

Best Evidence Summaries of Topics in Mental Healthcare

BEST *in* **MH** *clinical question-answering service*

Question

In adults with ADHD, what is the evidence that psychotherapy (including individual and group CBT, psychoeducation, psychosocial interventions) when compared to any other intervention (including medication, medication plus psychotherapy, no treatment) improves patient outcomes, including reduction in inattentive, hyperactive and impulsive symptoms, improvement in co-morbid symptoms such as anxiety, depression or anger, reduction or withdrawal from medication, and improving well-being or quality of life.

Clarification of question using *PICO* structure

Patients: Adults with ADHD (either inattentive subtype / ADD, hyperactive subtype, or combined subtype)

Intervention: Psychotherapy

Comparator: Any other intervention

Outcome: Reduction in inattentive, hyperactive and impulsive symptoms, improvement in co-morbid symptoms such as anxiety, depression or anger, reduction or withdrawal from medication, and improving well-being or quality of life.

Plain language summary

There is not enough high quality research to say that psychotherapy is better than any other intervention for adults with ADHD however psychotherapy appears to be better than medication and treatment as usual. More high quality research is needed to understand this area better.

Clinical and research implications

No definite clinical implications may be made based on the evidence presented in this BEST summary. Although the evidence suggests that psychotherapy is more effective than medication alone, treatment as usual, or self-guided skills training, and that cognitive behaviour therapy (CBT) may have similar efficacy to psychoeducation, all of the included studies have a high risk of bias. There is consensus among the study authors that further high quality research is needed to assess the effectiveness of various different types of psychotherapy and their mechanisms, in order to improve ADHD symptoms.

What does the evidence say?

Number of included studies/reviews (number of participants)

One systematic review (SR) (Torgersen et al. 2008) and three randomised controlled trials (RCTs) (Fleming et al. 2014; Vidal et al. 2013; Young et al. 2015) met the inclusion criteria for this BEST summary.

Main findings

The SR by Torgersen et al. (2008) evaluated both pharmacological and psychotherapeutic treatments in adults with ADHD. The search was conducted in January 2007, and only three RCTs were included in this review that evaluated psychotherapeutic treatments. One compared CBT plus medication vs. medication alone, and the other two compared other types of cognitive therapy vs. waiting list control. While the authors of the SR reported favourable results for psychotherapeutic treatments, they did not fully report the outcome data or present confidence intervals or significance values for the comparisons.

The RCT by Young et al. (2015) evaluated the effectiveness of CBT plus medication (using the R&R2ADHD intervention) vs. treatment as usual plus medication, in 95 adults with ADHD. At end of treatment (i.e. after 15 sessions) and at 3 months' follow-up (data combined), significant differences were observed in favour of CBT for measures of inattention, hyperactivity/impulsivity, and depression, but not for anxiety or quality of life.

The RCT by Fleming et al. (2014) evaluated the effectiveness of 8-weeks of dialectical behaviour therapy (DBT) group skills training vs. self-guided skills handouts, among 33 college students with ADHD. The results demonstrated that those who received DBT had significantly improved executive function, mindfulness, and quality of life compared to those who received the control condition immediately after the intervention. ADHD inattentive symptoms were significantly improved with DBT compared to those in the control group at 3 months' follow-up, but not at post-treatment. There were no significant differences between the groups for change in anxiety symptoms or depressive symptoms after the intervention or at follow-up.

The RCT by Vidal et al. (2013) compared psychoeducation with CBT in 32 adults with ADHD. After 3 months, there were no significant differences between the treatments (psychoeducation vs. CBT) for any of the primary or secondary outcomes. Both groups demonstrated significant improvements on inattention, hyperactivity, impulsivity, self-esteem, depression, anxiety, and quality of life.

Authors' conclusions

Torgersen et al. (2008) concluded that “clinicians have good support for both pharmacological and psychotherapeutic treatment of ADHD in adults...”.

Fleming et al. (2015) concluded that “DBT group skills training may be a useful intervention for college students with ADHD, improving participants’ ADHD, executive function, and quality of life to a greater degree than skills training via self-guided handouts.”

Young et al. (2015) concluded that the R&R2ADHD intervention involving CBT therapy using both individual and group modalities was effective compared to treatment as usual.

Vidal et al. (2013) concluded that psychoeducation could be a successful treatment for adults with ADHD.

Reliability of conclusions/Strength of evidence

All of the included studies were considered to have a high risk of bias, so that the reliability of their results are uncertain.

What do guidelines say?

NICE guidelines make the following comments on treatment for ADHD in adults (2008; CG72).

Drug treatment is the first-line treatment for adults with ADHD with either moderate or severe levels of impairment. Methylphenidate is the first-line drug. Psychological interventions without medication may be effective for some adults with moderate impairment, but there are insufficient data to support this recommendation. If methylphenidate is ineffective or unacceptable, atomoxetine or dexamphetamine can be tried. If there is residual impairment despite some benefit from drug treatment, or there is no response to drug treatment, CBT may be considered.

For adults with ADHD stabilised on medication but with persisting functional impairment associated with the disorder, or where there has been no response to drug treatment, a course of either group or individual CBT to address the person's functional impairment should be considered. Group therapy is recommended as the first-line psychological treatment because it is the most cost effective.

For adults with ADHD, CBT may be considered when:

- the person has made an informed choice not to have drug treatment
- drug treatment has proved to be only partially effective or ineffective or the person is intolerant to it
- people have difficulty accepting the diagnosis of ADHD and accepting and adhering to drug treatment
- Symptoms are remitting and psychological treatment is considered sufficient to target residual (mild to moderate) functional impairment. (pp22-24)

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Date searches conducted: 22/06/2016

Date answer completed: 26/07/2016

References

Systematic reviews

Torgersen T, Gjervan B, Rasmussen K. Treatment of adult ADHD: Is current knowledge useful to clinicians? *Neuropsychiatric Disease and Treatment* 4(1) 177–186

Randomised controlled trials

Fleming, P., McMahon, J., Moran, R., Peterson, PA., Dreessen, A. (2015). Pilot randomized controlled trial of dialectical behavior therapy group skills training for ADHD among college students. *Journal of attention disorders* 19(3): 260.

Vidal, R., Bosch, R., Nogueira, M., Gómez-Barros, N., Valero, S., Palomar, G., Corrales, M., Richarte, V., Mena, B., Casas, M., Ramos-Quiroga, JA. (2013). Psychoeducation for adults with attention deficit hyperactivity disorder vs. cognitive behavioral group therapy: a randomized controlled pilot study." *The Journal of nervous and mental disease* 201(10): 894.

Young, S., Khondoker, M., Emilsson, B., Sigurdsson, J. F., Philipp-Wiegmann, F., Baldursson, G., Olafsdottir, H., Gudjonsson, G. (2015). "Cognitive-behavioural therapy in medication-treated adults with attention-deficit/hyperactivity disorder and co-morbid psychopathology: a randomized controlled trial using multi-level analysis." *Psychological medicine* 45(13): 2793.

Guidelines

National Institute for Health and Clinical Excellence (2008) Attention deficit hyperactivity disorder: diagnosis and management. CG72. London:NICE.

<https://www.nice.org.uk/guidance/cg72/resources/attention-deficit-hyperactivity-disorder-diagnosis-and-management-975625063621>

Results

Systematic review

Author (year)	Search date	Inclusion criteria	Number of included studies	Summary of results	Risk of bias
Torgenson et al. (2008)	January 2007	<p>Participants: Adults (>18 years old) with a diagnosis of ADHD according to DSM-IV or ICD 10 criteria.</p> <p>Intervention: This review examined both pharmacological and psychotherapeutic interventions: methylphenidate, dexamphetamine/amphetamine, atomoxetine, bupropion, imipramine, and any type of psychotherapy.</p> <p>Comparator: Placebo or non-intervention control group.</p> <p>Outcome: Any outcome of clinical importance was included in this review, such as reduction of symptoms of ADHD and other aspects of mental health. Trials which focused upon outcomes such as driving performance or neuroimaging effects were not included in this review.</p> <p>Study design: Randomised controlled trials.</p>	36 studies were included in this review, however only 3 involved psychotherapy (n= 109)	One study (Safren et al. 2005) found that medical treatment plus CBT was more effective than medical treatment alone for response after 15 weeks (56% in treatment group vs. 13% in the control group). The authors also reported a significant positive effect of CBT on measures of anxiety and depression (data and significance values not reported). The other two studies compared cognitive therapy (Cognitive Remediation Programme, or Psychosocial self-directed intervention) vs. waiting list control (Stevenson 2002; 2003). In both these studies, some of the participants were taking medication and some were not. The SR authors stated that in both studies, outcomes 'showed improvement in ADHD symptoms' after 8 weeks of treatment (details for the different intervention arms and statistical comparisons were not reported).	High

Randomised controlled trials

Author (year)	Inclusion criteria	Number of participants	Summary of results	Risk of bias
Fleming et al. (2015)	<p>Participants: Currently enrolled undergraduate students between the ages of 18 and 24, that met Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-V; American Psychiatric Association, 2013) criteria for ADHD in adulthood, including symptom onset by age 12 and functional impairment in multiple domains.</p> <p>Intervention: Dialectical behaviour therapy (DBT) - 15-min individual pre-group meeting focused on motivation enhancement, eight weekly 90-min group sessions focused on skills acquisition and strengthening, and seven weekly 10- to 15-min individual coaching phone calls focused on skills generalization. A 90-min booster group session was held during the first week of the follow-up quarter to promote maintenance of skills use.</p> <p>Comparator: Skills handouts - 34 pages of SH, drawn from a manual for treatment of adults with ADHD and designed to reflect publicly available self-help materials for ADHD. Topics included the following: (a) psychoeducation about ADHD and EF, (b) organization, (c) planning, (d) time management, (e) structuring environment, And (f) stress management.</p> <p>Outcome: ADHD symptoms, Executive functioning,</p>	N = 35 randomised (33 included in the analysis (I=17, C=16)	<p>The results did not demonstrate a significant difference between the two groups for ADHD inattentive symptoms post-treatment (i.e. after 8-weeks) ($p=0.55$), but those who received DBT showed significantly greater improvement at 3 months' follow-up (following the end of treatment) compared to the control ($p=0.02$). This finding was also the same for improvement in inattention (CPT-2 omission errors) ($p=0.07$ at post-treatment and $p=0.04$ at follow-up).</p> <p>Among those responding to treatment, 59% showed recovery after DBT while 31% showed recovery after SH ($p=0.11$). At follow-up 65% showed positive response compared with 25% of SH participants ($p=0.02$).</p> <p>There were significant differences between the groups in favour of DBT for executive functioning (EF), overall mindfulness (on the FFMQ), both a post-treatment ($p=0.004$;</p>	High (with a very small sample size)

	Quality of life, Anxiety and depressive symptoms, Academic performance, Mindfulness, Neuropsychological performance.		<p>p=0.05) and follow-up (p=0.01; p=0.02). Quality of life was significantly improved in the DBT treatment group compared to the control group at post-treatment (p=0.02), but not at follow-up (p=0.52).</p> <p>The results did not demonstrate any significant differences between the groups for change in anxiety symptoms (p=0.21) or depressive symptoms (p=0.26).</p> <p>The authors also evaluated acceptability, but was not extracted since it is not relevant to this BEST summary.</p>	
Vidal et al. (2013)	<p>Participants: Patients were recruited through the Adult ADHD Program at the Hospital Vall d'Hebron in Barcelona. The inclusion criteria for the participants were to fulfill the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association [APA], 1994), diagnostic criteria for ADHD, to be older than 18 years, to have stable medication prescribed for 2 months, and to have obtained a minimum score of 24 on the ADHD Rating Scale (ADHD-RS; Du Paul, 1990) and a minimum score of 4 on the Clinical Global Impression-Severity Scale (CGI-S; NIMH, 1985).</p> <p>Intervention: Psychoeducation program - The contents of the psychoeducation program were</p>	N=32 (I=17,C=15)	<p>After 3 months, there were no significant differences between the treatments (psychoeducation vs. CBT) for any of the primary or secondary outcomes: ADHD-RS: 24.29 (SD 9.89) vs. 25.6 (SD 10.85); CAARS-S inattention: 18.58 (SD 8.55) vs. 19.93 (SD 8.63); CAARS-S hyperactivity: 13.88 (SD 9.05) vs. 15.6 (SD 8.62); CAARS-S impulsivity: 14.76 (SD 9.13) vs. 17.6 (SD 8.46); CAARS-S self-esteem: 8.29 (SD 6.09) vs. 9 (SD 5.4); CGI-S self-report: 4.17 (SD 1.01) vs. 4.46 (SD 0.74); CGI-S clinician: 4.15 (SD 0.58) vs. 4.33 (SD 0.48); BDI: 13.64 (SD 12.38) vs. 12.4 (SD 11.07); STAI-S: 29.41 (SD 12.67) vs. 25.20 (SD</p>	High (well-conducted but small sample size)

	<p>basically informative: symptoms recognition, disorder comprehension, causal and triggering factors, information about pharmacological and psychological treatment, relaxation, providing information on cognitive aspects, and information on behavioural factors of ADHD.</p> <p>Comparator: Cognitive behavioural programme - The program focused on coping skills training: behavioural interventions and cognitive techniques</p> <p>Outcome: Improvements in measures of ADHD core symptoms and comorbid symptoms.</p> <ol style="list-style-type: none"> 1. The ADHD-RS (Du Paul, 1990) is an 18-item scale that assesses the diagnostic criteria for ADHD. 2. The CAARS-S is a measure that consists of four factors and assesses inattention/memory problems, hyperactivity, impulsivity/ emotional instability, and self-esteem. 3. The CGI-S self-report and clinician version (NIMH, 1985) assess the severity of illness on a 7-point scale. <ol style="list-style-type: none"> 1. The BDI (Beck et al., 1961) is a 21-item scale where responders rate how they have been feeling during the past week on a 4-point Likert scale (0Y3). 2. The state subscale of the STAI (STAI-S; Spielberger et al., 1986) is a 40-item scale. 3. The Quality of Life Enjoyment and Satisfaction Questionnaire (QLESQ; Endicott et al., 1993) is a 93-item scale and consists of eight quality of life dimensions. 		<p>11.16); QLESQ: 207.35 (SD 80.47) vs. 240.49 (SD 113.25). Both groups demonstrated significant improvements on inattention, hyperactivity, impulsivity, self-esteem, depression, anxiety, and quality of life.</p>	
Young et	Participants: Participants were either hospital referrals	N=95	Estimates of the adjusted overall mean	High (well-

al. (2015)	<p>for outpatient rehabilitation made by the Mental Health Services at the Landspítali University Hospital, over 18 years of age, had a current ADHD diagnosis and had been stable on prescribed ADHD medication for at least 1 month.</p> <p>Intervention: 15 sessions of Cognitive Behavioural Therapy/ medication.</p> <p>Comparator: TAU/ Medication.</p> <p>Outcome: ADHD core symptoms and severity of illness, anxiety, depression and quality of life. The Kiddie-Schedule for Affective Disorders and Schizophrenia (K-SADS), ADHD section. The Clinical Global Impression. The Barkley Current Symptoms Scale. The Beck Anxiety Inventory, The Beck Depression Inventory, The Quality of Life Scale.</p>	(I=48, C=47)	differences (i.e. combining the scores from end of treatment and at 3 months' follow-up) demonstrated significant results ($p < 0.001$) in favour of CBT for most outcomes (K-SADS total, K-SADS inattention, K-SADS, hyperactivity/impulsivity [CGI, BCS combined, BCS inattention, BCS], and BDI depression), except for the BAI anxiety ($p = 0.07$) and quality of life ($p = 0.180$) measures.	conducted but high drop-out rate; 13/48 [27%] in treatment condition and 8/47 [17%] in control group)
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Risk of bias

Systematic reviews

Author (year)	RISK OF BIAS				
	Inclusion criteria	Searches	Review process	Quality assessment	Synthesis
Torgenson et al. (2008)					

Randomised controlled trials

Study	RISK OF BIAS					
	Random allocation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective Reporting
Fleming et al. (2015)	?	?	NA	😊	😊	😞
Vidal et al. (2013)	😊	?	NA	😊	😊	😊
Young et al. (2015)	😊	😊	NA	😊	😞	😊

😊 Low risk

😞 High risk

? Unclear risk

Search details

Source	Search Strategy	Number of hits	Relevant evidence identified
<i>Guidelines</i>			
NICE	ADHD Psychotherapy		
<i>Systematic Reviews</i>			
MEDLINE	20. Medline; ((attention adj3 (deficit adj2 (disorder* OR hyperactiv*))))).ti,ab; 19543 results. 21. Medline; ((attention adj2 (deficit adj2 (hyperactiv* adj3 (disorder*))))).ti,ab; 18081 results. 22. Medline; ADHD.ti,ab; 16854 results. 23. Medline; exp PSYCHOTHERAPY/; 175543 results. 24. Medline; exp COGNITIVE THERAPY/; 19286 results. 25. Medline; CBT.ti,ab; 6478 results. 26. Medline; ((cognitive adj2 (behavi* adj2 (therap*))))).ti,ab; 10918 results. 27. Medline; ((psychoeducat* OR psychosocial* OR psychotherap*)).ti,ab; 103766 results. 28. Medline; ((individual* OR group* adj2 (CBT OR cognitive adj2 (behavi* adj2 (therap*))))).ti,ab; 1677 results. 29. Medline; ((ICBT OR GCBT OR CBGT)).ti,ab; 435 results. 33. Medline; exp ATTENTION DEFICIT DISORDER WITH HYPERACTIVITY/; 22477 results. 34. Medline; 20 OR 21 OR 22 OR 33; 29341 results. 35. Medline; 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29; 252378 results. 36. Medline; 34 AND 35; 2703 results. 37. Medline; 36 [Limit to: Publication Year 2012-2016 and (Document type Clinical Trial or Controlled Clinical Trial or Meta-analysis or Randomized Controlled Trial or Review)]; 300 results.	300	
EMBASE	1. EMBASE; exp ATTENTION DEFICIT DISORDER/; 44250 results. 2. EMBASE; ((attention adj3 (deficit adj2 (disorder* OR hyperactiv*))))).ti,ab; 25364 results. 3. EMBASE; ((attention adj2 (deficit adj2 (hyperactiv* adj3 (disorder*))))).ti,ab; 23375 results. 4. EMBASE; ADHD.ti,ab; 24445 results. 5. EMBASE; exp PSYCHOTHERAPY/; 202293 results. 6. EMBASE; exp COGNITIVE THERAPY/; 41406 results.	4	

	<p>7. EMBASE; CBT.ti,ab; 10319 results.</p> <p>8. EMBASE; ((cognitive adj2 (behavi* adj2 (therap*))))ti,ab; 16275 results.</p> <p>9. EMBASE; ((psychoeducat* OR psychosocial* OR psychotherap*))ti,ab; 141445 results.</p> <p>10. EMBASE; ((individual* OR group* adj2 (CBT OR cognitive adj2 (behavi* adj2 (therap*))))ti,ab; 1134 results.</p> <p>11. EMBASE; ((ICBT OR GCBT OR CBGT))ti,ab; 643 results.</p> <p>12. EMBASE; exp PSYCHOEDUCATION/; 4899 results.</p> <p>13. EMBASE; exp PSYCHOSOCIAL CARE/; 13755 results.</p> <p>14. EMBASE; 1 OR 2 OR 3 OR 4; 48361 results.</p> <p>15. EMBASE; 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13; 304430 results.</p> <p>16. EMBASE; 14 AND 15; 5606 results.</p> <p>18. EMBASE; 16 [Limit to: (EBM-Evidence Based Medicine Evidence Based Medicine or Meta Analysis or Systematic Review) and (Clinical Trials Clinical Trial or Randomized Controlled Trial or Controlled Clinical Trial) and Publication Year 2012-2016]; 4 results.</p>		
PsycINFO/CINAHL	<p>39. PsycInfo; ((attention adj3 (deficit adj2 (disorder* OR hyperactiv*))))ti,ab; 22375 results.</p> <p>40. PsycInfo; ((attention adj2 (deficit adj2 (hyperactiv* adj3 (disorder*))))ti,ab; 20574 results.</p> <p>41. PsycInfo; ADHD.ti,ab; 20917 results.</p> <p>42. PsycInfo; exp PSYCHOTHERAPY/; 192485 results.</p> <p>42. PsycInfo; exp PSYCHOTHERAPY/; 192485 results.</p> <p>43. PsycInfo; exp COGNITIVE THERAPY/; 12339 results.</p> <p>44. PsycInfo; CBT.ti,ab; 9794 results.</p> <p>45. PsycInfo; ((cognitive adj2 (behavi* adj2 (therap*))))ti,ab; 18183 results.</p> <p>46. PsycInfo; ((psychoeducat* OR psychosocial* OR psychotherap*))ti,ab; 164135 results.</p> <p>47. PsycInfo; ((individual* OR group* adj2 (CBT OR cognitive adj2 (behavi* adj2 (therap*))))ti,ab; 2194 results.</p> <p>48. PsycInfo; ((ICBT OR GCBT OR CBGT))ti,ab; 391 results.</p> <p>50. PsycInfo; exp ATTENTION DEFICIT DISORDER/ OR exp ATTENTION DEFICIT DISORDER WITH HYPERACTIVITY/; 21710 results.</p> <p>51. PsycInfo; exp PSYCHOEDUCATION/; 3681 results.</p> <p>52. PsycInfo; 39 OR 40 OR 41 OR 50; 28221 results.</p> <p>53. PsycInfo; 42 OR 42 OR 43 OR 44 OR 45 OR 46 OR 47 OR 48 OR 51; 301223 results.</p> <p>54. PsycInfo; 52 AND 53; 2671 results.</p> <p>55. PsycInfo; 54 [Limit to: Publication Year 2012-2016 and (Methodology Meta Analysis or Systematic Review or</p>	72	

	Treatment Outcome/Clinical Trial)]; 72 results.				
CENTRAL	#1	MeSH descriptor: [Attention Deficit Disorder with Hyperactivity] explode all trees	1826	92	
	#2	(ADHD) .ab,ti	9		
	#3	(attention adj2 deficit adj2 hyperactiv* adj2 disorder*) .ab,ti.	3		
	#4	(attention adj2 deficit adj2 disorder*) .ab,ti.	8		
	#5	#1 or #2 or #3 or #4	1840		
	#6	MeSH descriptor: [Psychotherapy] explode all trees	18614		
	#7	MeSH descriptor: [Cognitive Therapy] explode all trees	6337		
	#8	(psychotherap* or psychosocial* or psychoeducat*) .ab,ti.	166		
	#9	(CBT or ICBT or GCBT or CBGT) .ab,ti.	47		
	#10	(cognitive adj2 behavio* adj2 therap*) .ab,ti.	38		
	#11	((individual* or group*) adj2 (CBT or (cognitive adj2 behavi* adj2 therap*))) .ab,ti.	38		
	#12	#6 or #7 or #8 or #9 or #10 or #11	18765		
	#13	#5 and #12 Publication Year from 2012 to 2016	92		

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