significant effect of CBT on cannabis use; By 3 months, N = 47, 1 RCT, RR = 1.04, 95%CI 0.62 to 1.74, p = 0.87 By 6 months, N = 47, 1 RCT, RR = 1.30, 95%CI 0.79 to 2.15, p = 0.30 *No significant effect of CBT on drugs or alcohol use;* Alcohol use by 3 months, N = 46, 1 RCT, RR = 5.88, 95%CI 0.79 to 44.03, p = 0.085 Drug use by 3 months, N = 46, 1 RCT, RR = 2.02, 95%CI 0.85 to 4.80, p = 0.11	
Insight	
No significant effect of CBT on insight; By 3 months, N = 105, 1 RCT, WMD = 0.52, 95%CI -0.78 to 1.82, p = 0.43	
Functioning	

No significant effect of CBT on social functioning; By 3 months, N = 47, 1 RCT, WMD = -0.80, 95%CI -9.-95 to 8.35, *p* = 0.86 By 6 months, N = 7, 1 RCT, WMD = -4.70, 95%CI -14.52 to 5.12, *p* = 0.35
Medication compliance
No significant effect of CBT on compliance with medication; By 3 months, N = 46, 1 RCT, RR = 0.75, 95%CI 0.56 to 1.02, *p* = 0.064

Consistency in results	Most outcomes 1 RCT only apart from study retention which is consistent.
Precision in results	Imprecise for dichotomous outcomes. Unable to assess continuous outcomes (WMD not standardised).
Directness of results	Direct

Jones C, Hacker D, Xia J, Meaden A, Irving CB, Zhao S, Chen J, Shi C

Cognitive behavioural therapy plus standard care versus standard care for people with schizophrenia

Cochrane Database of Systematic Reviews 2018; (12): CD007964

View review full text online

Comparison	**CBT combined with standard care vs. standard care alone.** **Short term < 6 months, medium-term 6-12 months, long-term > 12 months.** **Authors report the quality of the available evidence is poor.**
Summary of evidence	**Moderate to low quality evidence (small samples, some imprecision and inconsistency, direct) shows small improvements in global state with CBT in the long-term, but not in the short-term. Larger studies showed some improvements in symptoms, but no consistent benefit for reducing relapse and rehospitalisation rates or for improving functioning. There may be greater compliance with medication with CBT.**
Global state	

Cognitive Behavioural Therapy

Clinical impression

Significant effects of improved global state on the CGI in the CBT group in the short, medium and long-term;

Short-term

3 RCTs, N = 128, WMD = -0.32, 95%CI -0.63 to -0.01, $p = 0.046$, $I^2 = 0\%$, $p = 0.56$

Medium-term

2 RCTs, N = 80, WMD = -0.52, 95%CI -0.89 to -0.15, $p = 0.0055$, $I^2 = 0\%$, $p = 0.60$

Long-term

1 RCT, N = 32, WMD = -0.67, 95%CI -1.07 to -0.27, $p = 0.00099$

A small effect of more clinically important improvement with CBT in the long-term, but not in the short-term;

Short-term

1 RCT, N = 48, RR = 1.01, 95%CI 0.61 to 1.66, $p = 0.97$

Long-term

2 RCTs, N = 82, RR = 0.57, 95%CI 0.39 to 0.84, $p = 0.0048$, $I^2 = 0\%$, $p = 0.60$

Relapse

A medium-sized effect of reduced relapse rates with CBT in the medium-term, but not in the short or long-term;

Short-term

2 RCTs, N = 92, RR = 0.22, 95%CI 0.04 to 1.24, $p = 0.086$, $I^2 = 0\%$, $p = 0.46$

Medium-term

5 RCTs, N = 667, RR = 0.53, 95%CI 0.39 to 0.72, $p = 0.00006$, $I^2 = 0\%$, $p = 0.72$

Long-term

13 RCTs, N = 1,538, RR = 0.78, 95%CI 0.61 to 1.00, $p = 0.052$, $I^2 = 52\%$, $p = 0.01$

Rehospitalisation

There were no differences in rehospitalisation rates;

Short-term

1 RCT, N = 30, RR = 1.00, 95%CI 0.07 to 14.55, $p = 0.10$

Long-term

6 RCTs, N = 348, RR = 0.79, 95%CI 0.60 to 1.04, $p = 0.087$, $I^2 = 0\%$, $p = 0.45$

Cognitive Behavioural Therapy

Mental state
General symptoms *A significant, medium-sized effect of improved general symptoms in the CBT group in the short-term, but not in the long-term;* Short-term 7 RCTs, N = 680, RR = 0.44, 95%CI 0.21 to 0.92, p = 0.03, I^2 = 70%, p = 0.002 Long-term 5 RCTs, N = 501, RR = 0.81, 95%CI 0.65 to 1.02, p = 0.073, I^2 = 56%, p = 0.06 *Significant effects of improved general symptoms in the CBT group as measured on the BPRS in the short and long-term, but not in the medium-term;* Short-term 5 RCTs, N = 541, WMD = -5.09, 95%CI -8.44 to -1.74, p = 0.0029, I^2 = 85%, p = 0.00003 Medium-term 3 RCTs, N = 199, WMD = -2.57, 95%CI -5.73 to 0.60, p = 0.11, I^2 = 39%, p = 0.19 Long-term 3 RCTs, N = 175, WMD = -8.77, 95%CI -14.08 to -3.46, p = 0.0012, I^2 = 73%, p = 0.02 *Significant effects of improved general symptoms in the CBT group as measured on the PANSS in the short, medium and long-term;* Short-term 11 RCTs, N = 962, WMD = -7.21, 95%CI -10.12 to -4.30, p < 0.00001, I^2 = 81%, p < 0.00001 Medium-term 11 RCTs, N = 963, WMD = -3.68, 95%CI -6.12 to -1.24, p = 0.0031, I^2 = 67%, p = 0.00075 Long-term 12 RCTs, N = 1,284, WMD = -3.74, 95%CI -6.46 to -1.02, p = 0.0071, I^2 = 68%, p = 0.00026 Positive symptoms *Significant effects of reduced severity of positive symptoms in the CBT group as measured on the PANSS in the short, medium and long-term;* Short-term 11 RCTs, N not reported, WMD = -3.11, 95%CI -4.97 to -1.24, p = 0.0011, I^2 = 90%, p < 0.00001 Medium-term 12 RCTs, N not reported, WMD = -1.23, 95%CI -1.90 to -0.55, p = 0.00037, I^2 = 22%, p = 0.23 Long-term

12 RCTs, N not reported, WMD = -0.98, 95%CI -1.63 to -0.34, p = 0.0029, I^2 = 22%, p = 0.23 Negative symptoms *Significant effects of reduced severity of negative symptoms in the CBT group as measured on the PANSS in the short, medium and long-term;* Short-term 12 RCTs, N not reported, WMD = -3.35, 95%CI -3.84 to -2.85, p < 0.00001, I^2 = 72%, p = 0.00004 Medium-term 13 RCTs, N not reported, WMD = -1.43, 95%CI -1.94 to -0.93, p < 0.00001, I^2 = 84%, p < 0.00001 Long-term 13 RCTs, N not reported, WMD = -1.47, 95%CI -1.94 to -0.99, p < 0.00001, I^2 = 89%, p < 0.00001 Affective symptoms (depression and anxiety) *Significant effects of reduced severity of affective symptoms in the CBT group as measured on the PANSS in the short and long-term, but not the medium-term;* Short-term 10 RCTs, N not reported, WMD = -4.86, 95%CI -5.75 to -3.96, p < 0.00001, I^2 = 90%, p < 0.00001 Medium-term 10 RCTs, N not reported, WMD = -0.80, 95%CI -1.70 to 0.09, p = 0.078, I^2 = 63%, p = 0.004 Long-term 10 RCTs, N not reported, WMD = -1.00, 95%CI -1.82 to -0.18, p = 0.017, I^2 = 70%, p = 0.0047
Functioning
No differences between groups in general functioning (GAF); Short-term 1 RCT, N = 72, WMD = -0.68, 95%CI -5.82 to 4.47, p = 0.80 Medium-term 5 RCTs, N = 482, WMD = 3.37, 95%CI -1.66 to 8.41, p = 0.19, I^2 = 64%, p = 0.03 Long-term 5 RCTs, N = 446, WMD = 1.79, 95%CI -1.95 to 5.53, p = 0.35, I^2 = 51%, p = 0.09
Compliance with medication

Small effects of greater compliance with medication with CBT in the medium and long-term, but not in the short-term; Short-term 4 RCTs, N = 261, RR = 1.45, 95%CI 0.81 to 2.60, $p = 0.21$, $I^2 = 92\%$, $p < 0.00001$ Medium-term 2 RCTs, N = 128, RR = 1.23, 95%CI 1.02 to 1.49, $p = 0.027$, $I^2 = 0\%$, $p = 0.37$ Long-term 2 RCTs, N = 148, RR = 1.35, 95%CI 1.10 to 1.65, $p = 0.0037$, $I^2 = 0\%$, $p = 0.43$	
Leaving the study early	
No differences between groups in rates of leaving the study; Short-term 12 RCTs, N = 1,214, RR = 1.02, 95%CI 0.77 to 1.35, $p = 0.87$, $I^2 = 0\%$, $p = 0.59$ Medium-term 11 RCTs, N = 1,402, RR = 0.91, 95%CI 0.74 to 1.11, $p = 0.35$, $I^2 = 22\%$, $p = 0.24$ Long-term 19 RCTs, N = 1,945, RR = 0.93, 95%CI 0.77 to 1.12, $p = 0.44$, $I^2 = 22\%$, $p = 0.19$	
Risks	There were fewer adverse events reported in the CBT group.
Consistency in results	Consistent apart from short-term compliance with medication, medium-term functioning, affective symptoms, negative symptoms, short-term positive symptoms, long-term relapse rates, general symptoms, and long-term global state (CGI).
Precision in results	Precise for long-term hospitalisation rates, general symptoms (RRs), relapse in the medium and long-term, compliance with medication in the medium-term, and leaving the study in the medium and long-term. Unable to assess WMD as values are not standardised.
Directness of results	Direct

Jones C, Hacker D, Meaden A, Cormac I, Irving CB, Xia J, Zhao S, Shi C, Chen J

Cognitive behavioural therapy plus standard care versus standard care

plus other psychosocial treatments for people with schizophrenia

Cochrane Database of Systematic Reviews 2018; (11): CD008712

View review full text online

Comparison	**CBT combined with standard care vs. standard care alone.** **Short term < 6 months, medium-term 6-12 months, long-term > 12 months.** **Authors report the quality of the available evidence is poor.**
Summary of evidence	**Moderate to low quality evidence (small to medium-sized samples, some imprecision and inconsistency, indirect) shows small, short-term improvements in global state with. Large studies showed some improvements in symptoms, particularly positive symptoms over the longer term, but no consistent benefit for reducing relapse or rehospitalisation rates or for improving functioning. There may be better attitudes towards medication with CBT but no additional benefit for compliance with medication.**

Global state

Clinical impression

A small effect of more clinically important improvement with CBT in the short-term, but not in the medium or long-term;

Short-term

2 RCTs, N = 87, RR = 0.75, 95%CI 0.58 to 0.99, $p = 0.041$, $I^2 = 0\%$, $p = 0.41$

Medium-term

3 RCTs, N = 195, RR = 0.84, 95%CI 0.58 to 1.23, $p = 0.37$, $I^2 = 86\%$, $p = 0.00078$

Long-term

4 RCTs, N = 249, RR = 0.82, 95%CI 0.67 to 1.01, $p = 0.07$, $I^2 = 13\%$, $p = 0.33$

Relapse

No significant differences between groups;

Short-term

1 RCT, N = 62, RR = 0.72, 95%CI 0.05 to 11.02, $p = 0.81$

Medium-term

2 RCTs, N = 150, RR = 1.01, 95%CI 0.56 to 1.81, $p = 0.97$, $I^2 = 0\%$, $p = 0.75$

Long-term

5 RCTs, N = 375, RR = 1.05, 95%CI 0.85 to 1.29, *p* = 0.66, I^2 = 0%, *p* = 0.58 Rehospitalisation *No significant differences between groups;* *Short-term* 1 RCT, N = 65, RR = 0.44, 95%CI 0.13 to 1.56, *p* = 0.20 *Medium-term* 3 RCTs, N = 344, RR = 0.86, 95%CI 0.57 to 1.29, *p* = 0.46, I^2 = 0%, *p* = 0.85 *Long-term* 8 RCTs, N = 943, RR = 0.96, 95%CI 0.82 to 1.14, *p* = 0.67, I^2 = 0%, *p* = 0.81
Mental state
General symptoms *Significant effect of improved general symptoms in the CBT group as measured on the BPRS in the medium-term, but not in the short-term;* *Short-term* 3 RCTs, N = 162, WMD = 0.23, 95%CI -2.83 to 3.29, *p* = 0.88, I^2 = 9%, *p* = 0.33 *Medium-term* 1 RCT, N = 37, WMD = -7.60, 95%CI -14.30 to -0.90, *p* = 0.026 *Significant effects of improved general symptoms in the CBT group as measured on the PANSS in the short, medium and long-term;* *Short-term* 6 RCTs, N = 568, WMD = -5.38, 95%CI -7.31 to -3.44, *p* < 0.00001, I^2 = 94%, *p* < 0.00001 *Medium-term* 3 RCTs, N = 270, WMD = -4.90, 95%CI -7.93 to -1.87, *p* = 0.0015, I^2 = 21%, *p* = 0.28 *Long-term* 9 RCTs, N = 596, WMD = -3.22, 95%CI -5.42 to -1.01, *p* = 0.0042, I^2 = 14%, *p* = 0.32 Positive symptoms *Significant effect of reduced severity of positive symptoms in the CBT group as measured on the PANSS in the medium and long-term, but not the short-term;* *Short-term* 10 RCTs, N = 883, WMD = -0.57, 95%CI -1.19 to 0.05, *p* = 0.072, I^2 = 0%, *p* = 0.50 *Medium-term* 6 RCTs, N = 497, WMD = -1.20, 95%CI -2.04 to -0.36, *p* = 0.0051, I^2 = 0%, *p* = 0.57

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Long-term 9 RCTs, N = 602, WMD = -1.22, 95%CI -1.96 to -0.49, p = 0.0011, I^2 = 10%, p = 0.35 <u>Negative symptoms</u> *No significant differences between groups;* *Short-term* 7 RCTs, N = 581, WMD = -0.07, 95%CI -0.76 to 0.61, p = 0.83, I^2 = 11%, p = 0.34 *Medium-term* 4 RCTs, N = 359, WMD = -0.52, 95%CI -1.42 to 0.39, p = 0.26, I^2 = 0%, p = 0.67 *Long-term* 8 RCTs, N = 548, WMD = -0.84, 95%CI -1.67 to 0.00, p = 0.05, I^2 = 0%, p = 0.44 <u>Affective symptoms (depression and anxiety)</u> *Significant effect of reduced severity of affective symptoms in the CBT group as measured on the PANSS in the short-term, but not the medium or long-term;* *Short-term* 6 RCTs, N = 400, WMD = -3.38, 95%CI -4.62 to -2.13, p < 0.00001, I^2 = 94%, p < 0.00001 *Medium-term* 3 RCTs, N = 194, WMD = -0.94, 95%CI -2.75 to 0.88, p = 0.31, I^2 = 77%, p = 0.01 *Long-term* 7 RCTs, N = 379, WMD = -0.94, 95%CI -2.28 to 0.40, p = 0.17, I^2 = 18%, p = 0.29
Functioning
Greater improvement in functioning (on the GAF) with CBT in the short-term, but not in the long-term; *Short-term* 2 RCTs, N = 147, WMD = 9.02, 95%CI 4.29 to 13.75, p = 0.00018, I^2 = 0%, p = 0.84 *Long-term* 3 RCTs, N = 175, WMD = 5.42, 95%CI -0.37 to 11.20, p = 0.067, I^2 = 69%, p = 0.04
Attitudes towards and compliance with medication
No differences in compliance with medication in the long-term; 3 RCTs, N = 354, RR = 1.01, 95%CI 0.93 to 1.11, p = 0.76, I^2 = 74%, p = 0.02 *Better attitudes towards medication with CBT in the short-term;* 1 RCT, N = 74, RR = 4.50, 95%CI 2.17 to 6.83, p = 0.00015

Leaving the study early	
A significant, small effect of fewer people leaving the study early with CBT; 26 RCTs, N = 2,392, RR = 0.86, 95%CI 0.75 to 0.99, p = 0.036, I^2 = 27%, p = 0.10	
Risks	There were more adverse events reported in the CBT group in the short-term (1 RCT, small effect), but not in the long-term (1 RCT, no effect).
Consistency in results	Some inconsistency
Precision in results	Some imprecision
Directness of results	Indirect comparison (control conditions combined).

Van der Gaag M, Valmaggia LR, Smit F

The effects of individually tailored formulation-based cognitive behavioural therapy in auditory hallucinations and delusions: A meta-analysis

Schizophrenia Research 2014; 156: 30-37

View review abstract online

Comparison	**Between 5 weeks and 9 months of case formulation CBT for psychosis, which is tailored to the individual rather than guided by a standardized CBT protocol vs. standard care or any other psychosocial intervention.**
Summary of evidence	**High quality evidence (large samples, consistent, precise, direct,) suggests individually tailored CBT has a medium-sized effect for improving hallucinations when compared to treatment as usual or supportive therapy/social activity.** **Moderate to high quality evidence (inconsistent) suggests a small effect for improving delusions when compared to treatment as usual, but not when compared to supportive therapy/social activity.**
Symptoms	
A significant, medium-sized effect of greater improvements in hallucinations with CBT;	

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11 RCTs, N = 799, *g* = 0.435, 95%CI 0.260 to 0.611, *p* < 0.001, I^2 = 0%, *p* = 0.50 Similar effect sizes were reported in subgroup analyses of different control conditions (treatment as usual [medication + case management], or active controls [supportive therapy/social activity + treatment as usual]), of broad CBT approaches (e.g. symptom reduction + worry reduction/coping skills enhancement), and in blinded trials. *A significant, small to medium-sized effect of greater improvements in delusions with CBT;* 9 RCTs, N = 747, *g* = 0.357, 95%CI 0.082 to 0.631, *p* = 0.011, I^2 = 55.5%, *p* = 0.021 Similar effect sizes were reported in subgroup analyses of different CBT approaches, in blinded trials, and different control conditions, although the comparison with active treatment controls was not significant.	
Consistency in results	Consistent for hallucinations, inconsistent for delusions.
Precision in results	Precise
Directness of results	Direct for analyses of treatment as usual and active controls.

Explanation of acronyms

BPRS = Brief Psychiatric Rating Scale, CAARMS = Comprehensive Assessment of At-Risk Mental States, CBT = Cognitive Behavioural Therapy, CGI = Clinical Global Improvement, CI = Confidence Interval, *d* = Cohen's *d* and *g* = Hedges' *g* = standardised mean differences (see below for interpretation of effect size), GAF = Global Assessment of Function scale, I^2 = the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance), *p* = statistical probability of obtaining that result (*p* < 0.05 generally regarded as significant), PACE = Personal Assessment and Crisis Evaluation, PANSS = Positive and Negative Symptoms Scale, Q = Q statistic (chi-square) for the test of heterogeneity, RCT = Randomised Controlled Trial, RR = Risk Ratio, SMD = standardised mean difference, vs. = versus, WMD = Weighted Mean Difference

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Explanation of technical terms

* Bias has the potential to affect reviews of both RCT and observational studies. Forms of bias include; reporting bias – selective reporting of results; publication bias - trials that are not formally published tend to show less effect than published trials, further if there are statistically significant differences between groups in a trial, these trial results tend to get published before those of trials without significant differences; language bias – only including English language reports; funding bias - source of funding for the primary research with selective reporting of results within primary studies; outcome variable selection bias; database bias - including reports from some databases and not others; citation bias - preferential citation of authors. Trials can also be subject to bias when evaluators are not blind to treatment condition and selection bias of participants if trial samples are small[9].

† Different effect measures are reported by different reviews.

Prevalence refers to how many existing cases there are at a particular point in time. Incidence refers to how many new cases there are per population in a specified time period. Incidence is usually reported as the number of new cases per 100,000 people per year. Alternatively some studies present the number of new cases that have accumulated over several years against a person-years denominator. This denominator is the sum of individual units of time that the persons in the population are at risk of becoming a case. It takes into account the size of the underlying population sample and its age structure over the duration of observation.

Reliability and validity refers to how accurate the instrument is. Sensitivity is the proportion of actual positives that are correctly identified (100% sensitivity = correct identification of all actual positives) and specificity is the proportion of negatives that are correctly identified (100% specificity = not identifying anyone as positive if they are truly not).

Weighted mean difference scores refer to mean differences between treatment and comparison groups after treatment (or occasionally pre to post treatment) and in a randomized trial there is an assumption that both groups are comparable on this measure prior to treatment. Standardised mean differences are divided by the pooled standard deviation (or the standard deviation of one group when groups are homogenous) that allows results from different scales to be combined and compared. Each study's mean difference is then given a weighting depending on the size of the sample and the variability in the data. Less than 0.4 represents a small effect, around 0.5 a medium effect, and over 0.8 represents a large effect[9].

Odds ratio (OR) or relative risk (RR) refers to the probability of a reduction (< 1) or an increase (> 1) in a particular outcome in a treatment group, or a group exposed to a risk factor, relative to the comparison group. For example, a RR of 0.75 translates to a reduction in risk of an outcome of 25% relative to those not receiving the treatment or not exposed to the risk factor. Conversely, a RR of 1.25 translates to an increased risk of 25% relative to those not receiving treatment or not having been exposed to a risk factor. A RR or OR of 1.00 means there is no difference between groups. A medium effect is considered if RR > 2 or < 0.5 and a large effect if RR > 5 or < 0.2[10]. lnOR stands for logarithmic OR where a lnOR of 0 shows no difference between groups. Hazard ratios

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measure the effect of an explanatory variable on the hazard or risk of an event.

Correlation coefficients (eg, r) indicate the strength of association or relationship between variables. They can provide an indirect indication of prediction, but do not confirm causality due to possible and often unforseen confounding variables. An r of 0.10 represents a weak association, 0.25 a medium association and 0.40 and over represents a strong association. Unstandardised (*b*) regression coefficients indicate the average change in the dependent variable associated with a 1 unit change in the independent variable, statistically controlling for the other independent variables. Standardised regression coefficients represent the change being in units of standard deviations to allow comparison across different scales.

‡ Inconsistency refers to differing estimates of effect across studies (i.e. heterogeneity or variability in results) that is not explained by subgroup analyses and therefore reduces confidence in the effect estimate. I^2 is the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance) - 0% to 40%: heterogeneity might not be important, 30% to 60%: may represent moderate heterogeneity, 50% to 90%: may represent considerable heterogeneity and over this is considerable heterogeneity. I^2 can be calculated from Q (chi-square) for the test of heterogeneity with the following formula;[9]

$$I^2 = \left(\frac{Q - df}{Q}\right) \times 100\%$$

§ Imprecision refers to wide confidence intervals indicating a lack of confidence in the effect estimate. Based on GRADE recommendations, a result for continuous data (standardised mean differences, not weighted mean differences) is considered imprecise if the upper or lower confidence limit crosses an effect size of 0.5 in either direction, and for binary and correlation data, an effect size of 0.25. GRADE also recommends downgrading the evidence when sample size is smaller than 300 (for binary data) and 400 (for continuous data), although for some topics, these criteria should be relaxed[11].

‖ Indirectness of comparison occurs when a comparison of intervention A versus B is not available but A was compared with C and B was compared with C that allows indirect comparisons of the magnitude of effect of A versus B. Indirectness of population, comparator and/or outcome can also occur when the available evidence regarding a particular population, intervention, comparator, or outcome is not available and is therefore inferred from available evidence. These inferred treatment effect sizes are of lower quality than those gained from head-to-head comparisons of A and B.

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