[Updated 2015]

Psychosocial interventions for the management of cannabis dependence [Updated 2015]

SCOPING QUESTION: Which psychosocial interventions are effective in the management of cannabis dependence?

BACKGROUND

The United Nations Office on Drugs and Crime (UNODC) estimated that between 153 million and 300 million people aged 15–64 years had used an illicit drug at least once in 2009 (UNODC, 2012). Cannabis is the most commonly used illicit drug across the globe (World Health Organization [WHO], 2010), with an estimated prevalence among adults of 2.6-5% (UNODC, 2012). Though the highest prevalence rates can be found in North America, Western Europe and Oceania, the Eastern Mediterranean, African and Western Pacific regions have also reported high rates of cannabis use requiring treatment (WHO,2010).

It is estimated that around 1 in 10 recreational cannabis users, and half of daily cannabis users develop cannabis dependency. In 2010, 13.1 million people were estimated to be cannabis dependent, accounting for 2 million DALYs globally (0.08%; 0.05-0.12%) (Degenhardt et al., 2013). Cardiovascular and respiratory function problems have been found to be elevated among daily cannabis smokers, and the risk of road traffic accidents while driving under the influence of cannabis increases by 2-3 times (Sewell et al., 2010). Cannabis users are twice as likely to develop a mental disorder than non-users, especially if cannabis use commenced during adolescence and/or there exists a predisposition to mental illness (Sewell et al., 2010). The relationship between psychosocial problems and cannabis dependence are bi-directional and can include employment problems, low attainment and low quality of life.

After alcohol, the use of cannabis is the second most common reason for seeking substance abuse treatment. Given the absence of effective medications for cannabis dependence, psychosocial support is the main treatment option for the management of cannabis dependence. Psychosocial interventions include psychotherapeutic approaches, such as cognitive-behavioural therapy (CBT), contingency management approaches and motivational therapies and social supports, including linkage to supports in the community, employment support and other activities. This scoping question aims to review the current evidence regarding the efficacy of different psychosocial interventions in the management of cannabis dependence and update recommendations for these interventions accordingly.

[Updated 2015]

PART 1: EVIDENCE REVIEW

Population/ Intervention / Comparison / Outcome (PICO)

1. **Population:** People with cannabis dependence
2. **Interventions:** Psychosocial interventions
3. **Comparison:** Waiting list, head-to-head comparisons
4. **Outcomes:**

1. **Critical** – Cannabis consumption (abstinence rates, days used)
2. **Important** – Cannabis-related problems, quality of life and/or broader health outcomes

Search Strategy

A search for recent high quality systematic reviews of randomized controlled trials (RCTs) was conducted (see Appendix 1 for additional details on the approach). The National Institute for Health and Care Excellence (NICE) (2008) Clinical Guideline were selected as the most recent, high quality systematic review. The RCTs identified in the NICE review form the basis of this review up to 2007. A search for more recent RCTs was conducted to supplement this review, using the same inclusion and exclusion criteria as the NICE review.

Data collection and analysis

Two members of the research team independently assessed the trials for inclusion. Outcome data was also extracted and any disagreements over inclusion were resolved through discussion.

The methodological quality of each trial was assessed using the following criteria:

1. Randomization method;
2. Baseline comparability of the trial arms;
3. Blinding; and
4. Whether the published data permitted an intention-to-treat analysis.

Data were independently extracted by two review authors and cross-checked. Data was sought on the number of participants with each outcome event by allocated treatment group in order to allow for an intention-to-treat (ITT) analysis.

The search identified 208 studies that were published after the NICE (2008) Clinical Guideline, of which 26 were included in this evidence profile. New meta-analyses were performed including all studies (that is, new studies and those included in the NICE (2008) Clinical Guideline) utilizing the Cochrane methodology. Heterogeneity between trial results for each outcome was tested using a chi-squared test. Where the same outcomes were measured using same methods, the results from the different trials were combined to obtain a summary estimate of effect and the corresponding confidence interval (CI) using a fixed-effect model. The research team used relative risk (RR) for dichotomous measures and mean difference (MD) for continuous measures. For detailed information on search strategies, see Appendix 1.

The intervention-comparison combinations found from the search fell into four broad categories that are referred to in the analysis:

1. CBT vs. waiting list
2. CBT vs. other active interventions
3. Contingency management (CM) vs. other active interventions
4. Family and social system interventions vs. other active interventions

Reviews and studies included in GRADE tables or footnotes

Systematic Reviews

- National Institute for Health and Care Excellence. 2007. *Drug misuse – psychosocial interventions*. [CG51]. 51. Leicester: British Psychological Society.

Studies

- Babor T for Marijuana Treatment Project Research Group (2004). Brief treatments for cannabis dependence: findings from a randomized multisite trial. Journal of Consulting and Clinical Psychology. 72(3):455–466.

- Budney AJ, Higgins ST, Radonovich KJ, Novy PL (2000). Adding voucher-based incentives to coping skills and motivational enhancement improves outcomes during treatment for marijuana dependence. Journal of Consulting and Clinical Psychology.68(6):1051–61.

- Budney AJ, Moore BA, Rocha H, Higgins ST (2006). Clinical trial of abstinence based vouchers and cognitive-behavioral therapy for cannabis dependence. Journal of Consulting and Clinical Psychology.74(2):307–316.

- Brown PC, Budney AJ, Thostenson JD, Stanger C (2013). Initiation of Abstinence in Adolescents Treated for Marijuana Use Disorders. Journal of Substance Abuse Treatment.44(4):384–390. doi:10.1016/j.jsat.2012.08.223.

- Carroll KM, Nich C, Lapaglia DM, Peters EN, Easton CJ, Petry NM (2012). Combining cognitive behavioral therapy and contingency management to enhance their effects in treating cannabis dependence: less can be more, more or less. Addiction. 107(9):1650-1659. doi:10.1111/j.1360-0443.2012.03877.x.

- Carroll KM, Ball SA, Nich C, Martino S, Frankforter TL, Farentinos C, Kunkel LE, Mikulich-Gilbertson SK, Morgenstern J, Obert JL, Polcin D, Snead N (2008). Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: A multisite effectiveness study. Drug and Alcohol Dependence.81(3):301–312. doi:10.1016/j.drugalcdep.2005.08.002.

- Copeland J, Swift W, Roffman R, Stephens R (2001). A randomized controlled trial of brief cognitive-behavioral interventions for cannabis use disorder. Journal of Substance Abuse Treatment.21:55–64; discussion 65–56. doi:S0740-5472(01)00179-9.

- Dennis M, Godley SH, Diamond G, Tims FM, Babor T, Donaldson J, Liddle H, Titus JC, Kaminer Y, Webb C, Hamilton N, Funk R (2004). The Cannabis Youth Treatment (CYT) Study: Main findings from two randomized trials. Journal of Substance Abuse Treatment.27(3):197-213.

- Hendriks V, van der Schee E, Blanken P (2011). Treatment of adolescents with a cannabis use disorder: main findings of a randomized controlled trial comparing multidimensional family therapy and cognitive behavioral therapy in The Netherlands. Drug and Alcohol Dependence. 119(1-2):64-71. doi:10.1016/j.drugalcdep.2011.05.021.

- Hjorthøj CR, Fohlmann A, Larsen AM, Gluud C, Arendt M, Nordentoft M (2013). Specialized psychosocial treatment plus treatment as usual (TAU) versus TAU for patients with cannabis use disorder and psychosis: the CapOpus randomized trial. Psychological Medicine.43(7):1499-510. doi:10.1017/S0033291712002255.

- Hoch E, Noack R, Henker J, Pixa A, Höfler M, Behrendt S, Bühringer G, Wittchen HU (2012). Efficacy of a targeted cognitive-behavioral treatment program for cannabis use disorders (CANDIS). European Neuropsychopharmacology.22(4):267-280. doi:10.1016/j.euroneuro.2011.07.014.

- Hoch E, Bühringer G, Pixa A, Dittmer K, Henker J, Seifert A, Wittchen HU (2014). CANDIS treatment program for cannabis use disorders: findings from a randomized multi-site translational trial. Drug and Alcohol Dependence.134:185-93. doi:10.1016/j.drugalcdep.2013.09.028.

- Jungerman FS, Andreoni S, Laranjeira R (2007). Short term impact of same intensity but different duration interventions for cannabis users. Drug and Alcohol Dependence.90(2-3):120-7.

- Kadden RM, Litt MD, Kabela-Cormier E, Petry NM (2007). Abstinence rates following behavioral treatments for marijuana dependence. Addictive Behaviors.32(6):1220-36. doi:10.1016/j.addbeh.2006.08.009.

- Latimer WW, Winters KC, D'Zurilla T, Nichols M (2003). Integrated family and cognitive-behavioral therapy for adolescent substance abusers: A stage I efficacy study. Drug and Alcohol Dependence.71(3):303-317.

- Liddle HA, Dakof GA, Parker K, Diamond GS, Barrett K, Tejeda M (2001). Multidimensional family therapy for adolescent drug abuse: results of a randomized clinical trial. American Journal Drug and Alcohol Abuse.27(4):651-88.

- Liddle HA, Dakof GA, Turner RM, Henderson CE, Greenbaum PE (2008). Treating adolescent drug abuse: A randomized trial comparing multidimensional family therapy and cognitive behavior therapy. Addiction.103(10):1660-1670. doi:10.1111/j.1360-0443.2008.02274.x.

- Litt MD, Kadden RM, Petry NM (2013). Behavioral treatment for marijuana dependence: randomized trial of contingency management and self-efficacy enhancement. Addictive Behaviors.38(3):1764-1775. doi:10.1016/j.addbeh.2012.08.011.

- Rigter H, Henderson CE, Pelc I, Tossmann P, Phan O, Hendriks V, Schaub M, Rowe CL (2013). Multidimensional family therapy lowers the rate of cannabis dependence in adolescents: A randomised controlled trial in Western European outpatient settings. Drug and Alcohol Dependence.130(1-3):85-93. doi:10.1016/j.drugalcdep.2012.10.013.

- Sinha R, Easton C, Renee-Aubin L, Carroll KM (2003). Engaging young probation-referred marijuana-abusing individuals in treatment: a pilot trial. American Journal of Addiction.12(4):314-23.

- Stanger C, Budney AJ, Kamon JL, Thostensen J (2009). A randomized trial of contingency management for adolescent marijuana abuse and dependence. Drug and Alcohol Dependence.105(3): 240–247. doi:10.1016/j.drugalcdep.2009.07.009.

- Stephens RS, Roffman RA, Simpson EE (1994). Treating adult marijuana dependence: a test of the relapse prevention model. Journal of Consulting and Clinical Psychology.62(1):92-99.

- Stephens R S., Roffman RA, Curtin L (2000). Comparison of extended versus brief treatments for marijuana use. Journal of Consulting and Clinical
- Psychology. 68(5):898–908.

- Stephens RS, Babor TF, Kadden R, Miller M (2002). The Marijuana Treatment Project: rationale, design and participant characteristics. Addiction. 97(Suppl.1):109-124.

- Waldron HB1, Slesnick N, Brody JL, Turner CW, Peterson TR (2001). Treatment outcomes for adolescent substance abuse at 4- and 7-month assessments. Treatment outcomes for adolescent substance abuse at 4- and 7-month assessments. Journal of Consulting Clinical Psychology.69(5):802-813.

- Walker D (2011). The influence of client behavior during motivational interviewing on marijuana treatment outcome. Addictive Behavior.36(6):669–673.

Studies EXCLUDED from GRADE tables and footnotes

Buckner JD and Carroll KM (2010). Effect of anxiety on treatment presentation and outcome: Results from the Marijuana Treatment Project. Psychiatry Research.178(3):493–500. doi:10.1016/j.psychres.2009.10.010.
REASON FOR EXCLUSION: No outcomes of interest reported.

de Dios MA, Herman DS, Britton WB, Hagerty CE, Anderson BJ, Stein MD (2012). Motivational and mindfulness intervention for young adult female marijuana users. Journal of Substance Abuse Treatment.42(1):56-64. doi:10.1016/j.jsat.2011.08.001.
REASON FOR EXCLUSION: This included a non-dependent population.

Edwards J, Elkins K, Hinton M, Harrigan SM, Donovan K, Athanasopoulos O, McGorry PD (2006). Randomized controlled trial of a cannabis-focused intervention for young people with first-episode psychosis. Acta Psychiatrica Scandinavica.114(2):109–117.
REASON FOR EXCLUSION: This trial was only in patients with psychosis and the intervention was combined with psychosis treatment.

Gates PJ, Norberg MM, Copeland J, Digiusto E (2012). Randomized controlled trial of a novel cannabis use intervention delivered by telephone. Addiction.107(12):2149-2158. doi:10.1111/j.1360-0443.2012.03953.x.
REASON FOR EXCLUSION: The participants were not cannabis dependent.

Gibbons CJ, Nich C, Steinberg K, Roffman RA , Corvino J, Babor TF, Carroll KM (2010). Treatment process, alliance and outcome in brief vs. extended treatments for marijuana dependence. Addiction.105(10): 1799–1808. doi:10.1111/j.1360-0443.2010.03047.x.
REASON FOR EXCLUSION: No outcomes of interest.

Granholm E, Tate SR, Link PC, Lydecker K, Cummins KM, McQuaid J, Shriver C, Brown SA (2011). Neuropsychological functioning and outcomes of treatment for co-occurring depression and substance use disorders. The American Journal of Drug and Alcohol Abuse.37(4):240–249. doi: 10.3109/00952990.2011.570829.
REASON FOR EXCLUSION: Included participants with: (1) a DSM-IV diagnosis of alcohol, cannabinol, and/or stimulant dependence; (2) DSM-IV diagnosis of major depressive disorder with at least one episode independent of alcohol/substance use; or (3) recent substance use (past 90 days); and (4) elevated depressive symptoms. There was no separate subgroup analysis of data by type of dependence or by presence of concurrent major depression.

Kay-Lambkin FJ, Baker AL, Kelly B, Lewin TJ (2011). Clinician-assisted computerised vs. therapist-delivered treatment for depressive and addictive disorders: a randomised controlled trial. Medical Journal of Australia. 195(3): S44-S50.
REASON FOR EXCLUSION: Participants of this study had concurrent major depression, as well as alcohol or cannabis abuse. There was no separate subgroup analysis of data by type of dependence or by presence of concurrent major depression.

Litt MD, Kadden RM, Kabela-Cormier E, Petry NM (2008). Coping skills training and contingency management treatments for marijuana dependence: exploring mechanisms of behavior change. Addiction.103(4):638-648. doi:10.1111/j.1360-0443.2008.02137.x.
REASON FOR EXCLUSION: Provides a sub-analysis of the Kadden et al. (2007) study.

Martin G and Copeland J (2008). The adolescent cannabis check-up: randomized trial of a brief intervention for young cannabis users. Journal of Substance Abuse Treatment.34(4):407-414.
REASON FOR EXCLUSION: Among the inclusion criteria was that participants had to have used cannabis at least once in the past month. There was no data provided on prevalence of abusers or dependent participants. Participants were not necessarily cannabis abusers or cannabis-dependent patients.

Rooke S, Copeland J, Norberg M, Hine D, McCambridge J (2013). Effectiveness of a self-guided web-based cannabis treatment program: randomized controlled trial. Journal of Medical Internet Research.15(2):e26. doi:10.2196/jmir.2256.
REASON FOR EXCLUSION: Head-to-head comparisons were not in the inclusion criteria.

Stanger C, Ryan SR, Fu H, Landes RD, Jones BA, Bickel WK, Budney AJ (2012). Delay discounting predicts adolescent substance abuse treatment outcome. Experimental and Clinical Psychopharmacology.20(3):205-12. doi:10.1037/a0026543.
REASON FOR EXCLUSION: No outcomes of interest.

Stein MD, Hagerty CE, Herman DS, Phipps MG, Anderson BJ (2011). A brief marijuana intervention for non-treatment-seeking young adult women. Journal of Substance Abuse Treatment.40(2):189–198. doi:10.1016/j.jsat.2010.11.001.

REASON FOR EXCLUSION: The inclusion criteria required participants to have smoked marijuana at least 3 times in the past month, with participants not necessarily cannabis abusers or cannabis-dependent patients.

Walker DD, Stephens R, Roffman R, Demarce J, Lozano B, Towe S, Berg B (2011). Randomized controlled trial of motivational enhancement therapy with nontreatment-seeking adolescent cannabis users: a further test of the teen marijuana check-up. Psychology of Addictive Behaviors.25(3):474-484. doi:10.1037/a0024076.
REASON FOR EXCLUSION: This is a conference proceeding and there no full text available.

PICO Table

Population: People with cannabis dependence

Intervention	Comparison	Outcome	Studies included	Justification for studies used	Relevant GRADE table
Cognitive Behavioural Therapy (CBT)	Waiting list	Cannabis consumption	Stephens et al. (2000) Copeland et al. (2001)	Included in NICE (2007) Clinical Guideline	Table 1
CBT + Motivational Enhancement Therapy (MET)	Waiting list	Cannabis consumption	*Jungerman et al. (2007) *Babor (2004)	Studies located by running a new search for the purposes of this evidence profile, not included in the NICE (2007) Clinical Guideline	Table 2
MET	Waiting list	Cannabis consumption	*Walker (2011) *Babor (2004) Stephens et al. (2000)	Studies located by running a new search for the purposes of this evidence profile, not included in the NICE (2007) Clinical Guideline	Table 3

CBT+MET + Psychosocial Problem-Solving Training (PPS)	Waiting list	Cannabis consumption	*Hoch et al. (2014) *Hoch et al. (2012)	Studies located by running a new search for the purposes of this evidence profile, not included in the NICE (2007) Clinical Guideline	Table 4
CBT	MET	Cannabis consumption	Stephens et al. (1994)	Included in NICE (2007) Clinical Guideline	Table 5
CBT	Social support groups	Cannabis consumption	*Babor (2004) Budney et al. (2000)	Study located by running a new search for the purposes of this evidence profile, not included in the NICE (2007) Clinical Guideline Included in NICE (2007) Clinical Guideline	Table 6
CBT + MET	MET	Cannabis consumption	Carroll et al. (2008)	Included in NICE (2007) Clinical Guideline	Table 7
CBT + MET	Counselling	Cannabis consumption	Carroll et al. (2008)	Included in NICE (2007) Clinical Guideline	Table 8
CBT	Psychoeducational support	Cannabis consumption	Waldron et al. (2001)	Included in NICE (2007) Clinical Guideline	Table 9
MET + Contingency Management (CM)	MET	Cannabis consumption	Sinha et al. (2003)	Included in NICE (2007) Clinical Guideline	Table 10
CBT + MET + CM	CBT + MET	Cannabis consumption	*Kadden et al. (2007) Carroll et al. (2008) Stanger et al. (2009) Budney et al. (2000)	Study located by running a new search for the purposes of this evidence profile, not included in the NICE (2007) Clinical Guideline Included in NICE (2007) Clinical Guideline	Table 11
Counselling + CM	Counselling	Cannabis consumption	Carroll et al. (2008)	Included in NICE (2007) Clinical Guideline	Table 12

CBT + MET +CM	CM	Cannabis consumption	*Kadden et al. (2007)	Study located by running a new search for the purposes of this evidence profile, not included in the NICE (2007) Clinical Guideline	Table 13
CBT + MET	CM	Cannabis consumption	*Kadden et al. (2007) Carroll et al. (2008) Budney et al. (2006)	Study located by running a new search for the purposes of this evidence profile, not included in the NICE (2007) Clinical Guideline Included in NICE (2007) Clinical Guideline	Table 14
CBT + CM	CBT	Cannabis consumption	*Carroll et al. (2012) Budney et al. (2006)	Study located by running a new search for the purposes of this evidence profile, not included in the NICE (2007) Clinical Guideline Included in NICE (2007) Clinical Guideline	Table 15
CBT + CM	CM	Cannabis consumption	*Carroll et al. (2012) Budney et al. (2006)	Study located by running a new search for the purposes of this evidence profile, not included in the NICE (2007) Clinical Guideline Included in NICE (2007) Clinical Guideline	Table 16
Family interventions	CBT		*Hendriks et al. (2011)	Studies located by running a new search for the purposes of	Table 17

			Dennis et al. (2004 a) Dennis et al. (2004 b) Liddle et al. (2008) Waldron et al. (2001)	this evidence profile, not included in the NICE (2007) Clinical Guideline Included in NICE (2007) Clinical Guideline	
Family interventions	Psychoeducational support	Cannabis consumption	Latimer et al. (2003) Waldron et al. (2001)	Included in NICE (2007) Clinical Guideline	Table 18
Family interventions	Group therapy	Cannabis consumption	Liddle et al. (2001)	Included in NICE (2007) Clinical Guideline	Table 19
Family interventions	Individual psychotherapy	Cannabis consumption	*Rigter et al. (2013)	Study located by running a new search for the purposes of this evidence profile, not included in the NICE (2007) Clinical Guideline	Table 20

Summary of studies that went into the analysis

Study name	**Study design**	**Participants**	**Group 1**	**Group 2**	**Groups 3 / 4**
Budney et al. (2000)	RCT (blinding unclear)	N=60 Cannabis dependent individuals seeking outpatient treatment	Group 1 Motivational enhancement (ME)	Group 2 ME plus behavioural coping skills therapy (MBT)	Group 3 MBT plus voucher-based incentives (MBTV) Participants earned vouchers exchangeable for retail items contingent on them submitting cannabinoid-negative urine specimens
Budney et al. (2006)	RCT (blinding unclear)	N=90 100% cannabis-dependent adults seeking treatment	Group 1 (N=30) Cognitive Behavioural Therapy (CBT) CBT for 14 weeks. Sessions 1-2 comprised motivational interviewing.	Group 2 (N=30) Contingency management + CBT CM: vouchers with outpatient - $1.50 for first negative urine, increased by $1.50 for each	Group 3 (N=30) Contingency management vouchers with outpatient - $1.50 for first negative urine, increased by $1.50 for each subsequent negative urine, $10 bonus for two consecutive negative

			Sessions 3-8 focused on skills directly related to achieving and maintaining abstinence. Sessions 9-14 focused on coping skills indirectly related to abstinence.	subsequent negative urine, $10 bonus for two consecutive negative samples. Positive sample resulted in vouchers reset to $1.50 CBT with outpatient - 50-minute sessions of individual CBT for 14 weeks. Sessions 1-2 comprised motivational interviewing. Sessions 3-8 focused on skills directly related to achieving and maintaining abstinence. Sessions 9-14 focused on coping skills indirectly related to abstinence.	samples. Positive sample resulted in vouchers reset to $1.50.
Brown et al. (2013)	RCT (blinding unclear)	N=69 Cannabis-dependent adolescents aged 14-18 years	Group 1 (N=36) Contigency management (CM) Contingency management treatment for 14 weeks, included monetary vouchers that were awarded on an escalating reinforcement schedule for abstinence.	Group 2 (N=33) Comparison condition For the duration of 14 weeks, adolescents in this condition earned vouchers for attendance and providing urine specimens for drug testing and their parents attended weekly psychoeducation sessions.	
Carroll et al. (2012)	RCT (not blinded)	N=127 Cannabis-dependent, treatment-seeking young adults (average	Group 1 (N= 36) Cognitive–behavioural therapy (CBTalone) 50-minute individual weekly sessions for 12 weeks	Group 2 (N=32) CBT + CM for adherence (CBT + CMadher) In addition to CBT as in the previous group, participants were offered chances to draw	Group 3 (N=32) CM for abstinence (CMabst) Participants had the opportunity to draw from a bowl and earn prizes each time they provided urine samples that were negative for

		age = 25.7 years)		prizes from a bowl contingent upon session attendance and homework completion.	cannabis at the 12-weekly assessment sessions. Group 4 (N=27) CMabst plus CBT (CMabst + CBT) Participants randomized to this condition received prize CM for submitting urine specimens negative for cannabis and weekly individual CBT.
Carroll et al. (2006)	RCT (unblinded)	N=423 100% DSM-IV cannabis dependent	Group 1(N=202) Standard intake / evaluation session Participants assigned to this condition received an approximately 2-hour assessment/evaluation session, during which the clinician collected standard information according to agency guidelines. This typically included collecting information on the participant's history and current level of substance use, treatment history, and psychosocial functioning. The clinician then provided an orientation to the clinic. Following this single protocol session, the participant was referred to standard group treatment at each site.	Group 2 (N=198) Motivational interviewing intake session (MI) Individuals assigned to this condition participated in an approximately 2-hour assessment/evaluation session within which the therapist conducted the same intake/orientation session as described above, but did so in a manner that incorporated MI strategies (e.g., practicing empathy, providing choice, removing barriers, providing feedback and clarifying goals) and that used an MI interviewing style (e.g., asking open-ended questions, listening reflectively, affirming change-related participant statements and efforts, eliciting self-motivational statements with directive methods and handling resistance without direct confrontation).	
Copeland et al. (2001)	RCT (blinding unclear)	N= 229 (cannabis users)	Group 1 (N=78) 6-session Cognitive Behavioural Therapy (6CBT)	Group 2 (N=82) 1 session of cognitive behavioural therapy (1CBT)	Group 3 (N=69) Delayed treatment control (DTC) Assessment and placement in a 24-

			6-session intervention package incorporating a motivational interview and a standard relapse prevention intervention.	One-session version of the more intensive intervention with a self-help booklet.	week delayed-treatment control group.
Dennis et al. (2004)	RCT (two separate RCTs, binding unclear)	N=600 100% cannabis-dependent adolescents aged 12-18 years, assessed by DSM-IV	Group 1 (Trial 1) – N=102 Motivational Enhancement Treatment / Cognitive Behaviour Therapy 5 sessions (MET/CBT5) Two individual MET sessions and three group CBT sessions, with the total duration of treatment lasting 6 to 7 weeks. Group 1 (Trial 2) – N=100 MET/CBT5 Same as above.	Group 2 (Trial 1) – N=96 MET/CBT 12 sessions (MET/CBT12) CBT: coping skills training - 12 group sessions. Contents as per CBT5, with additional sessions addressing interpersonal problems, negative affect, problem solving, anger management, resisting craving, managing depression and thoughts about cannabis. AMI: MET (motivational enhancement therapy) with outpatient. Group 2(Trial 2) – N=100 Adolescent Community Reinforcement Approach (ACRA) Composed of 10 individual sessions with the adolescent, four sessions with caregivers (two of which are with the whole family) and a limited amount of case	Group 3 (Trial 1)– N=102 Family Support Network (FSN) Used MET/CBT12 to provide adolescent-focused substance abuse treatment and added six parent-education group meetings (to improve parent knowledge and skills relevant to adolescent problems and family functioning), four therapeutic home visits, referral to self-help support groups and case management (to promote adolescent/parent engagement in the treatment process). Core procedures are identification of antecedents and consequences, goals of treatment and further goal planning, communication and problem solving. Case management - Limited case management over a period of 12-14 weeks. Group 3 (Trial 2) n=100 Multidimensional Family Therapy (MDFT) MDFT (multidimensional family therapy) with outpatient - 12-15 sessions. Three phases: engagement, working the themes and sealing the changes. Integrates drug use treatment into FT

				management provided by the therapist over a period of 12 to 14 weeks.	through improving communication, shifting from high conflict to affective issues and developing positive experiences/interactions with each other, tying conversation and themes to drug use. Case management - Limited case management over a period of 12-14 weeks.
Hendriks et al. (2011)	RCT (not blinded)	N=109 Treatment-seeking adolescents (aged 13-18 years) with DSM-IV cannabis-dependent use disorder	Group 1 (N=55) 6 months of multidimensional family therapy (MDFT) MDFT-therapists had twice-weekly sessions (2 hours/week) with the individual adolescent, parent(s) and/or family, in addition to sessions or contacts with school, courts and other persons.	Group 2 (N=54) Cognitive-Behavioural Therapy delivered once a week for 1 hour for 6 months, with monthly sessions for family members.	
Hjorthøj et al. (2013)	RCT (blinded)	N= 103 Patients with cannabis use disorder and psychosis	Group 1 (N=52) CapOpus + Treatment as usual (TAU) CapOpus consisted mainly of motivational interviewing and cognitive behavior therapy. TAU was targeted primarily at the psychotic disorder.	Group 2 (N=51) TAU Consisted of the treatment available to patients primarily targeted at their psychotic disorder.	
Hoch et al. (2012)	RCT (not blinded)	N=122 Patients aged 16-44 years with DSM-IV cannabis dependence	Group 1 (N=51) Standardized treatment Twice weekly 90 minute sessions - 10 session CANDIS treatment consists of three major components: MET, CBT and PPS.	Group 2 (N=39) Targeted standardized treatment This treatment version had the identical components, dose and structure as the ST-variant described above. The only differences occurred in sessions 2 and 7–9, where patient's	Group 3 (N=32) Delayed control condition (DTC) Treatment delayed for 3-4 months.

				mental health and psychosocial problems (based on their pre-treatment problem- profile) were addressed in greater detail than in the ST-variant.	
Hoch et al. (2014)	RCT (participants blind to condition, not blind to therapy)	N=279 Treatment seekers with ICD-10 cannabis use disorders aged 16-63 years	Active Treatment (AT, n = 149) Consisted of ten 90-minute sessions of a manualized individual therapy and spanning a period from 8 to 12 weeks. CANDIS treatment consists of three major components: MET, CBT and PPS.	Delayed Treatment Control (DTC, n = 130) Patients were required to wait 8 weeks before beginning treatment.	
Jungerman et al. (2007)	RCT (blinding unclear)	160 (90% daily users)	Group 1 (N=56) 4 weekly individual sessions of motivational interviewing and relapse prevention over 1 month (1MIRP).	Group 2 (N=52) 4 sessions of motivational interviewing and relapse prevention over 3 months (3MIRP).	Group 3 (N=52) Delayed treatment control (DCT)
Kadden et al. (2007)	RCT (no blinding)	N=240 100% cannabis dependent DSM-IV	Group 1 (N=62) Case management Control: standard care with outpatient. Mean dose nine sessions - Case management (i.e. standard counselling): active control condition that focused on life issues such as occupational, social, psychiatric, or educational goals. It served as a control for time and attention, without teaching skills or tangibly reinforcing abstinence with anything other than verbal praise	Group 2 (N=61) Motivational Enhancement therapy plus cognitive-behavioural therapy (MET+CBT) Two sessions of motivational enhancement therapy followed by seven sessions of coping skills training NCM (non-contingent management) with outpatient - Received voucher schedule generated by a participant in the contingent condition -- to control for the amount and pattern of payments received.	Group 3 (N=54) Contingency management (ContM) CM: vouchers with outpatient - Received $2.50 voucher for first cocaine-negative sample, vouchers for subsequent negative samples increased by $1.50, $10 bonus for three consecutive negative samples. A cocaine-positive sample reset payment schedule to initial value ($2.50). Maximum $1155. Group 4 (N=63) MET+CBT+ContM This treatment combined MET + CBT with ContM reinforcement for drug-free urine samples.

Latimer et al. (2003)	RCT (blinding unclear)	N= 43 Adolescents meeting criteria for one or more psychoactive substance use disorders	Group 1 N= 21 FI (family intervention) - 16 weekly 60- minute sessions. Aims to promote youth abstinence by fostering family communication, age appropriate familial roles and effective parenting skills. Behavioural contracts among family members.	Group 2 N= 22 Psychoeducation - 16 weekly, 90-minute sessions delivered to groups of adolescents. Focus on physiological and negative consequences of drug use, incorporating info disseminated by NIDA.	
Liddle et al. (2001)	RCT (blinding unclear)	N=182 Marijuana- and alcohol-abusing adolescents	Group 1 N= 52 Psychoeducation with outpatient - 90	Group 2 N= 53 Group therapy with outpatient	Group 3 N= 47 FI: MDFT (multidimensional family therapy) with outpatient
Liddle et al. (2008)	RCT (blinding)	N=224 Drug users with average age of 15, 75% meeting DSM-IV criteria for cannabis dependence and 13% meeting criteria for abuse	Group 1 (N=112) Individual Cognitive Behavioural Therapy (CBT) delivered in 60–90-minute weekly, office-based sessions	Group 2 (N=112) Multidimensional family therapy (MDFT) delivered in 60–90-minute weekly, office-based sessions	
Litt et al. (2013)	RCT (blinding)	215 (cannabis dependent)	MET + CBT + CMHomework: A treatment combining motivational enhancement therapy (MET), cognitive-behavioral skills training (CBT), and contingent reinforcement for completing homework assignments designed to strengthen coping skills and self-efficacy	MET + CBT + CMAbstinence: A comparison treatment combining MET, CBT, and contingent reinforcement for marijuana-free urine specimens	Case management (CaseM): A case-management control intervention in which patient problems are discussed, but in which no MET or substance abuse skill training occurs

Ritger et al. (2013)	RCT (no blinding)	N=450 Adolescents aged 13-18 (82% cannabis dependent)	Allocated to multidimensional family therapy (MDF) , 2 sessions per week for 6 months(n=212)	Allocated to individualized psychotherapy, one session per week for 6 months (n=238)	
Sinha et al. (2003)	RCT (no blinding)	N=65 Marijuana-using individuals aged 18-25 years (using on average every second day); 75% met DSM-IV criteria for dependence and 25% for abuse	Group 1 (N=28) 3 sessions MET plus a recommendation to continue therapy.	Group 2 (N=37) 3 sessions MET plus CM: vouchers for treatment attendance.	
Stanger et al. (2012)	RCT	69 adolescents aged 14-19 years with cannabis dependence	Group 1 N=36 Experimental group: MET/CBT plus Abstinence-based Contingency Management plus Family Management 90 minutes per week for 14 consecutive weeks.	Group 2 N=33 Control Group: MET/CBT only 90 minutes per week for 14 consecutive weeks.	
Stephens et al. (1994)	RCT (blinding – therapists unaware of alternative treatment and hypothesis of the study)	212 (cannabis-dependent)	Group 1 N= 106 CBT: RP (relapse prevention) with outpatient. Mean dose 20 sessions - Weekly for first 8 weeks, once every 2 weeks for next 4 weeks, booster session at 3- and 6 months afterwards. Groups of 12-15 participants, manual-guided, problem-focused psychoeducational style.	Group 2 N= 106 Control: social support group with outpatient. Mean dose 20 sessions. Weekly for first 8 weeks, once every 2 weeks for next 4 weeks, booster session at 3- and 6 months. Getting and giving support, dealing with mood swings, peer experiences. Therapists did not give advice or training but facilitated discussion.	
Stephens	RCT (no	N=291	Group 1	Group 2	Group 3

et al. (2000)	blinding)	Adult marijuana users seeking treatment	Relapse prevention support group (RPSG) Extended 14-session cognitive-behavioural group treatment.	Individualized assessment and intervention (IAI) Brief 2-session individual treatment using motivational interviewing.	Delayed treatment control (DTC) 4-month delayed treatment control condition.
Stephens et al. (2002)	RCT (no blinding)	N=450 Adults with marijuana dependence	Group 1 (N=155) 9-session CBT with MET and CM components. Participants first received two sessions of MET similar to those in the brief intervention. Next two CM sessions helped participants to recognize current problems that may present barriers to stopping marijuana use. After the two CM sessions, therapists checked on participants' progress in this area at the subsequent CBT sessions.	Group 2 (N=149) 2-session MET intervention: First session occurred one week after baseline assessment, with second session 4 weeks later. The first MET session focused on reviewing a personalized feedback report (PFR) highlighting problem areas that were identified in the baseline assessment. The second session continued the motivational enhancement process, emphasizing events that occurred in the month since the first session, strengthening commitment to change and setting goals for behavior change.	Group 3 (N=146) Delayed treatment control (DTC) The DTC group also was assessed briefly at 4 and 12 weeks post-randomization to check for possible clinical deterioration during the waiting period. Following the assessment at the end of the 4-month delay period, DTC participants were offered their choice of either the 2- or 9-session treatment.
Waldron et al. (2001)	RCT (no blinding)	N= 114 adolescents (cannabis-dependent)	Group 1 (N=30) Family therapy (FT) 1 hour per week for 12 weeks; intervention applied in two phases, the first of which focused on engaging families in the treatment process and enhancing motivation for change and the second phase focused on effecting behavioural changes in the family.	Group 2 (N=31) Individual cognitive behavioural therapy (CBT) 1 hour per week for 12 weeks; consisted of 2-session motivational-enhancement intervention and 10 skills modules, including communication training, problem solving, peer refusal, negative mood management, social support, work- and school-related skills and relapse prevention.	Group 3 (N=29) Combined FT + CBT Two hours per week (1h FT + 1h CBT) for 12 weeks Both of the previous treatments combined. Group 4 (N=30) Group intervention Consisted of eight 90min sessions (12h in total); psychoeducational group intervention modeled after tertiary prevention education strategies widely used in adolescent substance abuse programs.

Walker (2011)	RCT (no blinding)	N=61 Marijuana-dependent adults (assessed by DSM-IV)	Group 1 9 sessions of Motivational Interviewing(MI) + CBT+ CM	Group 2 4 sessions of MI+CBT+CM	

[Updated 2015]

GRADE TABLES

CBT vs. waiting list

Table 1. CBT vs. waiting list for management of cannabis dependence

Authors: S Minozzi , L Amato, N Clark, J Vieira Flores
Question: Is CBT effective for management of cannabis dependence compared to waiting list?
Bibliography: National Institute for Health and Care Excellence (NICE). 2007. *Drug misuse – psychosocial interventions*. [CG51]. 51. Leicester: British Psychological Society.
Trials included:

1. Copeland J, Swift W, Roffman R, Stephens R (2001). A randomized controlled trial of brief cognitive-behavioral interventions for cannabis use disorder. Journal of Substance Abuse Treatment.21:55–64; discussion 65–56. doi:S0740-5472(01)00179-9.
2. Stephens R S., Roffman RA, Curtin L (2000). Comparison of extended versus brief treatments for marijuana use. Journal of Consulting and Clinical Psychology. 68(5):898–908.

NOTE: No meta-analysis with pooled data was possible because studies assessed different outcomes or same outcomes in different ways).

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	CBT	Waiting list	Relative (95% CI)	Absolute		
Point abstinence: Negative urine at 4-month follow-up (assessed with Objective)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	Serious indirectness [2]	No serious imprecision	None	51/95 (53.7%)	17/59 (28.8%)	RR 1.86 (1.2 to 2.9)	248 more per 1000 (from 58 more to 547 more)	⨁⨁◯◯ LOW	CRITICAL
								28.8%		248 more per 1000 (from 58 more to 547 more)		
Number of subjects with continuous abstinence at 9 months follow-up (assessed with subjective)												
1	Randomized trials	Very serious [1,3]	No serious inconsistency	Serious indirectness [2]	Serious [4]	Very large effect size (RR>5)	8/78 (10.3%)	1/69 (1.4%)	RR 7.08 (0.91 to 55.16)	88 more per 1000 (from 1 fewer to 785 more)	⨁⨁◯◯ LOW	CRITICAL
								1.5%		91 more per 1000 (from 1 fewer to 812 more)		
Day of use per months (measured with subjective; range of scores: 1-30; better indicated by lower values)												
1	Randomized trials	Serious risk of bias [1]	No serious inconsistency	Serious indirectness [2]	No serious imprecision	None	95	79	-	MD 10.41 lower (13.5 to 7.32 lower)	⨁⨁◯◯ LOW	CRITICAL

[1] Not blinded.
[2] Waiting list used as comparison.

[3] Dropout rate higher than 30%.
[4] Wide confidence interval.

Table 2. CBT + MET vs. waiting list

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Is CBT + MET effective for management of cannabis dependence compared to waiting list?
Bibliography:

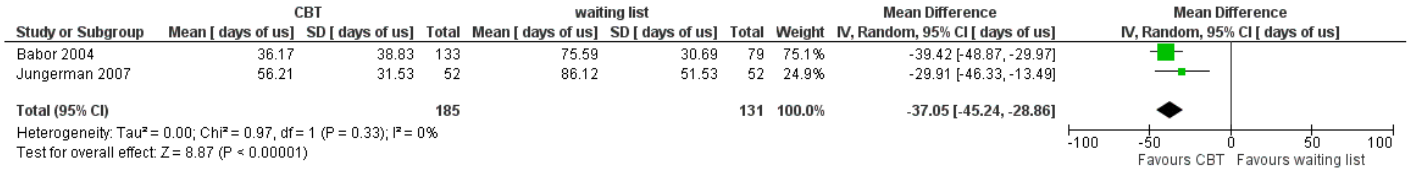
- Jungerman FS, Andreoni S, Laranjeira R (2007). Short term impact of same intensity but different duration interventions for cannabis users. Drug and Alcohol Dependence.90(2-3):120-7.
- Babor T for Marijuana Treatment Project Research Group (2004). Brief treatments for cannabis dependence: findings from a randomized multisite trial. Journal of Consulting and Clinical Psychology. 72(3):455–466.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**CBT +MET**	**Waiting list**	**Relative (95% CI)**	**Absolute**		
Cannabis use % of days smoked in the preceding 90 days at 4 months follow (measured with subjective; range of scores: 1-90; better indicated by lower values)												
2	Randomized trials	Very serious[1,2]	No serious inconsistency	Serious indirectness [3]	No serious imprecision	None	185	131	-	MD 37.05 lower (45.24 to 28.86 lower)	□□□□ VERY LOW	CRITICAL
No. of joints per day in the preceding 90 days at 4 months follow-up (measured with subjective; better indicated by lower values)												
2	Randomized trials	Very serious[1,2]	No serious inconsistency	Serious indirectness [3]	No serious imprecision	None	185	132	-	MD 0.95 lower (1.29 to 0.6 lower)	□□□□ VERY LOW	CRITICAL

[1] Drop out rate superior to 30% in the 50% of the trials.
[2] Not blinded.
[3] Waiting list used as comparison.

Figure 1. Forest plots of comparison CBT+ MET vs. waiting list

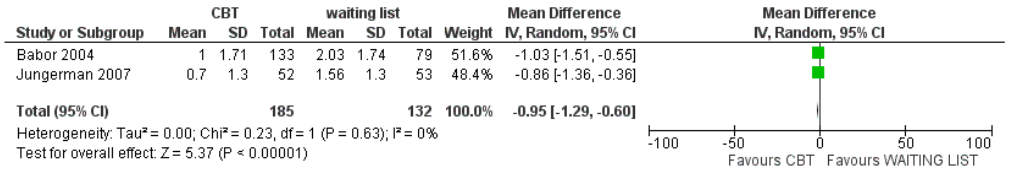
Figure 5 (Analysis 2.1)



Caption

Forest plot of comparison: 2 CBT +MET vs waiting list, outcome: 2.1 Cannabis use % of days smoked in the preceding 90 days at 4 months follow [days of us].

Figure 6 (Analysis 2.2)



Caption

Forest plot of comparison: 2 CBT +MET vs waiting list, outcome: 2.2 n of joints per day in the preceding 90 days at 4 months follow up.

[Updated 2015]

Table 3. MET vs. waiting list for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Is MET effective for management of cannabis dependence compared to waiting list?
Bibliography: New meta-analysis.Relevant studies:

- Babor T for Marijuana Treatment Project Research Group (2004). Brief treatments for cannabis dependence: findings from a randomized multisite trial. Journal of Consulting and Clinical Psychology. 72(3):455–466.
- Stephens R S., Roffman RA, Curtin L (2000). Comparison of extended versus brief treatments for marijuana use. Journal of Consulting and Clinical Psychology. 68(5):898–908.
- Walker D (2011). The influence of client behavior during motivational interviewing on marijuana treatment outcome. Addictive Behavior.36(6):669–673.

NOTE: No meta-analysis with pooled data possible because studies assessed different outcomes or same outcomes in different ways.

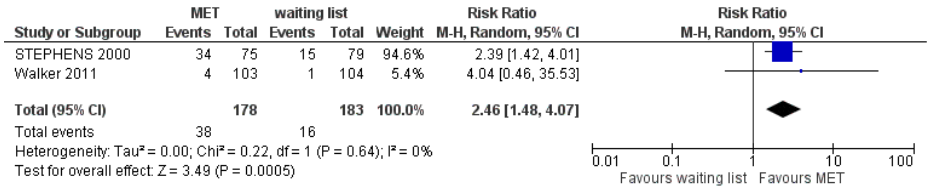
Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**MET**	**Waiting list**	**Relative (95% CI)**	**Absolute**		
Point abstinence at 3-4 months (follow-up mean 3.5 months; assessed with objective)												
2	Randomized trials	Serious risk of bias[1]	No serious inconsistency	Serious indirectness[2]	Serious imprecision[3]		38/178 (21.3%)	16/183 (8.7%)	RR 2.46 (1.48 to 4.07)	128 more per 1000 (from 42 more to 268 more)	⨁◯◯◯ VERY LOW	CRITICAL
								10%		146 more per 1000 (from 48 more to 307 more)		
Days of cannabis use in the preceding 60-90 days at ¾ months follow-up (follow-up mean 3.5 months; measured with subjective; range of scores: 1-90; better indicated by lower values)												
2	Randomized trials	Serious risk of bias[1]	Very serious[4]	Serious indirectness[2]	No serious imprecision	None	231	241	-	MD 12.34 lower (26.12 lower to 1.43 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Day of use per months in the 4 preceding weeks (follow-up mean 1 months; measured with subjective; range of scores: 1-30; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	Serious indirectness[2]	No serious imprecision	None	75	79	-	MD 9.21 lower (12.64 to 5.78 lower)	⨁◯◯◯ LOW	CRITICAL
Joints per day during the preceding 90 days at 4 months follow-up (measured with subjective; better indicated by lower values)												

1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	Serious indirectness[2]	No serious imprecision	None	128	137	-	MD 19.93 lower (28.04 to 11.82 lower)	⨁◯◯◯ LOW	CRITICAL

[1] Not blinded.
[2] Waiting list used as comparison.
[3] Large effect size (RR>2).
[4] I^2higher than 75%.

Figure 2. Forest plots for MET vs. waiting list

Figure 7 (Analysis 3.1)



Caption

Forest plot of comparison: 3 MET vs waiting list, outcome: 3.1 Point abstinence at 3-4 months.

Figure 8 (Analysis 3.2)

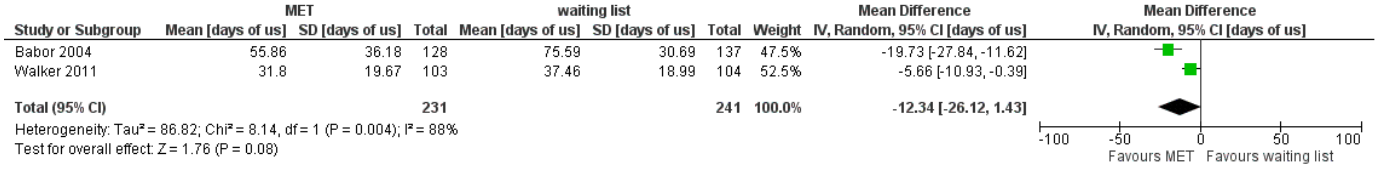
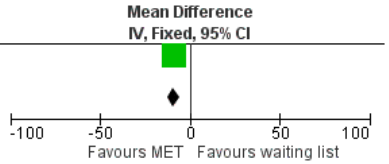


Figure 9 (Analysis 3.3)

Study or Subgroup	MET Mean	MET SD	MET Total	waiting list Mean	waiting list SD	waiting list Total	Weight	Mean Difference IV, Fixed, 95% CI
STEPHENS 2000	7.88	10.98	75	17.09	10.73	79	100.0%	-9.21 [-12.64, -5.78]
Total (95% CI)			**75**			**79**	**100.0%**	**-9.21 [-12.64, -5.78]**

Heterogeneity: Not applicable
Test for overall effect: Z = 5.26 (P < 0.00001)



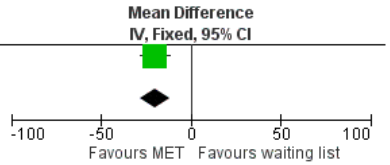
Caption

Forest plot of comparison: 3 MET vs waiting list, outcome: 3.3 Day of use per months in the 4 preceding week.

Figure 10 (Analysis 3.4)

Study or Subgroup	MET Mean	MET SD	MET Total	waiting list Mean	waiting list SD	waiting list Total	Weight	Mean Difference IV, Fixed, 95% CI
Babor 2004	55.86	36.18	128	75.79	30.69	137	100.0%	-19.93 [-28.04, -11.82]
Total (95% CI)			**128**			**137**	**100.0%**	**-19.93 [-28.04, -11.82]**

Heterogeneity: Not applicable
Test for overall effect: Z = 4.82 (P < 0.00001)



Caption

Forest plot of comparison: 3 MET vs waiting list, outcome: 3.4 Joints per day during the preceding 90 days at 4 months follow up.

Table 4. CBT + MET + PPS vs. waiting list for management of cannabis dependence

[Updated 2015]

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Is CBT + MET + PPS effective for management of cannabis dependence compared to waiting list?
Bibliography: New meta-analysis. Relevant studies:

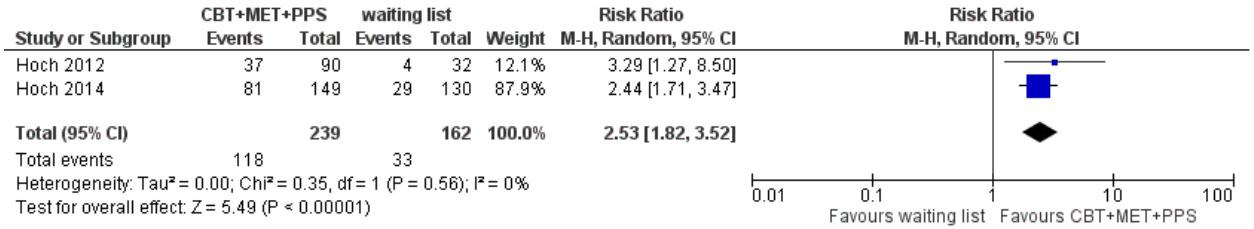
- Hoch E, Noack R, Henker J, Pixa A, Höfler M, Behrendt S, Bühringer G, Wittchen HU (2012). Efficacy of a targeted cognitive-behavioral treatment program for cannabis use disorders (CANDIS). European Neuropsychopharmacology.22(4):267-280. doi:10.1016/j.euroneuro.2011.07.014.
- Hoch E, Bühringer G, Pixa A, Dittmer K, Henker J, Seifert A, Wittchen HU (2014). CANDIS treatment program for cannabis use disorders: findings from a randomized multi-site translational trial. Drug and Alcohol Dependence.134:185-93. doi:10.1016/j.drugalcdep.2013.09.028.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**CBT+MET +PPS**	**WAITING LIST**	**Relative (95% CI)**	**Absolute**		
Point abstinence at 2 months (assessed with objective)												
2	Randomized trials	Serious risk of bias[2]	No serious inconsistency	Serious indirectness[3]	Serious[4] imprecision	None	118/239 (49.4%)	33/162 (20.4%)	RR 2.53 (1.82 to 3.52)	312 more per 1000 (from 167 more to 513 more)	□□□□ MODERATE	CRITICAL
								17.4%		266 more per 1000 (from 143 more to 438 more)		

[1] High risk of performance bias and unclear risk of detection bias.
[2] Not blinded.
[3] Waiting list used as control.
[4] Large effect size (RR>2).

Figure 3. Forest plot for CBT + MET + PPS vs. waiting list

Figure 11 (Analysis 4.1)



Caption

Forest plot of comparison: 4 CBT+MET +PPS VS WAITING LIST, outcome: 4.1 Point Abstinence at 2 months.

CBT vs. other active interventions

[Updated 2015]

Table 5. CBT vs. MET for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should CBT or MET be used for management of cannabis dependence?
Bibliography: National Institute for Health and Care Excellence. 2007. *Drug misuse – psychosocial interventions*. [CG51]. Leicester: British Psychological Society.
Relevant studies:

- Stephens RS, Roffman RA, Curtin L (2000). Comparison of extended versus brief treatments for marijuana use. Journal of Consulting and Clinical Psychology.68(5):898–908.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	CBT	MET	Relative (95% CI)	Absolute		
Negative urine at 4-month follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	Serious imprecision[2]	None	51/95 (53.7%)	34/79 (43%)	RR 1.25 (0.91 to 1.71)	108 more per 1000 (from 39 fewer to 306 more)	□□□□ VERY LOW	CRITICAL
								43%		108 more per 1000 (from 39 fewer to 305 more)		
Day of use per months in the preceding 30 days at 4 months follow-up (measured with subjective; range of scores: 1-30; better indicated by lower values)												
1	Randomized trials	Serious risk of bias1	No serious inconsistency	No serious indirectness	No serious imprecision	None	95	79	-	MD 1.2 lower (4.33 lower to 1.93 higher)	□□□□ MODERATE	CRITICAL
Day of use per months in the preceding 30 days at 7months follow-up (measured with subjective; range of scores: 1-30; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	95	72	-	MD 0.4 higher (2.92 lower to 3.72 higher)	□□□□ MODERATE	CRITICAL
Day of use per months in the preceding 30 days at 13 months follow-up (measured with subjective; range of scores: 1-30; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[1]	no serious inconsistency	no serious indirectness	No serious imprecision	None	101	78	-	MD 0.28 higher (3.19 lower to 3.75 higher)	□□□□ MODERATE	CRITICAL
Day of use per months in the preceding 30 days at 16 months follow-up (measured with subjective; range of scores: 1-30; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	103	80	-	MD 0.7 lower (4.19 lower to 2.79 higher)	□□□□ MODERATE	CRITICAL

[1] Randomization and allocation concealment method not reported.
[2]RR passing the point of no effect.

Table 6. CBT vs. social support groups for management of cannabis dependence

[Updated 2015]

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores

Question: Should CBT or social support groups be used for management of cannabis dependence?

Bibliography: National Institute for Health and Care Excellence. 2007. *Drug misuse – psychosocial interventions*. [CG51]. Leicester: British Psychological Society.

Relevant studies:

- Stephens RS, Roffman RA, Simpson EE (1994). Treating adult marijuana dependence: a test of the relapse prevention model. Journal of Consulting and Clinical Psychology.62(1):92-99.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**CBT**	**Social support groups**	**Relative (95% CI)**	**Absolute**		
Point abstinence at 3-month follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	26/80 (32.5%)	35/87 (40.2%)	RR 0.81 (0.54 to 1.21)	76 fewer per 1000 (from 185 fewer to 84 more)	□□□□ MODERATE	CRITICAL
								40.2%		76 fewer per 1000 (from 185 fewer to 84 more)		
Point abstinence at 6-month follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	18/80 (22.5%)	22/87 (25.3%)	RR 0.89 (0.52 to 1.53)	28 fewer per 1000 (from 121 fewer to 134 more)	□□□□ MODERATE	CRITICAL
								25.3%		28 fewer per 1000 (from 121 fewer to 134 more)		
Point abstinence at 12-month follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	12/80 (15%)	16/87 (18.4%)	RR 0.82 (0.41 to 1.62)	33 fewer per 1000 (from 109 fewer to 114 more)	□□□□ MODERATE	CRITICAL
								18.4%		33 fewer per 1000 (from 109 fewer to 114 more)		

[1] Not blinded.

[Updated 2015]

Table 7. CBT + MET vs. MET alone for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should CBT+MET or MET alone be used for management of cannabis dependence?
Bibliography: National Institute for Health and Care Excellence. 2007. *Drug misuse – psychosocial interventions*. [CG51]. Leicester: British Psychological Society.
Relevant studies:

- Babor T for Marijuana Treatment Project Research Group (2004). Brief treatments for cannabis dependence: findings from a randomized multisite trial. Journal of Consulting and Clinical Psychology. 72(3):455–466.
- Budney AJ, Higgins ST, Radonovich KJ, Novy PL (2000). Adding voucher-based incentives to coping skills and motivational enhancement improves outcomes during treatment for marijuana dependence. Journal of Consulting and Clinical Psychology.68(6):1051–61.

NOTE: No meta-analysis with pooled data possible because studies assessed different outcomes or same outcomes in different ways.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**CBT +MET**	**MET**	**Relative (95% CI)**	**Absolute**		
Participants with continuous abstinence at 2 months follow-up (assessed with subjective)												
1	Randomized trials	Very serious[1,2]	No serious inconsistency	No serious indirectness	Very serious[3,4]	None	1/20 (5%)	1/20 (5%)	RR 1 (0.07 to 14.9)	0 fewer per 1000 (from 47 fewer to 695 more)	⨁◯◯◯ VERY LOW	CRITICAL
								5%		0 fewer per 1000 (from 47 fewer to 695 more)		
Participants with continuous abstinence in weeks at 4 months follow-up (measured with subjective; range of scores: 1-16; better indicated by higher values)												
1	Randomized trials	Very serious[1,2]	No serious inconsistency	No serious indirectness	Very serious[3]	None	20	20	-	MD 0.7 higher (0.98 lower to 2.38 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Point abstinence at 4 months follow-up (assessed with Objective)												
1	Randomized trials	Very serious[1,2]	No serious inconsistency	No serious indirectness	Very serious[3,4]	None	2/20 (10%)	1/20 (5%)	RR 2 (0.2 to 20.33)	50 more per 1000 (from 40 fewer to 966 more)	⨁◯◯◯ VERY LOW	CRITICAL
								5%		50 more per 1000 (from 40 fewer to 966 more)		
Proportion of days of use during the preceding 90 days at 4 months follow-up (measured with subjective; range of scores: 0-100; better indicated by lower values)												

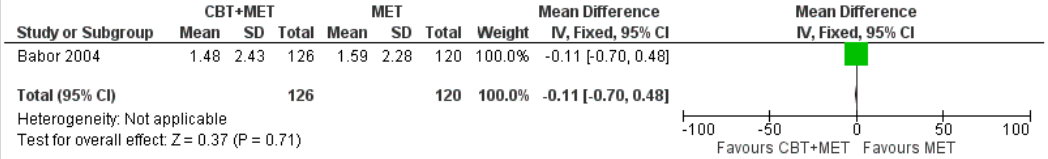
1	Randomized trials	Serious[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	133	128	-	MD 19.69 lower (28.79 to 10.59 lower)	□□□□ MODERATE	CRITICAL
Proportion of days of use during the preceding 90 days at 9 months follow-up (measured with subjective; range of scores: 0-100; better indicated by lower values)												
1	Randomized trials	Serious[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	126	120	-	MD 15.89 lower (25.17 to 6.61 lower)	□□□□ MODERATE	CRITICAL
Joints per day at 4 months follow-up (measured with Subjective; better indicated by lower values)												
1	Randomized trials	Serious[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	133	128	-	MD 0.5 lower (0.9 to 0.1 lower)	□□□□ MODERATE	CRITICAL
Joints per day at 9 months follow-up (measured with Subjective; better indicated by lower values)												
1	Randomized trials	Serious[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	126	120	-	MD 0.11 lower (0.7 lower to 0.48 higher)	□□□□ MODERATE	CRITICAL

[1] Not blinded.
[2] Dropout rate superior to 30%
[3] Less than 100 participants.
[4] Wide confidence interval.

Figure 4. Forest plot of CBT + MET vs. MET

[Updated 2015]

⊟ Figure 26 (Analysis 7.7)



Caption

Forest plot of comparison: 7 CBT +MET vs MET, outcome: 7.7 Joints per day at 9 months follow up.

Table 8. CBT + MET vs. counselling alone for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should CBT + MET or counselling alone be used for management of cannabis dependence?
Bibliography: National Institute for Health and Care Excellence. 2007. *Drug misuse – psychosocial interventions.* [CG51]. Leicester: British Psychological Society.
Relevant studies:

- Carroll KM, Ball SA, Nich C, Martino S, Frankforter TL, Farentinos C, Kunkel LE, Mikulich-Gilbertson SK, Morgenstern J, Obert JL, Polcin D, Snead N (2006). Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: A multisite effectiveness study. Drug and Alcohol Dependence.81(3):301–312. doi:10.1016/j.drugalcdep.2005.08.002.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	CBT + MET	Counselling	Relative (95% CI)	Absolute		
Days of cannabis use % at 2 months follow-up (measured with subjective; range of scores: 0-100; better indicated by lower values)												
1	Randomized trials	Serious[1]	No serious inconsistency	No serious indirectness	Very serious[2,3]	None	36	33	-	MD 2 higher (13.08 lower to 17.08 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Continuous abstinence at 2 months follow-up (measured with subjective; range of scores: 1-60; better indicated by higher values)												
1	Randomized trials	Serious[1]	No serious inconsistency	No serious indirectness	Very serious[2,3]	None	36	33	-	MD 4.2 higher (7.66 lower to 16.06 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Point abstinence at 5 months follow-up (assessed with objective)												
1	Randomized trials	Serious[1]	No serious inconsistency	No serious indirectness	Very serious[2,3]	None	11/36 (30.6%)	6/33 (18.2%)	RR 1.68 (0.7 to 4.03)	124 more per 1000 (from 55 fewer to 551 more)	⨁◯◯◯ VERY LOW	CRITICAL
								18.2%		124 more per 1000 (from 55 fewer to 551 more)		
Point abstinence at 7 months follow-up (assessed with objective)												
1	Randomized trials	Serious[1]	No serious inconsistency	No serious indirectness	Very serious[2,3]	None	19/36 (52.8%)	11/33 (33.3%)	RR 1.58 (0.89 to 2.81)	193 more per 1000 (from 37 fewer to 603 more)	⨁◯◯◯ VERY	CRITICAL

								33.3%		193 more per 1000 (from 37 fewer to 603 more)	LOW	

[1] Not blinded.
[2] N = 69 participants.
[3] Wide confidence interval.

Table 9. CBT vs. psychoeducational support for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should CBT + MET or psychoeducational support be used for management of cannabis dependence?
Bibliography: National Institute for Health and Care Excellence. 2007. *Drug misuse – psychosocial interventions*. [CG51]. Leicester: British Psychological Society.
Relevant study:

- Waldron HB, Slesnick N, Brody JL, Turner CW, Peterson TR (2001). Treatment outcomes for adolescent substance abuse at 4- and 7-month assessments. Treatment outcomes for adolescent substance abuse at 4- and 7-month assessments. Journal of Consulting Clinical Psychology.69(5):802-813.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**CBT**	**Psychoeducational support**	**Relative (95% CI)**	**Absolute**		
Cannabis use (% day of use) at 4 months (measured with subjective; range of scores: 0-100; better indicated by lower values)												
1	Randomized trials	Serious[1]	No serious inconsistency	No serious indirectness	Very serious[2,3]	None	31	30	-	MD 3.64 lower (22.45 lower to 15.17 higher)	□□□□ VERY LOW	CRITICAL
Cannabis use (% day of use) at 7 months (measured with subjective; range of scores: 0-100; better indicated by lower values)												
1	Randomized trials	Serious[1]	No serious inconsistency	No serious indirectness	Very serious[2,3]	None	31	30	-	MD 9.25 higher (15.51 lower to 34.01 higher)	□□□□ VERY LOW	CRITICAL

[1] Not blinded.
[2] N = 61 participants.
[3] Wide confidence interval.

CM vs. other interventions

Table 10. MET + CM vs. MET alone for management of cannabis dependence

[Updated 2015]

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should MET + CM or MET alone be used for management of cannabis dependence?
Bibliography: National Institute for Health and Care Excellence. 2007. *Drug misuse – psychosocial interventions*. [CG51]. Leicester: British Psychological Society.
Relevant study:

- Sinha R, Easton C, Renee-Aubin L, Carroll KM (2003). Engaging young probation-referred marijuana-abusing individuals in treatment: a pilot trial. American Journal of Addiction.12(4):314-23.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**MET + CM**	**MET**	**Relative (95% CI)**	**Absolute**		
Days of cannabis use at 1 months (measured with subjective; range of scores: 1-30; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	Very serious[2,3]	None	24	11	-	MD 4.89 higher (1.26 lower to 11.04 higher)	□□□□ LOW	CRITICAL

[1] Not blinded.
[2] N = 35 participants.
[3] Wide confidence interval.

[Updated 2015]

Table 11. CBT + MET + CM vs. CBT + MET for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should CBT + MET + CM or CBT + MET be used for management of cannabis dependence?
Bibliography: New meta-analysis. Trials included:

- Budney AJ, Higgins ST, Radonovich KJ, Novy PL (2000). Adding voucher-based incentives to coping skills and motivational enhancement improves outcomes during treatment for marijuana dependence. Journal of Consulting and Clinical Psychology.68(6):1051–61.
- Carroll KM, Ball SA, Nich C, Martino S, Frankforter TL, Farentinos C, Kunkel LE, Mikulich-Gilbertson SK, Morgenstern J, Obert JL, Polcin D, Snead N (2006). Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: A multisite effectiveness study. Drug and Alcohol Dependence.81(3):301–312. doi:10.1016/j.drugalcdep.2005.08.002.
- Carroll KM, Nich C, Lapaglia DM, Peters EN, Easton CJ, Petry NM (2012). Combining cognitive behavioral therapy and contingency management to enhance their effects in treating cannabis dependence: less can be more, more or less. Addiction. 107(9):1650-1659. doi:10.1111/j.1360-0443.2012.03877.x.
- Kadden RM, Litt MD, Kabela-Cormier E, Petry NM (2007). Abstinence rates following behavioral treatments for marijuana dependence. Addictive Behaviors.32(6):1220-36. doi:10.1016/j.addbeh.2006.08.009.

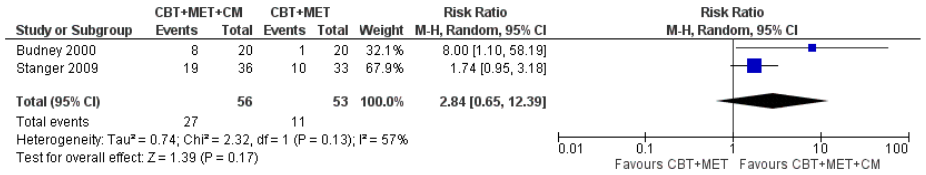
Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	CBT+MET+CM	CBT+MET	Relative (95% CI)	Absolute		
Number of subjects with continuous abstinence at 2/3-month follow-up (assessed with subjective)												
2	Randomized trials	Very serious[1,2]	No serious inconsistency	No serious indirectness	serious[3]	Large effect size (RR>2)	27/56 (48.2%)	11/53 (20.8%)	RR 2.84 (0.65 to 12.39)	382 more per 1000 (from 73 fewer to 1000 more)	⨁⨁◯◯ LOW	CRITICAL
								17.7%		326 more per 1000 (from 62 fewer to 1000 more)		
% days of cannabis use at 2 months follow-up (measured with subjective; range of scores: 0-100; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[2]	No serious inconsistency	No serious indirectness	Very serious[3,4]	None	33	36	-	MD 9 lower (24.08 lower to 6.08 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Longest duration of abstinence at 2 months follow-up (measured with subjective; range of scores: 0-60; better indicated by higher values)												
1	Randomized trials	Serious risk of bias[2]	No serious inconsistency	No serious indirectness	Very serious[3,4]	None	33	36	-	MD 5.8 higher (6.57 lower to 18.17 higher)	⨁◯◯◯ VERY LOW	CRITICAL

Point abstinence at 4-5 months follow-up (follow-up mean 4.5 months; assessed with objective)												
2	Randomized trials	Very serious[1,5]	No serious inconsistency	No serious indirectness	Serious[3]	None	21/53 (39.6%)	13/56 (23.2%)	RR 1.76 (0.79 to 3.92)	176 more per 1000 (from 49 fewer to 678 more)	⨁◯◯◯ VERY LOW	CRITICAL
								20.3%		154 more per 1000 (from 43 fewer to 593 more)		
Point abstinence at 8 months follow-up (assessed with objective)												
1	Randomized trials	Very serious[1,2]	No serious inconsistency	No serious indirectness	Very serious[3]	None	11/33 (33.3%)	19/36 (52.8%)	RR 0.63 (0.36 to 1.12)	195 fewer per 1000 (from 338 fewer to 63 more)	⨁◯◯◯ VERY LOW	CRITICAL
								52.8%		195 fewer per 1000 (from 338 fewer to 63 more)		
Mean weeks of continuous abstinence (measured with subjective; range of scores: 0-16; better indicated by higher values)												
2	Randomized trials	Very serious[1,2]	No serious inconsistency	No serious indirectness	Serious[2]	None	56	53	-	MD 2.5 higher (0.77 to 4.23 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Point abstinence at 12 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[2]	No serious inconsistency	No serious indirectness	Serious[3]	None	17/63 (27%)	11/61 (18%)	RR 1.5 (0.76 to 2.93)	90 more per 1000 (from 43 fewer to 348 more)	⨁◯◯◯ LOW	CRITICAL
								18%		90 more per 1000 (from 43 fewer to 347 more)		
								65%		19 more per 1000 (from 97 fewer to 162 more)		

[1] Drop out rate higher than 30%.
[2] Not blinded.
[3] Wide confidence interval.
[4] Less than 100 participants.
[5] Drop out higher than 30%.

Figure 5. Forest plots of comparison: CBT+MET+CM vs. CBT+MET

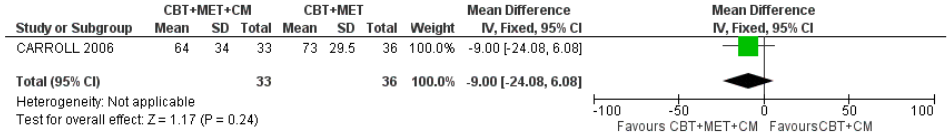
Figure 34 (Analysis 11.1)



Caption

Forest plot of comparison: 11 CBT+MET+CM vs CBT+MET, outcome: 11.1 Participants with continuous abstinence at 2/3-month follow-up.

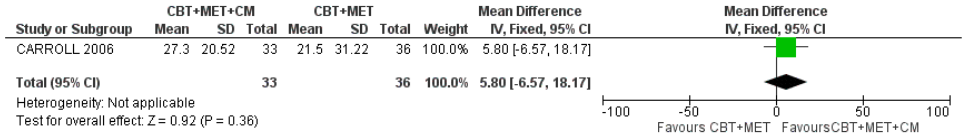
Figure 35 (Analysis 11.2)



Caption

Forest plot of comparison: 11 CBT+MET+CM vs CBT+MET, outcome: 11.2 % days of cannabis use at 2 months follow up.

Figure 36 (Analysis 11.3)

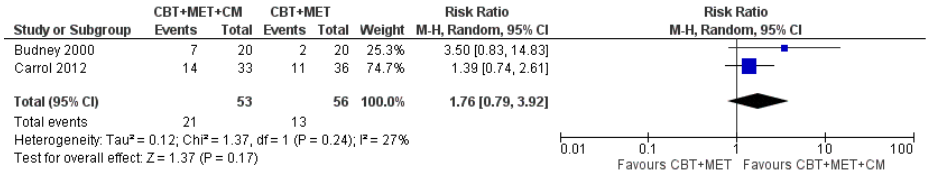


Caption

Forest plot of comparison: 11 CBT+MET+CM vs CBT+MET, outcome: 11.3 Longest duration of abstinence (days) at 2 months follow up.

Figure 6. Forest plots of comparison: CBT + MET + CM vs. CBT + MET

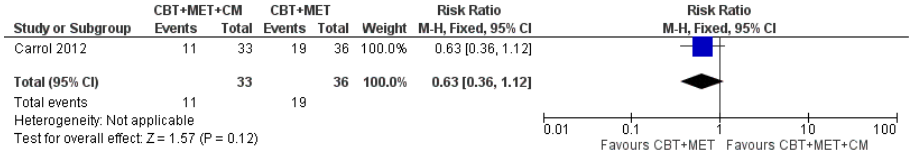
Figure 37 (Analysis 11.4)



Caption

Forest plot of comparison: 11 CBT+MET+CM vs CBT+MET, outcome: 11.4 point abstinence at 4-5 months follow up.

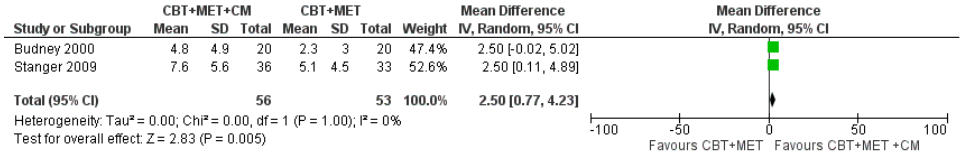
Figure 38 (Analysis 11.5)



Caption

Forest plot of comparison: 11 CBT+MET+CM vs CBT+MET, outcome: 11.5 point abstinence at 8 months follow up 1.

Figure 39 (Analysis 11.6)



Caption

Forest plot of comparison: 11 CBT+MET+CM vs CBT+MET, outcome: 11.6 ; Mean weeks of continuous abstinence.

Figure 40 (Analysis 11.7)

Caption

Forest plot of comparison: 11 CBT+MET+CM vs CBT+MET, outcome: 11.7 point abstinence at 12 months follow up.

[Updated 2015]

Table 12. Counselling + CM vs. counselling alone

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should counselling + CM or counselling alone be used for management of cannabis dependence?
Bibliography: National Institute for Health and Care Excellence. 2007. *Drug misuse – psychosocial interventions.* [CG51]. Leicester: British Psychological Society.
Relevant study:

- Carroll KM, Ball SA, Nich C, Martino S, Frankforter TL, Farentinos C, Kunkel LE, Mikulich-Gilbertson SK, Morgenstern J, Obert JL, Polcin D, Snead N (2006). Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: A multisite effectiveness study. Drug and Alcohol Dependence.81(3):301–312. doi:10.1016/j.drugalcdep.2005.08.002.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Counselling + CM	Counselling	Relative (95% CI)	Absolute		
% days of cannabis use at 2 months follow-up (measured with subjective; range of scores: 0-100; better indicated by lower values)												
1	Randomized trials	Serious risk of bias	No serious inconsistency	No serious indirectness	Very serious[2,3]	None	34	33	-	MD 4 higher (18.69 lower to 26.69 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Longest duration of abstinence at 2 months follow-up (measured with subjective; range of scores: 1-60; better indicated by higher values)												
1	Randomized trials	Serious risk of bias	No serious inconsistency	No serious indirectness	Very serious[2,3]	None	34	33	-	MD 9.1 higher (2.62 lower to 20.82 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Point abstinence at 5 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias	No serious inconsistency	No serious indirectness	Very serious[2,3]	None	11/34 (32.4%)	6/33 (18.2%)	RR 1.78 (0.74 to 4.26)	142 more per 1000 (from 47 fewer to 593 more)	⨁◯◯◯ VERY LOW	CRITICAL
								18.2%		142 more per 1000 (from 47 fewer to 593 more)		
Point abstinence at 7 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias	No serious inconsistency	No serious indirectness	Very serious[2,3]	None	11/34 (32.4%)	11/33 (33.3%)	RR 0.97 (0.49 to 1.93)	10 fewer per 1000 (from 170 fewer to 310 more)	⨁◯◯◯ VERY LOW	CRITICAL
								33.3%		10 fewer per 1000 (from 170 fewer to 310 more)		

[1] Not blinded.
[2] N =67 participant.
[3] Wide confidence interval.

Table 13. CBT + MET + CM vs. CM alone for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should CBT + MET + CM or CM alone be used for management of cannabis dependence?

Bibliography: Kadden RM, Litt MD, Kabela-Cormier E, Petry NM (2007). Abstinence rates following behavioral treatments for marijuana dependence. Addictive Behaviors.32(6):1220-36. doi:10.1016/j.addbeh.2006.08.009.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	CBT+MET+CM	CM	Relative (95% CI)	Absolute		
Continuous abstinence at 11 and 12-month follow-up (assessed with subjective)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	Serious[2]		17/63 (27%)	6/54 (11.1%)	RR 2.43 (1.03 to 5.72)	159 more per 1000 (from 3 more to 524 more)	⨁⨁⨁◯ MODERATE	CRITICAL
								11.1%		159 more per 1000 (from 3 more to 524 more)		

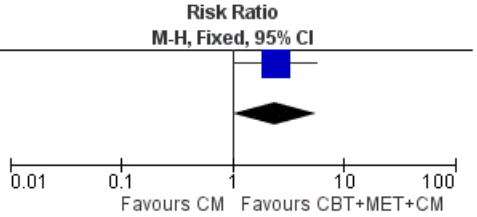
[1] Not blinded.
[2] Wide confidence interval.

Figure 7. Forest plot of comparison: CBT + MET + CM vs. CM alone

Figure 45 (Analysis 13.1)

Study or Subgroup	CBT+MET+CM Events	Total	CM Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
KADDEN 2007	17	63	6	54	100.0%	2.43 [1.03, 5.72]
Total (95% CI)		**63**		**54**	**100.0%**	**2.43 [1.03, 5.72]**
Total events	17		6			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.03 (P = 0.04)



Caption

Forest plot of comparison: 13 CBT+MET+CM vs CM, outcome: 13.1 Continuous abstinence at 11/12-month follow-up.

[Updated 2015]

Table 14. CBT + MET vs. CM alone for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should CBT + MET or CM alone be used for management of cannabis dependence?
Bibliography: New meta-analysis. Trials included:

- Budney AJ, Higgins ST, Radonovich KJ, Novy PL (2000). Adding voucher-based incentives to coping skills and motivational enhancement improves outcomes during treatment for marijuana dependence. Journal of Consulting and Clinical Psychology.68(6):1051–61.
- Carroll KM, Nich C, Lapaglia DM, Peters EN, Easton CJ, Petry NM (2012). Combining cognitive behavioral therapy and contingency management to enhance their effects in treating cannabis dependence: less can be more, more or less. Addiction. 107(9):1650-1659. doi:10.1111/j.1360-0443.2012.03877.x.
- Kadden RM, Litt MD, Kabela-Cormier E, Petry NM (2007). Abstinence rates following behavioral treatments for marijuana dependence. Addictive Behaviors.32(6):1220-36. doi:10.1016/j.addbeh.2006.08.009.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**CBT + MET**	**CM**	**Relative (95% CI)**	**Absolute**		
Point abstinence at 5 or 6 month follow-up (follow-up mean 5.5 months; assessed with objective)												
2	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	22/96 (22.9%)	26/88 (29.5%)	RR 0.78 (0.49 to 1.26)	65 fewer per 1000 (from 151 fewer to 77 more)	□□□□ MODERATE	CRITICAL
								31.7%		70 fewer per 1000 (from 162 fewer to 82 more)		
Point abstinence at 11 or 12 month follow-up (follow-up mean 11.5 months; assessed with objective)												
2	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	15/91 (16.5%)	13/84 (15.5%)	RR 1.07 (0.54 to 2.12)	11 more per 1000 (from 71 fewer to 173 more)	□□□□ MODERATE	CRITICAL
								16.5%		12 more per 1000 (from 76 fewer to 185 more)		
Number of subjects with continuous abstinence at 2 or 3 months follow-up (follow-up mean 2.5 months; assessed with subjective)												
2	Randomized trials	Very serious[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	13/91 (14.3%)	27/84 (32.1%)	RR 0.45 (0.25 to 0.82)	177 fewer per 1000 (from 58 fewer to 241 fewer)	□□□□ LOW	CRITICAL
								36.1%		199 fewer per 1000 (from 65 fewer to 271 fewer)		

Cannabis use within treatment at 3 months follow-up (measured with objective; better indicated by lower values)												
1	Randomized trials	Very serious[3]	No serious inconsistency	No serious indirectness	Very serious[4]	None	36	27	-	MD 16 higher (1.71 lower to 33.71 higher)	⨁◯◯◯ VERY LOW	CRITICAL
								59.3%		119 fewer per 1000 (from 296 fewer to 160 more)		
Point abstinence at 9 month follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[2]	No serious inconsistency	No serious indirectness	Very serious[5]	None	7/30 (23.3%)	9/30 (30%)	RR 0.78 (0.33 to 1.82)	66 fewer per 1000 (from 201 fewer to 246 more)	⨁◯◯◯ VERY LOW	CRITICAL
								30%		66 fewer per 1000 (from 201 fewer to 246 more)		
Point abstinence at 15 month follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[2]	No serious inconsistency	No serious indirectness	Very serious[5]	None	7/30 (23.3%)	7/30 (23.3%)	RR 1 (0.4 to 2.5)	0 fewer per 1000 (from 140 fewer to 350 more)	⨁◯◯◯ VERY LOW	CRITICAL
								23.3%		0 fewer per 1000 (from 140 fewer to 350 more)		

[1] Outcome assessment not masked in 50% of the studies.
[2] Not blinded.
[3] Dropout rate higher than 30%.
[4] N=63 participants
[5] N = 60 participants.

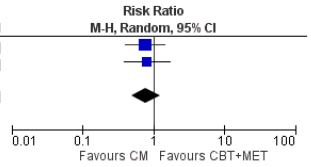
Figure 8. Forest plots of comparison: CBT + MET vs. CM alone

[Updated 2015]

Figure 46 (Analysis 14.1)

Study or Subgroup	CBT+MET Events	CBT+MET Total	CM Events	CM Total	Weight	Risk Ratio M-H, Random, 95% CI
BUDNEY 2006	11	35	14	34	57.2%	0.76 [0.41, 1.44]
KADDEN 2007	11	61	12	54	42.8%	0.81 [0.39, 1.69]
Total (95% CI)		**96**		**88**	**100.0%**	**0.78 [0.49, 1.26]**
Total events	22		26			

Heterogeneity: Tau² = 0.00; Chi² = 0.02, df = 1 (P = 0.90); I² = 0%
Test for overall effect: Z = 1.00 (P = 0.32)



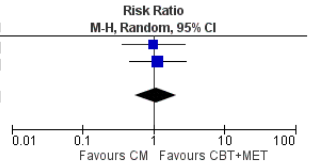
Caption

Forest plot of comparison: 14 CBT + MET versus CM, outcome: 14.1 Point abstinence: 5/6 month follow-up.

Figure 47 (Analysis 14.2)

Study or Subgroup	CBT+MET Events	CBT+MET Total	CM Events	CM Total	Weight	Risk Ratio M-H, Random, 95% CI
BUDNEY 2006	6	30	6	30	45.1%	1.00 [0.36, 2.75]
KADDEN 2007	9	61	7	54	54.9%	1.14 [0.45, 2.85]
Total (95% CI)		**91**		**84**	**100.0%**	**1.07 [0.54, 2.12]**
Total events	15		13			

Heterogeneity: Tau² = 0.00; Chi² = 0.03, df = 1 (P = 0.85); I² = 0%
Test for overall effect: Z = 0.20 (P = 0.84)



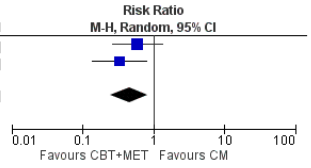
Caption

Forest plot of comparison: 14 CBT + MET versus CM, outcome: 14.2 Point abstinence: 11/12 month follow-up.

Figure 48 (Analysis 14.3)

Study or Subgroup	CBT+MET Events	CBT+MET Total	CM Events	CM Total	Weight	Risk Ratio M-H, Random, 95% CI
BUDNEY 2006	8	61	12	54	53.6%	0.59 [0.26, 1.33]
KADDEN 2007	5	30	15	30	46.4%	0.33 [0.14, 0.80]
Total (95% CI)		**91**		**84**	**100.0%**	**0.45 [0.25, 0.82]**
Total events	13		27			

Heterogeneity: Tau² = 0.00; Chi² = 0.87, df = 1 (P = 0.35); I² = 0%
Test for overall effect: Z = 2.60 (P = 0.009)



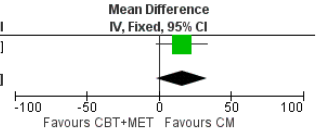
Caption

Forest plot of comparison: 14 CBT + MET versus CM, outcome: 14.3 Participants with continuous abstinence at 2/3 months follow up.

Figure 49 (Analysis 14.4)

Study or Subgroup	CBT+MET Mean	CBT+MET SD	CBT+MET Total	CM Mean	CM SD	CM Total	Weight	Mean Difference IV, Fixed, 95% CI
Carrol 2012	73.1	31.2	36	57.1	38.4	27	100.0%	16.00 [-1.71, 33.71]
Total (95% CI)			**36**			**27**	**100.0%**	**16.00 [-1.71, 33.71]**

Heterogeneity: Not applicable
Test for overall effect: Z = 1.77 (P = 0.08)



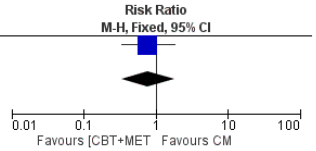
Caption

Forest plot of comparison: 14 CBT + MET versus CM, outcome: 14.4 Cannabis use within treatment.

Figure 50 (Analysis 14.5)

Study or Subgroup	CBT+MET Events	CBT+MET Total	CM Events	CM Total	Weight	Risk Ratio M-H, Fixed, 95% CI
BUDNEY 2006	7	30	9	30	100.0%	0.78 [0.33, 1.82]
Total (95% CI)		**30**		**30**	**100.0%**	**0.78 [0.33, 1.82]**
Total events	7		9			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.58 (P = 0.56)



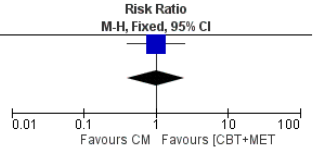
Caption

Forest plot of comparison: 14 CBT + MET versus CM, outcome: 14.5 Point abstinence:9 month follow-up.

Figure 51 (Analysis 14.6)

Study or Subgroup	CBT+MET Events	CBT+MET Total	CM Events	CM Total	Weight	Risk Ratio M-H, Fixed, 95% CI
BUDNEY 2006	7	30	7	30	100.0%	1.00 [0.40, 2.50]
Total (95% CI)		**30**		**30**	**100.0%**	**1.00 [0.40, 2.50]**
Total events	7		7			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.00 (P = 1.00)



Caption

Forest plot of comparison: 14 CBT + MET versus CM, outcome: 14.6 Point abstinence:15 month follow-up.

[Updated 2015]

Table 15. CBT + CM on abstinence vs. CBT alone for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should CBT + CM on abstinence or CBT alone be used for management of cannabis dependence?
Bibliography: New meta-analysis. Trials included:

- Budney AJ, Moore BA, Rocha H, Higgins ST (2006). Clinical trial of abstinence based vouchers and cognitive-behavioral therapy for cannabis dependence. Journal of Consulting and Clinical Psychology.74(2):307–316.
- Carroll KM, Nich C, Lapaglia DM, Peters EN, Easton CJ, Petry NM (2012). Combining cognitive behavioral therapy and contingency management to enhance their effects in treating cannabis dependence: less can be more, more or less. Addiction. 107(9):1650-1659. doi:10.1111/j.1360-0443.2012.03877.x.

NOTE: No meta-analysis with pooled data possible because studies assessed different outcomes or same outcomes in different ways.

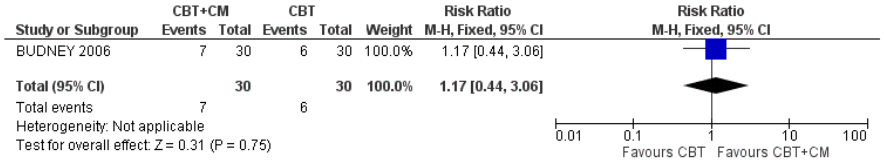
Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	CBT+ CM	CBT	Relative (95% CI)	Absolute		
Duration of abstinence of at least 6 weeks at 3 months (assessed with subjective)												
1	Randomized trials	Very serious[1]	No serious inconsistency	No serious indirectness	Very serious[2]	None	12/30 (40%)	5/17 (29.4%)	RR 1.36 (0.58 to 3.2)	106 more per 1000 (from 124 fewer to 647 more)	⨁◯◯◯ VERY LOW	CRITICAL
								29.4%		106 more per 1000 (from 123 fewer to 647 more)		
Point abstinence at 6 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[6]	No serious inconsistency	No serious indirectness	Very serious[3]	None	6/30 (20%)	7/30 (23.3%)	RR 0.86 (0.33 to 2.25)	33 fewer per 1000 (from 156 fewer to 292 more)	⨁◯◯◯ VERY LOW	CRITICAL
								23.3%		33 fewer per 1000 (from 156 fewer to 291 more)		
Point abstinence at 9 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[6]	No serious inconsistency	No serious indirectness	Very serious[3]	None	6/30 (20%)	7/30 (23.3%)	RR 0.86 (0.33 to 2.25)	33 fewer per 1000 (from 156 fewer to 292 more)	⨁◯◯◯ VERY LOW	CRITICAL
								23.3%		33 fewer per 1000 (from 156 fewer to 291 more)		
Point abstinence at 12 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[6]	No serious inconsistency	No serious indirectness	Very serious[3]	None	7/30 (23.3%)	6/30 (20%)	RR 1.17 (0.44 to 3.06)	34 more per 1000 (from 112 fewer to 412 more)	⨁◯◯◯ VERY LOW	CRITICAL
								20%		34 more per 1000 (from 112 fewer to 412 more)		
Point abstinence at 15 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[5]	No serious inconsistency	No serious indirectness	Serious[3]	None	6/30 (20%)	7/30 (23.3%)	RR 0.86 (0.33 to 2.25)	33 fewer per 1000 (from 156 fewer to 292 more)	⨁◯◯◯ LOW	CRITICAL
								23.3%		33 fewer per 1000 (from 156 fewer to 291 more)		

Cannabis use within treatment at 3 months (measured with subjective; range of scores: 1-90; better indicated by lower values)												
1	Randomized trials	Very serious[4]	No serious inconsistency	No serious indirectness	Very serious[5]	None	32	36	-	MD 2.4 higher (12.13 lower to 16.93 higher)	⨁◯◯◯ VERY LOW	CRITICAL
								47.2%		57 more per 1000 (from 142 fewer to 382 more)		

[1] Outcome assessment not masked.
[2] N= 47 participants.
[3] N = 60 participants.
[4] Drop out rate higher than 30%.
[5] N = 68 participants.
[6] Not blinded.

Figure 9. Forest plots for CBT + CM vs. CBT alone

Figure 55 (Analysis 15.4)



Caption

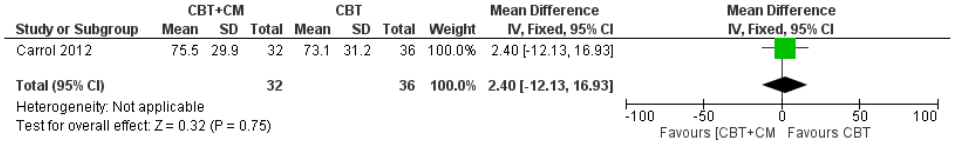
Forest plot of comparison: 15 CBT+ CM vs CBT, outcome: 15.4 Point abstinence at 12 months follow up.

Figure 56 (Analysis 15.5)

Caption

Forest plot of comparison: 15 CBT+ CM vs CBT, outcome: 15.5 Point abstinence at 15 months follow up.

Figure 57 (Analysis 15.6)



Caption

Forest plot of comparison: 15 CBT+ CM vs CBT, outcome: 15.6 Cannabis use within treatment (3 months.

[Updated 2015]

Table 16. CBT + CM on abstinence vs. CM alone for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should CBT + CM on abstinence or CM alone be used for management of cannabis dependence?
Bibliography: New meta-analysis. Trials included:

- Budney AJ, Moore BA, Rocha H, Higgins ST (2006). Clinical trial of abstinence based vouchers and cognitive-behavioral therapy for cannabis dependence. Journal of Consulting and Clinical Psychology.74(2):307–316.
- Carroll KM, Nich C, Lapaglia DM, Peters EN, Easton CJ, Petry NM (2012). Combining cognitive behavioral therapy and contingency management to enhance their effects in treating cannabis dependence: less can be more, more or less. Addiction. 107(9):1650-1659. doi:10.1111/j.1360-0443.2012.03877.x.

NOTE: No meta-analysis with pooled data possible because studies assessed different outcomes or same outcomes in different ways.

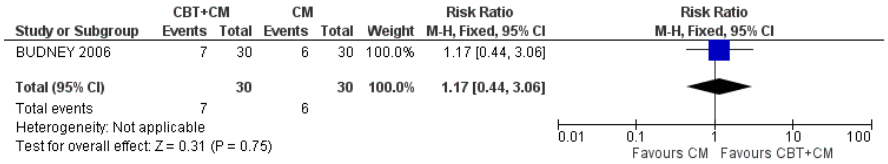
Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	. CBT+ CM	CM	Relative (95% CI)	Absolute		
Duration of abstinence of at least 6 weeks at 3 months (assessed with subjective)												
1	Randomized trials	Very serious[1]	No serious inconsistency	No serious indirectness	Very serious[2]	None	12/30 (40%)	15/30 (50%)	RR 0.8 (0.45 to 1.41)	100 fewer per 1000 (from 275 fewer to 205 more)	⨁◯◯◯ VERY LOW	CRITICAL
								50%		100 fewer per 1000 (from 275 fewer to 205 more)		
Point abstinence at 6 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[5]	No serious inconsistency	No serious indirectness	Very serious[2]	None	6/30 (20%)	7/30 (23.3%)	RR 0.86 (0.33 to 2.25)	33 fewer per 1000 (from 156 fewer to 292 more)	⨁◯◯◯ VERY LOW	CRITICAL
								23.3%		33 fewer per 1000 (from 156 fewer to 291 more)		
Point abstinence at 9 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[5]	No serious inconsistency	No serious indirectness	Very serious[2]	None	6/30 (20%)	9/30 (30%)	RR 0.67 (0.27 to 1.64)	99 fewer per 1000 (from 219 fewer to 192 more)	⨁◯◯◯ VERY LOW	CRITICAL
								30%		99 fewer per 1000 (from 219 fewer to 192 more)		
Point abstinence at 12 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[5]	No serious inconsistency	No serious indirectness	Very serious[2]	None	7/30 (23.3%)	6/30 (20%)	RR 1.17 (0.44 to 3.06)	34 more per 1000 (from 112 fewer to 412 more)	⨁◯◯◯ VERY LOW	CRITICAL
								20%		34 more per 1000 (from 112 fewer to 412 more)		
Point abstinence at 15 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[5]	No serious inconsistency	No serious indirectness	Very serious[2]	None	6/30 (20%)	7/30 (23.3%)	RR 0.86 (0.33 to 2.25)	33 fewer per 1000 (from 156 fewer to 292 more)	⨁◯◯◯ VERY LOW	CRITICAL
								23.3%		33 fewer per 1000 (from 156 fewer to 291 more)		
Cannabis use within treatment at 3 months (measured with subjective; range of scores: 1-90; better indicated by lower values)												

1	Randomized trials	Very serious[3]	No serious inconsistency	No serious indirectness	Very serious[4]	None	32	27	-	MD 18.4 higher (0.59 to 36.21 higher)	□□□□ VERY LOW	CRITICAL

[1] Outcome assessment not masked.
[2] N = 60 participants.
[3] Drop out rate higher than 30%.
[4] N = 59 participants.
[5] Not blinded.

Figure 10. Forest plots for CBT + CM vs. CM alone

Figure 61 (Analysis 16.4)



Caption

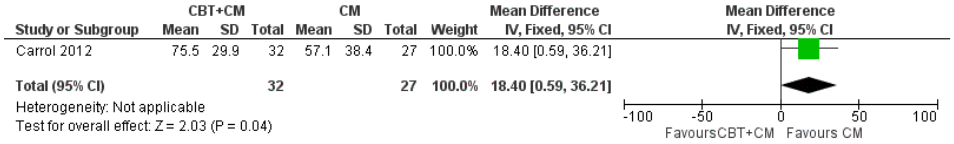
Forest plot of comparison: 16 . CBT+ CM vs CM, outcome: 16.4 Point abstinence at 12 months follow up.

Figure 62 (Analysis 16.5)

Caption

Forest plot of comparison: 16 . CBT+ CM vs CM, outcome: 16.5 Point abstinence at 15 months follow up.

Figure 63 (Analysis 16.6)



Caption

Forest plot of comparison: 16 . CBT+ CM vs CM, outcome: 16.6 Cannabis use within treatment (3 months.

[Updated 2015]

Family and social system interventions

Table 17. Family and social System interventions vs. CBT for management of cannabis dependence.

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should family and social system interventions or CBT be used for management of cannabis dependence?
Bibliography: New meta-analysis. Trials included:

- Dennis M, Godley SH, Diamond G, Tims FM, Babor T, Donaldson J, Liddle H, Titus JC, Kaminer Y, Webb C, Hamilton N, Funk R (2004). The Cannabis Youth Treatment (CYT) Study: Main findings from two randomized trials. Journal of Substance Abuse Treatment.27(3):197-213.
- Hendriks V, van der Schee E, Blanken P (2011). Treatment of adolescents with a cannabis use disorder: main findings of a randomized controlled trial comparing multidimensional family therapy and cognitive behavioral therapy in The Netherlands. Drug and Alcohol Dependence. 119(1-2):64-71. doi:10.1016/j.drugalcdep.2011.05.021.
- Liddle HA, Dakof GA, Turner RM, Henderson CE, Greenbaum PE (2008). Treating adolescent drug abuse: A randomized trial comparing multidimensional family therapy and cognitive behavior therapy. Addiction.103(10):1660-1670. doi:10.1111/j.1360-0443.2008.02274.x.
- Waldron HB, Slesnick N, Brody JL, Turner CW, Peterson TR (2001). Treatment outcomes for adolescent substance abuse at 4- and 7-month assessments. Treatment outcomes for adolescent substance abuse at 4- and 7-month assessments. Journal of Consulting Clinical Psychology.69(5):802-813.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**. Family and social-systems interventions**	**CBT**	**Relative (95% CI)**	**Absolute**		
Point abstinence at 12 months follow-up (assessed with objective)												
3	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	105/453 (23.2%)	48/256 (18.8%)	RR 1.15 (0.85 to 1.55)	28 more per 1000 (from 28 fewer to 103 more)	□□□□ MODERATE	CRITICAL
								21.6%		32 more per 1000 (from 32 fewer to 119 more)		
Days of cannabis use in the last 30-90 days at 12 months follow-up (measured with subjective; range of scores: 1-90; better indicated by lower values)												
2	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	167	166	-	MD 7.35 lower (11.98 to 2.72 lower)	□□□□ MODERATE	CRITICAL
Days of cannabis use in the last 30-90 days at 6 or 7 months follow-up (follow-up mean 6.5 months; measured with subjective; range of scores: 1-90; better indicated by lower values)												
3	Randomized	Serious	No serious	No serious	No serious	None	196	197	-	MD 2 lower (6.05	□□□□	CRITICAL

	trials	risk of bias[1]	inconsistency	indirectness	imprecision					lower to 2.06 higher)	MODERATE	
Days of cannabis use in the last 30-90 days at 3 or 4 months follow-up (follow-up mean 3.5 months; measured with subjective; range of scores: 1-90; better indicated by lower values)												
3	Randomized trials	Serious risk of bias[1]	Serious[2]	No serious indirectness	No serious imprecision	None	196	197	-	MD 9.71 lower (18.79 to 0.63 lower)	⨁⨁⨁◯ LOW	CRITICAL
Joint smoked in the last 90 days 3 months follow-up (measured with Subjective; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	Serious[3]	None	55	54	-	MD 1.4 higher (30.77 lower to 33.57 higher)	⨁⨁⨁◯ LOW	CRITICAL
Joint smoked in the last 90 days 6 months follow-up (measured with Subjective; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	Serious[3]	None	55	54	-	MD 15.9 higher (23.6 lower to 55.4 higher)	⨁⨁⨁◯ LOW	CRITICAL
Joint smoked in the last 90 days 12 months follow-up (measured with Subjective; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	Serious[3]	None	55	54	-	MD 4.8 lower (41.44 lower to 31.84 higher)	⨁⨁⨁◯ LOW	CRITICAL
Number of subjects with continuous abstinence in the last 90 days 3 months follow-up (assessed with Subjective)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	Serious[3]	None	5/55 (9.1%)	4/54 (7.4%)	RR 1.23 (0.35 to 4.33)	17 more per 1000 (from 48 fewer to 247 more)	⨁⨁⨁◯ LOW	CRITICAL
								7.4%		17 more per 1000 (from 48 fewer to 246 more)		
Number of subjects with continuous abstinent in the last 90 days 6 months follow-up (assessed with subjective)												

1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	Serious[3]	None	3/55 (5.5%)	2/54 (3.7%)	RR 1.47 (0.26 to 8.47)	17 more per 1000 (from 27 fewer to 277 more)	□□□□ LOW	CRITICAL
								3.7%		17 more per 1000 (from 27 fewer to 276 more)		

[1] Not blinded.
[2] I^2 of 66%.
[3] Wide confidence interval.

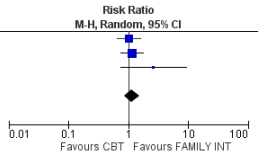
Figure 11. Forest plots of comparison: Family interventions vs. CBT

[Updated 2015]

Figure 2 (Analysis 17.1)

Study or Subgroup	FAMILY INTERVENTION Events	Total	CBT Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
DENNIS 2004 study1	44	198	22	102	44.4%	1.03 [0.66, 1.62]
DENNIS 2004 Study 2	53	200	23	100	50.0%	1.15 [0.75, 1.76]
Hendriks 2011	8	55	3	54	5.6%	2.62 [0.73, 9.35]
Total (95% CI)		**453**		**256**	**100.0%**	**1.15 [0.85, 1.55]**
Total events	105		48			

Heterogeneity: Tau² = 0.00; Chi² = 1.84, df = 2 (P = 0.40); I² = 0%
Test for overall effect: Z = 0.90 (P = 0.37)



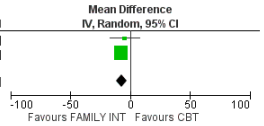
Caption

Forest plot of comparison: 17 . Family and social- systems interventions versus CBT, outcome: 17.1 point abstinence (last 30-90 days abstinent) at 12 months month follow up.

Figure 3 (Analysis 17.2)

Study or Subgroup	FAMILY INTERVENTION Mean	SD	Total	CBT Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Hendriks 2011	43	33.3	55	47.7	33.3	54	13.7%	-4.70 [-17.20, 7.80]
Liddle 2008	11.66	17.67	112	19.43	20.3	112	86.3%	-7.77 [-12.75, -2.79]
Total (95% CI)			**167**			**166**	**100.0%**	**-7.35 [-11.98, -2.72]**

Heterogeneity: Tau² = 0.00; Chi² = 0.20, df = 1 (P = 0.65); I² = 0%
Test for overall effect: Z = 3.11 (P = 0.002)



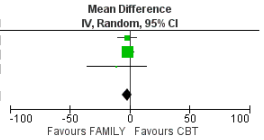
Caption

Forest plot of comparison: 17 . Family and social- systems interventions versus CBT, outcome: 17.2 days of cannabis use in the last 30-90 days at 12 months follow up.

Figure 4 (Analysis 17.3)

Study or Subgroup	FAMILY INTERVENTION Mean	SD	Total	CBT Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Hendriks 2011	40.6	21.8	55	42.9	20.6	54	25.9%	-2.30 [-10.26, 5.66]
Liddle 2008	18.8	17.86	112	20.35	18.73	112	71.5%	-1.55 [-6.34, 3.24]
WALDRON 2001	40.1	40.07	29	51.13	57.35	31	2.6%	-11.03 [-35.93, 13.87]
Total (95% CI)			**196**			**197**	**100.0%**	**-2.00 [-6.05, 2.06]**

Heterogeneity: Tau² = 0.00; Chi² = 0.54, df = 2 (P = 0.76); I² = 0%
Test for overall effect: Z = 0.97 (P = 0.33)



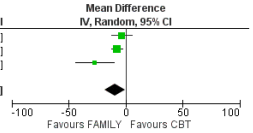
Caption

Forest plot of comparison: 17 . Family and social- systems interventions versus CBT, outcome: 17.3 days of cannabis use in the last 30-90 days at 6/7 months follow up.

Figure 5 (Analysis 17.4)

Study or Subgroup	FAMILY INTERVENTION Mean	SD	Total	CBT Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Hendriks 2011	42	23.7	55	45.4	23	54	35.6%	-3.40 [-12.17, 5.37]
Liddle 2008	19.75	18.18	112	27.39	19.71	112	46.0%	-7.64 [-12.61, -2.67]
WALDRON 2001	24.95	26.96	29	52.09	40	31	18.4%	-27.14 [-44.30, -9.98]
Total (95% CI)			**196**			**197**	**100.0%**	**-9.71 [-18.79, -0.63]**

Heterogeneity: Tau² = 40.23; Chi² = 5.85, df = 2 (P = 0.05); I² = 66%
Test for overall effect: Z = 2.10 (P = 0.04)



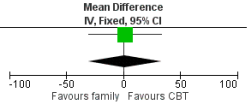
Caption

Forest plot of comparison: 17 . Family and social- systems interventions versus CBT, outcome: 17.4 days of cannabis use in the last 30-90 days at 3/4 months follow up

Figure 6 (Analysis 17.5)

Study or Subgroup	FAMILY INTERVENTION Mean	SD	Total	CBT Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Hendriks 2011	108.2	89	55	106.8	82.3	54	100.0%	1.40 [-30.77, 33.57]
Total (95% CI)			**55**			**54**	**100.0%**	**1.40 [-30.77, 33.57]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.09 (P = 0.93)



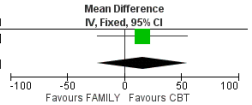
Caption

Forest plot of comparison: 17 . Family and social- systems interventions versus CBT, outcome: 17.5 joint smoked in the last 90 days 3 months follow up.

Figure 7 (Analysis 17.6)

Study or Subgroup	FAMILY INTERVENTION Mean	SD	Total	CBT Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Hendriks 2011	108.8	134.5	55	92.9	64.6	54	100.0%	15.90 [-23.60, 55.40]
Total (95% CI)			**55**			**54**	**100.0%**	**15.90 [-23.60, 55.40]**

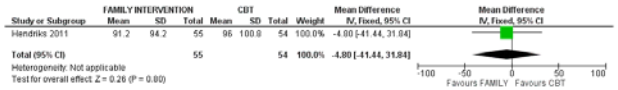
Heterogeneity: Not applicable
Test for overall effect: Z = 0.79 (P = 0.43)



Caption

Forest plot of comparison: 17 . Family and social- systems interventions versus CBT, outcome: 17.6 joint smoked in the last 90 days 6 months follow up.

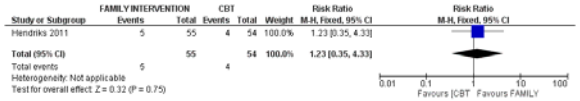
Figure 8 (Analysis 17.7)



Caption

Forest plot of comparison: 17 . Family and social- systems interventions versus CBT, outcome: 17.7 joint smoked in the last 90 days 12 months follow up.

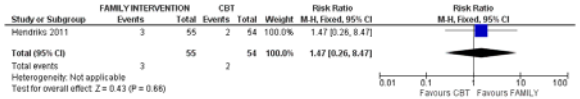
Figure 9 (Analysis 17.8)



Caption

Forest plot of comparison: 17 . Family and social- systems interventions versus CBT, outcome: 17.8 Participants with continuous abstinent in the last 90 days 3 months follow up.

Figure 64 (Analysis 17.9)



Caption

Forest plot of comparison: 17 . Family and social- systems interventions versus CBT, outcome: 17.9 Participants continuous abstinent in the last 90 days 6 months follow up.

[Updated 2015]

Table 18. Family and social systems interventions vs. psychoeducational support for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should family and social System interventions or psycho educational be used for management of cannabis dependence?
Bibliography: National Institute for Health and Care Excellence. 2007. *Drug misuse – psychosocial interventions*. [CG51]. 51. Leicester: British Psychological Society.
Relevant studies:

- Latimer WW, Winters KC, D'Zurilla T, Nichols M (2003). Integrated family and cognitive-behavioral therapy for adolescent substance abusers: A stage I efficacy study. Drug and Alcohol Dependence.71(3):303-317.
- Waldron HB, Slesnick N, Brody JL, Turner CW, Peterson TR (2001). Treatment outcomes for adolescent substance abuse at 4- and 7-month assessments. Treatment outcomes for adolescent substance abuse at 4- and 7-month assessments. Journal of Consulting Clinical Psychology.69(5):802-813.

NOTE: No meta-analysis possible because studies assessed different outcomes or same outcomes in different ways.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Family and social systems interventions vs.**	**Psycho-educational support**	**Relative (95% CI)**	**Absolute**		
Days of use per month at 3 months follow-up (measured with subjective; range of scores: 1-30; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[3]	No serious inconsistency	No serious indirectness	Serious[1]	None	21	22	-	MD 8.55 lower (13.74 to 3.36 lower)	⨁⨁◯◯ LOW	CRITICAL
Days of use per month at 6 months follow-up (measured with subjective; range of scores: 1-30; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[3]	No serious inconsistency	No serious indirectness	Serious[1]	None	21	22	-	MD 8.16 lower (13.23 to 3.09 lower)	⨁⨁◯◯ LOW	CRITICAL
Subjects with positive urine analysis at 3 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[3]	No serious inconsistency	No serious indirectness	Serious[1]	None	10/21 (47.6%)	20/22 (90.9%)	RR 0.52 (0.33 to 0.84)	436 fewer per 1000 (from 145 fewer to 609 fewer)	⨁⨁◯◯ LOW	CRITICAL
								90.9%		436 fewer per 1000 (from 145 fewer to 609 fewer)		
Subjects with positive urine analysis at 6 months follow-up (assessed with objective)												
1	Randomized trials	Serious risk of bias[3]	No serious inconsistency	No serious indirectness	Serious[1]	None	9/21 (42.9%)	19/22 (86.4%)	RR 0.5 (0.29 to 0.84)	432 fewer per 1000 (from 138 fewer to 613 fewer)	⨁⨁◯◯ LOW	CRITICAL
								86.4%		432 fewer per 1000 (from 138 fewer to 613 fewer)		
Cannabis use (% day of use) at 4 months follow-up (measured with subjective; range of scores: 0-100; better indicated by lower values)												
1	Randomized	Serious	No serious	No serious	Serious[2]	None	29	30	-	MD 30.78 lower	⨁⨁◯◯	CRITICAL

	trials	risk of bias[3]	inconsistency	indirectness						(46.65 to 14.91 lower)	LOW	
Cannabis use (% day of use) at 7 months follow-up (measured with subjective; range of scores: 0-100; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[3]	No serious inconsistency	No serious indirectness	Very serious[2,]	None	29	30	-	MD 1.78 lower (22.23 lower to 18.67 higher)	⨁⨁⨁◯ LOW	CRITICAL

[1] N = 43 participants.
[2] N = 59 participants.
[3] Not blinded.

Table 19. Family and social systems interventions vs. group therapy for management of cannabis dependence

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should family and social system interventions or group therapy be used for management of cannabis dependence?
Bibliography: National Institute for Health and Care Excellence. 2007. *Drug misuse – psychosocial interventions.* [CG51]. 51. Leicester: British Psychological Society.
Relevant studies:
1. Liddle HA, Dakof GA, Parker K, Diamond GS, Barrett K, Tejeda M (2001). Multidimensional family therapy for adolescent drug abuse: results of a randomized clinical trial. American Journal Drug and Alcohol Abuse.27(4):651-88.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**. Family interventions**	**Group therapy**	**Relative (95% CI)**	**Absolute**		
Cannabis use a 4 months follow-up (measured with subjective; range of scores: 1-15; better indicated by lower values)												
1	Randomized trials	Very serious[1,2]	No serious inconsistency	No serious indirectness	No serious imprecision	None	47	53	-	MD 2.54 lower (3.84 to 1.24 lower)	⨁⨁⨁◯ LOW	CRITICAL
Cannabis use at 6 months follow-up (measured with subjective; range of scores: 1-15; better indicated by lower values)												
1	Randomized trials	Very serious[1,2]	No serious inconsistency	No serious indirectness	No serious imprecision	None	47	53	-	MD 1.17 lower (2.63 lower to 0.29 higher)	⨁⨁⨁◯ LOW	CRITICAL
Cannabis use at 12 months follow-up (measured with subjective; range of scores: 1-15; better indicated by lower values)												
1	Randomized trials	Very serious[1,2]	No serious inconsistency	No serious indirectness	No serious imprecision	None	47	53	-	MD 0.83 lower (2.14 lower to 0.48 higher)	⨁⨁⨁◯ LOW	CRITICAL

[1] Dropouts higher than 30%.
[2] Not blinded.

Table 20. Family or social systems interventions vs. individual psychotherapy for management of cannabis dependence

[Updated 2015]

Authors: S Minozzi, L Amato, N Clark, J Vieira Flores
Question: Should family and social system interventions or individual psychotherapy be used for management of cannabis dependence?
Bibliography: New meta-analysis. Trial included:

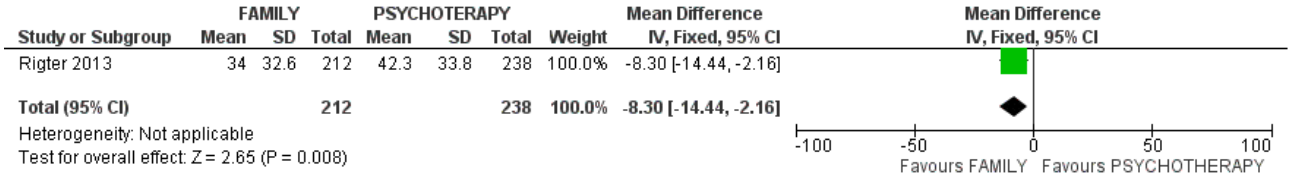
2. Rigter H, Henderson CE, Pelc I, Tossmann P, Phan O, Hendriks V, Schaub M, Rowe CL (2013). Multidimensional family therapy lowers the rate of cannabis dependence in adolescents: A randomised controlled trial in Western European outpatient settings. Drug and Alcohol Dependence.130(1-3):85-93. doi:10.1016/j.drugalcdep.2012.10.013.

Quality assessment							No. of patients		Effect		Quality	Importance
No. of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Family intervention	Individual psychotherapy	Relative (95% CI)	Absolute		
Days of cannabis use in the past 90 days at 12 months follow-up (measured with subjective; range of scores: 1-90; better indicated by lower values)												
1	Randomized trials	Serious risk of bias[1]	No serious inconsistency	No serious indirectness	No serious imprecision	None	212	238	-	MD 8.3 lower (14.44 to 2.16 lower)	⨁⨁⨁◯ MODERATE	CRITICAL

[1] Not blinded.

Figure 12. Forest plots of comparison: Family interventions vs. psychotherapy.

Figure 64 (Analysis 20.1)



Caption

Forest plot of comparison: 20 Family intervention vs individual psychotherapy, outcome: 20.1 days of cannabis use in the past 90 days at 12 months follow up.

[Updated 2015]

PART 2: FROM EVIDENCE TO RECOMMENDATIONS

Summary of evidence table

CBT vs. Waiting list

CBT vs. waiting list	**CBT + MET vs. waiting list**	MET vs. waiting list	**CBT+MET +PPS vs. waiting list**
Point of abstinence by negative urine test: RR 1.86 (1.2 to 2.9), favours CBT **Continuous abstinence:** RR 7.08 (0.91 to 55.16), Favours CBT **Days of use per month**: MD 10.41 lower (13.5 to 7.32 lower), favours CBT LOW quality evidence	**Cannabis use, % of days smoked in the preceding 90 days at 4 months follow-up:** MD 37.05 lower (45.24 to 28.86 lower), favours CBT **Number of joints smoked per day in the preceding 90 days at 4 months** follow-up**:** MD 0.95 lower (1.29 to 0.6 lower), favours CBT VERY LOW quality evidence	**Point abstinence at 3-4 months follow-up:** RR 2.46 (1.48 to 4.07), favours MET **Days of cannabis use in the preceding 60-90 days:** MD 12.34 lower (26.12 lower to 1.43 higher), favours MET **Day of use per months in the 4 preceding weeks:** MD 9.21 lower (12.64 to 5.78 lower), favours MET **Joints per day during the preceding 90 days at 4 month:** MD 19.93 lower (28.04 to 11.82 lower), favours MET LOW to VERY LOW quality evidence	**Point Abstinence at 2 months follow-up:** RR 2.53 (1.82 to 3.52), favours CBT+MET +PPS MODERATE quality evidence

Cognitive behavioural therapy vs. other active interventions

CBT vs. MET	**CBT vs. social support groups**	**CBT + MET vs. MET alone**	**CBT + MET vs. counselling**	**CBT vs. psychoeducational support**
Negative urine at 4 months follow-up: RR 1.25 (0.91 to 1.71), favours CBT **Day of use per months in the preceding 30 days at 4 months follow-up:** MD 1.2 lower (4.33 lower to 1.93 higher), favours CBT	**Point abstinence at 3-months follow-up:** RR 0.81 (0.54 to 1.21), favours social support groups **Point abstinence at 6-months follow-up:** RR 0.89 (0.52 to 1.53), favours CBT **Point abstinence at 12-**	**Continuous abstinence at 2-months:** RR 1 (0.07 to 14.9), no difference **Participants with continuous abstinence in weeks at 4-months follow-up:** MD 0.7 higher (0.98 lower to 2.38 higher), no difference. **Point abstinence at 4-**	**Days of cannabis use % at 2-months follow-up** MD 2 higher (13.08 lower to 17.08 higher), no difference. **Continuous abstinence at 2-months follow-up** MD 4.2 higher (7.66 lower to 16.06 higher), favours CBT +MET **Point abstinence at 5-months follow-up** RR 1.68 (0.7 to 4.03),	**Cannabis use (% day of use) at 4-months follow-up:** MD 3.64 lower (22.45 lower to 15.17 higher), favours CBT. **At 7 months follow-up:** CBT MD 9.25 higher (15.51 lower to 34.01 higher), favours psychoeducational support.

Day of use per months in the preceding 30 days at 7 months follow-up: MD 0.4 higher (2.92 lower to 3.72 higher), no difference **Day of use per months in the preceding 30 days at 13 months follow-up:** MD 0.28 higher (3.19 lower to 3.75 higher), no difference **Day of use per months in the preceding 30 days at 16 months follow-up:** MD 0.7 lower (4.19 lower to 2.79 higher), no difference. MODERATE to LOW quality evidence	**months follow-up:** RR 0.82 (0.41 to 1.62), favours CBT MODERATE quality evidence	**months follow-up:** RR 2 (0.2 to 20.33), favours CBT +MET **Proportion of days of use during the preceding 90 days at 4 months follow-up:** MD 19.69 lower (28.79 to 10.59 lower), favours CBT +MET **At 9 months follow-up**: MD 15.89 lower (25.17 to 6.61 lower), favours CBT +MET **Joints per day at 4 months follow-up:** MD 0.5 lower (0.9 to 0.1 lower), no difference **At 9 months follow-up**: MD 0.11 lower (0.7 lower to 0.48 higher), no difference MODERATE to LOW quality evidence	favours counselling **At 7 months follow-up:** RR 1.58 (0.89 to 2.81), favours counselling VERY LOW quality evidence	VERY LOW quality evidence

CM vs. other interventions

MET + CM vs. MET alone	**CBT + MET + CM vs. CBT + MET**	**Counselling + CM vs. counselling alone**	**CBT+MET +CM vs. CM alone**	**CBT+ CM on abstinence vs. CBT alone**	**CBT+ CM on abstinence vs. CM alone**
Days of cannabis use at 1-month follow-up: MD 4.89 higher (1.26 lower to 11.04 higher), favours MET LOW quality	**Number of subjects with continuous abstinence at 2 or 3-months follow-up:** RR 2.84 (0.65 to 12.39), favours CBT+MET+CM	**% days of cannabis use at 2-months follow-up:** MD 4 higher (18.69 lower to 26.69 higher), favours counselling **Duration of abstinence at 2-months follow-up:**	**Point abstinence: 5- or 6-months follow-up:** RR 0.78 (0.49 to 1.26), favours CM **Cannabis use within treatment:** RR 0.45 (0.25 to 0.82), favours CM. **Number of subjects**	**Duration of abstinence of at least 6 weeks at 3-months follow-up:** RR 1.36 (0.58 to 3.2), favours CBT + CM. **Point abstinence at 6-months follow-up:** RR 0.86 (0.33 to 2.25), favours CBT	**Duration of abstinence of at least 6 weeks at 3-months follow-up:** RR 0.8 (0.45 to 1.41), favours CM **Point abstinence at 6-months follow-up:** RR 0.86 (0.33 to 2.25), favours CM

evidence	**Percentage of days of cannabis use at 2-months follow-up:** MD 9 lower (24.08 lower to 6.08 higher), favours CBT + MET + CM **Longest duration of abstinence at 2-months follow-up:** MD 5.8 higher (6.57 lower to 18.17 higher), favours CBT + MET + CM **Point abstinence at 4-5 months follow-up:** RR 1.76 (0.79 to 3.92), favours CBT + MET + CM **Mean weeks of continuous abstinence follow-up (mean 4 months follow-up):** MD 2.5 higher (0.77 to 4.23 higher), favours CBT + MET + CM **Point abstinence at 12 months follow-up:** RR 1.5 (0.76 to 2.93). favours CBT + MET + CM CBT **Point abstinence at 8-months follow-up:** 1 RR 0.63 (0.36 to 1.12), favours CBT + MET	MD 9.1 higher (2.62 lower to 20.82 higher), favours counselling **Point abstinence at 5-months follow-up,** RR 1.78 (0.74 to 4.26), favour CM + counselling **Point abstinence at 7 months follow-up:** RR 0.97 (0.49 to 1.93), no difference MODERATE quality evidence	**with continuous abstinence at 2- or 3-months follow-up:** RR 0.45 (0.25 to 0.82), favours CBT+MET +CM **Point abstinence at 15 months follow-up:** RR 1 (0.4 to 2.5), favours CBT+MET +CM **Point abstinence at 11- or 12-months follow-up:** RR 1.07 (0.54 to 2.12), no difference. **Point abstinence at 9-months follow-up:** RR 0.78 (0.33 to 1.82), no difference LOW to VERY LOW quality evidence	**At 9-months follow-up:** RR 0.86 (0.33 to 2.25, favours CBT **At 12-months follow-up:** RR 0.86 (0.33 to 2.25), no difference **At 15-months follow-up:** RR 0.86 (0.33 to 2.25), favour CBT. **Cannabis use within treatment at 3-months follow-up:** MD 2.4 higher (12.13 lower to 16.93 higher), no difference of effect LOW quality evidence	**At 9-months follow-up:** RR 0.67 (0.27 to 1.64), favours CM **At 15-months follow-up:** RR 0.86 (0.33 to 2.25), favours CM. **Point abstinence at 12-months follow-up:** RR 1.17 (0.44 to 3.06), no difference. **Cannabis use within treatment at 3-months follow-up:** MD 18.4 higher (0.59 to 36.21 higher), no difference VERY LOW quality evidence

	LOW to VERY LOW quality evdience				

Family and social system interventions

Family and social system interventions vs. CBT	Family and social systems interventions vs. psychoeducational support	Family interventions vs. group therapy	Family intervention vs. individual psychotherapy
Point abstinence at 12-months follow-up: RR 1.15 (0.85 to 1.55), no difference **Days of cannabis use in the last 30-90 days at 12-months follow-up:** MD 7.35 lower (11.98 to 2.72 lower), favours family and social system interventions. **At 6/7 months follow-up:** MD 2 lower (6.05 lower to 2.06 higher), favours family and social system interventions. **At 3/4 months follow-up:** MD 9.71 lower (18.79 to 0.63 lower), favours family and social system interventions. **Joint smoked in the last 90 days 3 months follow-up:** MD 1.4 higher (30.77 lower to 33.57 higher), no difference **At 6 months follow-up:** MD 15.9 higher (23.6 lower to 55.4 higher), favours CBT **At 12 months of follow-up:** MD 4.8 lower (41.44 lower to 31.84 higher), favours family and social system interventions	**Days of use per month at 3- and 6-months follow-up:** MD 8.55 lower (13.74 to 3.36 lower), favours family and social system interventions **Subjects with positive urine analysis at 3 months follow-up:** RR 0.52 (0.33 to 0.84), favours family and social system interventions. **At 6 months follow-up:** RR 0.5 (0.29 to 0.84), favours family and social system interventions **Cannabis use (% day of use) at 4-months follow-up:** MD 30.78 lower (46.65 to 14.91 lower), favours family and social system interventions **At 7 months of follow-up:** MD 1.78 lower (22.23 lower to 18.67 higher), no difference LOW quality evidence	**Cannabis use at 4 months follow-up:** MD 2.54 lower (3.84 to 1.24 lower), no difference **At 6 months follow-up:** MD 1.17 lower (2.63 lower to 0.29 higher), no difference **At 12 months follow-up:** MD 0.83 lower (2.14 lower to 0.48 higher), no difference LOW quality evidence	**Days of cannabis use in the past 90 days at 12-months follow-up:** MD 8.3 lower (14.44 to 2.16 lower), favours family interventions MODERATE quality evidence

Number of subjects with continuous abstinent in the last 90 days at 3 months follow-up: RR 1.23 (0.35 to 4.33), no difference. **At 6 months follow-up:** RR 1.47 (0.26 to 8.47), favours CBT. MODERATE to LOW quality evidence			

Evidence to recommendation table

Benefits	***Intervention vs. inactive treatment or waitlist*** Cognitive Behavioural Therapy (CBT) was shown to perform better than waiting list control in reducing the use of cannabis in the short- to medium-term. The relative risk of negative urine samples ranged from 1.86 to 7.08 (LOW TO VERY LOW quality of evidence), with approximately 50% reduction in continuous measures of drug use (LOW to VERY LOW quality of evidence). Motivational Enhancement Therapy (MET) was also shown to be better than waiting list control (with an RR of negative urine sample at 2.46, also approximately 50% reduction in continuous cannabis use measures). No other interventions were compared to an inactive control. ***Comparison with active control*** Most active interventions were not shown to be superior to other active interventions, with a few exceptions. Family therapy and family therapy combined with CBT was shown to be more effective then psychoeducational support with a 10% reduction in cannabis use(LOW quality evidence) and individual counselling with 0.5 RR of positive urine sample (LOW quality evidence) and 10% reduction of cannabis use in continuous drug use measures (with LOW to VERY LOW quality evidence).

	No other trials showed the superiority of one treatment over another, although some trials found some combinations of treatment more effective than other combinations. ***Evidence of equivalence in head-to-head comparisons with effective interventions*** CBT and MET were shown to be equivalent in head-to-head comparisons. Comparing CBT and MET with other active interventions, social support groups and Twelve Step type group counselling appeared similar in efficacy to CBT in one trial each. Evidence of head-to-head comparisons of other treatment with CBT/MET was not sufficient to show equivalence (i.e., wide confidence intervals).
Harms	None of included studies assessed adverse events.
Summary of the quality of evidence	The quality of evidence varies from moderate to very low across the 20 comparisons considered.

Value and preferences	
In favour	Cannabis disorders can produce significant distress and decreased functioning among some individuals. Generally these individuals value being able to talk to people about their drug use and related psychological and social problems.
Against	Some people find it difficult to talk about their drug use and related psychological and social problems and some people value their privacy on these topics more than others. Being identified as a person with a substance use disorder may result in stigma and discrimination.

Uncertainty or variability?	While there is variability, most people with cannabis use disorders would value access to psychosocial treatment options.

Feasibility (including resource use considerations)	CBT and MET interventions require specific training and are being implemented in many low- and middle-income countries in specialty care. Providing training for general health setting personnel will require considerable resources.
Uncertainty or variability?	Feasibility is variable and psychosocial treatments are currently not available in many settings.

[Updated 2015]

Recommendation and remarks

Recommendation

Psychosocial interventions based on cognitive behavioural therapy (CBT) or motivational enhancement therapy (MET) or family therapy can be offered for the management of cannabis dependence.

Rationale: Although the quality of the evidence is low, the benefits of psychosocial interventions outweigh their harms with no clinically relevant differences between individual interventions in direct comparisons. Cannabis disorders can produce significant distress and decreased functioning among some individuals. In terms of managing cannabis dependence, people would positively value being able to talk about their drug use and related psychological and social problems.

Remarks

There may also be a role for family interventions, group interventions, and twelve-step interventions.
Other forms of psychosocial support may be effective, but the evidence for this is lacking at this stage.
Non-specialist health care providers require training in and supervision for delivery of psychosocial interventions.

Judgements about the strength of a recommendation

Factor	Conditional
Quality of the evidence	¡ High ¡ Moderate **X Low** ¡ Very low
Balance of benefits vs. harms	**X Benefits clearly outweigh harms** ¡ Benefits and harms are balanced ¡ Potential harms clearly outweigh potential benefits
Values and preferences	¡ No major variability **X Major variability**
Resource use	¡ Less resource-intensive **X More resource-intensive**
Strength	**CONDITIONAL**

APPENDIX 1

Search Strategies

PubMed Search and results:
Search Query Items found
#14 Search #8 AND #13 175
#13 Search ((#9 OR #10)) NOT ((animals[MeSH] NOT humans[MeSH])) 1967684
#12 Search (animals[MeSH] NOT humans[MeSH]) 3940729
#11 Search #9 OR #10 2117474
#10 Search systematic review[tiab] 53030
#9 Search (meta analysis[Publication Type] OR meta analysis[Title/Abstract] OR meta analysis[MeSH Terms] OR review[Publication Type] OR search*[Title/Abstract])

2112105
#8 Search #4 AND #7 1718
#7 Search #5 OR #6 883660
#6 Search (rehabilitation[tiab] AND (service*[tiab] OR program*[tiab])) OR (Rehab[tiab] OR Vocational rehabilitation [MeSH] OR Employment support [tiab] OR Employment scheme [tiab] OR Supported employment [MeSH] OR Training program* [tiab] OR Training scheme [tiab] OR Training support [tiab] OR Education*[tiab] OR Education, Professional [MeSH] OR professional training [tiab] OR Education, Professional, Retraining [MeSH] OR retraining [tiab] OR Literacy training [tiab] OR Literacy program* [tiab] OR Social welfare [tiab] OR Community integration [MeSH] OR community integration [tiab] OR Occupational therapy [MeSH] OR Occupational therapy [tiab] OR Public housing [tiab] OR Housing support [tiab] OR Leisure activit* [tiab] OR hobbies [tiab])
584068
#5 Search psychosocial*[tiab] OR Psychotherap*[tiab] OR psychotherapy[MeSH] OR cognitive behavio*[tiab] OR EMDR[tiab] OR cognitive therapy [MeSH] OR behaviour therapy [MeSH] OR CBT [tiab] OR rational emotive[tiab] OR reality therapy [tiab] OR mindfulness [tiab] OR dialectic therapy[tiab] OR dialectic behavior therapy[tiab] OR directive counselling [MeSH] OR motivation*[tiab] OR coping skills[tiab] OR social skill* [tiab] OR brief psychotherapy [tiab] OR Brief intervention[tiab] OR brief therapies[tiab] OR animal assisted therapies[MeSH] OR animal assisted therapies[tiab] OR supportive expressive therap*[tiab] OR relapse prevention[tiab] OR relaxation therapy[tiab] OR aversive therapy[MeSH] OR aversive therapy[tiab] OR Self-Control Training [tiab] OR cue exposure treatment[tiab] OR community reinforcement approach[tiab] OR voucher[tiab] OR incentive*[tiab] OR Psychoeducation[tiab] OR counselling[tiab] OR narrative therapy[tiab] OR couples therapy[tiab] OR drama therap*[tiab] OR family therap*[tiab] OR family intervention*[tiab] OR interpersonal therap* [tiab] OR twelve-step [tiab] OR Twelve Step [tiab] OR meditation [tiab] OR self-help [tiab] OR self-help groups [MeSH] OR bibliotherapy [tiab] OR telemedicine [tiab] OR telephone support[tiab] OR SMS therapy [tiab] OR E-medicine [tiab] OR M-339536Search Query Items found
medicine [tiab] OR minimal intervention[tiab] OR case management [MeSH] OR (contingen*[tiab] AND (management[tiab] OR reinforcement[tiab] OR prize[tiab]))
#4 Search #1 OR #2 OR #3 10421
#3 Search (marihuana[tiab] OR marijuana[tiab] OR cannabis [tiab] OR hashish[tiab]) AND (abstin*[tiab] OR abstain*[tiab] OR abus*[tiab] OR addict*[tiab] OR misuse[tiab] OR dependen*[tiab])
5910
#2 Search Marijuana Smoking[MeSH] 2605
#1 Search marijuana abuse[MeSH] 4375

Embase Search Results
#44 #1 AND #42 AND #43 41 9
#43 #24 OR #40 1 ,830,007
#42 'meta analysis':de,ab,ti OR 'search':ab,ti OR review:it OR 'systematic review':ab,ti 2,205,1 58
#40 #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 554,092

OR #36 OR #37 OR #38 OR #39
#39 education*:ab,ti 444,337
#38 (lesure NEAR/2 activit*):ab,ti OR hobbies:ab,ti 924
#37 'housing'/exp OR hausing:ab,ti 1 6,466
#36 'occupational therapy':ab,ti 9,878
#35 'occupational therapy'/exp 1 7,71 3
#34 'social welfare':ab,ti 2,539
#33 'community integration'/exp 274
#32 (literacy NEAR/2 (training OR program*)):ab,ti 253
#31 'professional training':ab,ti 2,1 48
#30 'continuing education'/exp 27,246
#29 (training NEAR/2 (program* OR scheme OR support)):ab,ti 39,21 3
#28 (employment NEAR/2 (support* OR scheme)):ab,ti 1 ,1 57
#27 (rehab* NEAR/2 (service* OR program*)):ab,ti 21 ,642
#26 ((drug OR substance) NEAR/3 rehab*):ab,ti 943
#25 'vocational rehabilitation'/exp 8,504
#24 #5 OR #6 OR #7 OR #8 OR #9 OR #1 0 OR #1 1 OR #1 2 OR #1 3 OR #1 4 OR #1 5 OR #1 6 1 ,384,598
OR #1 7 OR #1 8 OR #1 9 OR #20 OR #21 OR #22 OR #23
1
#23 (contingen* NEAR/2 (management OR reinforcement OR prize)):ab,ti ,561
#22 ((narrative OR drama) NEAR/2 therap*):ab,ti 343
#21 psychosocial*:ab,ti OR psychotherap*:ab,ti OR emdr:ab,ti OR 'rational 247,687
emotive':ab,ti OR 'reality therapy':ab,ti OR mindfulness:ab,ti OR 'dialectic
therapy':ab,ti OR 'animal assisted therapies':ab,ti OR 'relapse prevention':ab,ti OR
'aversive therapy':ab,ti OR 'self-control training':ab,ti OR 'cue exposure
treatment':ab,ti OR 'community reinforcement approach':ab,ti OR
motivation*:ab,ti OR voucher*:ab,ti OR incentive*:ab,ti OR psychoeducation*:ab,ti
OR counselling:ab,ti OR 'twelve-step':ab,ti OR '1 2-step':ab,ti OR meditation:ab,ti
OR bibliotherapy:ab,ti OR telemedicine:ab,ti OR 'telephone support':ab,ti OR 'sms
therapy':ab,ti OR 'e-medicine':ab,ti OR 'm-medicine':ab,ti
#20 (relaxation NEAR/2 (therapy OR therapies OR technique OR techniques)):ab,ti 2,594
#1 9 ((social OR peer OR group) NEAR/2 support):ab,ti 34,61 3
#1 8 'case management'/exp 7,684
#1 7 'self help'/exp OR 'self help':ab,ti 1 3,984
#1 6 'self-control training':ab,ti 71
#1 5 ((brief OR minimal OR early) NEAR/3 (intervention* OR therap* OR interview* OR 58,663
advice)):ab,ti

#1 4 ((family OR couple OR interpersonal) NEAR/2 therap*):ab,ti 6,528
#1 3 (family NEAR/2 intervention*):ab,ti 3,1 1 0
#1 2 (relaxation NEAR/2 (therapy OR therapies OR technique OR techniques)):ab,ti 2,594
#1 1 ((coping OR social) NEAR/2 skill*):ab,ti 8,457
#1 0 'animal assisted therapy'/exp 406
#9 'counselling'/exp 1 1 0,537
#8 cbt:ab,ti 7,853
#7 (behavio* NEAR/3 (behavio* OR intervention* OR technique* OR therap* OR 91 8,543
treat*)):ab,ti
#6 (cogniti* NEAR/3 (behavio* OR intervention* OR technique* OR therap* OR 50,269
treat*)):ab,ti
#5 'psychotherapy'/exp 1 91 ,507
#4 #1 OR #2 OR #3 9,330
#3 ((marihuana OR marijuana OR cannabis OR hashish) NEAR/3 (abstin* OR abstain* 2,51 9
OR abus* OR addict* OR misuse OR dependen*)):ab,ti
#2 'cannabis smoking'/exp 1 ,925
#1 'cannabis addiction'/exp 6,652

Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects– Wiley Interscience interface

#1 MeSH descriptor: [Psychotherapy] explode all trees
#2 (cogniti* near/3 (behavio* or intervention* or technique* or therap* or treat*)):ab,ti
#3 (behavio* near/3 (behavio* or intervention* or technique* or therap* or treat*)):ab,ti
#4 cbt:ab,ti
#5 "counselling":ti,ab,kw (Word variations have been searched)
#6 'animal assisted therapy':ti,ab,kw (Word variations have been searched)
#7 ((coping or social) near/2 skill*):ab,ti or (family near/2 intervention*):ab,ti or ((family or couple or interpersonal) near/2 therap*):ab,ti or ((brief or minimal or early) near/3 (intervention* or therap* or interview* or advice)):ab,ti
#8 "self-help":ti,ab,kw (Word variations have been searched)
#9 'case management':ti,ab,kw (Word variations have been searched)
#10 ((social or peer or group) near/2 support):ab,ti or (relaxation near/2 (therapy or therapies or technique*)):ab,ti
#11 psychosocial*:ab,ti or psychotherap*:ab,ti or emdr:ab,ti or (rational next emotive):ab,ti or (reality next therapy):ab,ti or mindfulness:ab,ti or (dialectic next therapy):ab,ti or (relapse next prevention):ab,ti or (aversive next therapy):ab,ti or (self near/2 training):ab,ti or 'cue exposure treatment':ab,ti or (community next reinforcement):ab,ti or motivation*:ab,ti or voucher*:ab,ti or incentive*:ab,ti or psychoeducation*:ab,ti or counselling:ab,ti or (twelve next step):ab,ti or (12 next step):ab,ti or meditation:ab,ti or bibliotherapy:ab,ti or telemedicine:ab,ti or (telephone next support):ab,ti or 'sms therapy':ab,ti or 'e-medicine':ab,ti or 'm-medicine':ab,ti
#12 ((narrative or drama) near/2 therap*):ab,ti
#13 (contingen* near/2 (management or reinforcement or prize)):ab,ti

#14 MeSH descriptor: [Rehabilitation] explode all trees
#15 (rehab* near/2 (service* or program*)):ab,ti
#16 ((drug or substance) near/3 rehab*)
#17 (employment near/2 (support* or scheme)):ab,ti or (training near/2 (program* or scheme or support)):ab,ti
#18 "education":ti,ab,kw (Word variations have been searched)
#19 'professional training':ab,ti or (literacy near/2 (training or program*)):ab,ti
#20 MeSH descriptor: [Community Integration] explode all trees
#21 'social welfare':ab,ti
#22 housing:ti,ab,kw (Word variations have been searched)
#23 (lesure near/2 activit*):ab,ti or hobbies:ab,ti
#24 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23
#25 (drug or substance or polidrug or alcohol* or cannabis or marihuana or marijuana or cocaine or amphetamine or methamphetamine or MDMA or ecstasy) near (abus* or dependen* or addict* or disorder* or misus*)
#26 "alcoholism":ti,ab,kw (Word variations have been searched)
#27 MeSH descriptor: [Alcohol Drinking] explode all trees
#28 #25 or #26 or #27
#29 #24 and #28

Web of Science

Indexes=SCI-EXPANDED, SSCI, A&HCI Timespan=All years
#1 TI=(counsel* OR psychoeducat* OR educat* OR (psychological AND (therap* OR treatment*)) OR psychotherap* OR psychosocial* OR psychoanalytic OR ((social OR peer OR group) AND support) OR (self AND help) OR (cognitive AND (therap* OR behav*)) CBT OR mindfulness OR relax* OR ((family OR couple) AND therap*) OR bibliotherap*)
#2 TS=(telemedicine OR 'telephone support' OR 'sms therapy' OR 'e-medicine' OR 'm-medicine')
#3 TS=((contingen*) NEAR/5 (voucher* OR incentive* OR prize*)) OR TS=(contingen* NEAR/2 management)
#4 TS=((drug OR substance) NEAR/3 rehab*)
#5 TS=(rehab* NEAR/2 (service* OR program*))
#6 TS=(employment NEAR/2 (support* OR scheme))
#7 TS=(literacy NEAR/2 (training OR program*)) OR TS=(lesure NEAR/2 activit*) OR TS= hobbies
#8 TS=('occupational NEAR/2 therapy')
#9 TS=(housing NEAR/2 support)
#10 #9 OR #8 OR #7 OR #6 OR #5 OR #4 OR #3 OR #2 OR #1
#11 TI= ((cannabis OR cocaine OR drug* OR marihuana OR marijuana OR mdma OR ecstasy OR methamphetamine* OR stimulant OR polydrug OR substance) AND (abus* OR abstin* OR dependen* OR addict* OR disorder* OR misuse))
#12 TI=drug use*
#13 TI=(alcohol AND (drink* OR use* OR abus* OR misus* OR risk* OR consum* OR treat* OR therap* OR excess* OR reduc* OR cessation OR intervention*))
#14 TI=alcoholism

#15 #14 OR #13 OR #12 OR #11
#16 TS=meta analysis
#17 TS=systematic review
#18 #17 OR #16
#19 #18 AND #15 AND #10#1 MeSH descriptor: [Psychotherapy] explode all trees
#2 (cogniti* near/3 (behavio* or intervention* or technique* or therap* or treat*)):ab,ti
#3 (behavio* near/3 (behavio* or intervention* or technique* or therap* or treat*)):ab,ti
#4 cbt:ab,ti
#5 "counselling":ti,ab,kw (Word variations have been searched)
#6 'animal assisted therapy':ti,ab,kw (Word variations have been searched)
#7 ((coping or social) near/2 skill*):ab,ti or (family near/2 intervention*):ab,ti or ((family or couple or interpersonal) near/2 therap*):ab,ti or ((brief or minimal or early) near/3 (intervention* or therap* or interview* or advice)):ab,ti
#8 "self-help":ti,ab,kw (Word variations have been searched)
#9 'case management':ti,ab,kw (Word variations have been searched)
#10 ((social or peer or group) near/2 support):ab,ti or (relaxation near/2 (therapy or therapies or technique*)):ab,ti
#11 psychosocial*:ab,ti or psychotherap*:ab,ti or emdr:ab,ti or (rational next emotive):ab,ti or (reality next therapy):ab,ti or mindfulness:ab,ti or (dialectic next therapy):ab,ti or (relapse next prevention):ab,ti or (aversive next therapy):ab,ti or (self near/2 training):ab,ti or 'cue exposure treatment':ab,ti or (community next reinforcement):ab,ti or motivation*:ab,ti or voucher*:ab,ti or incentive*:ab,ti or psychoeducation*:ab,ti or counselling:ab,ti or (twelve next step):ab,ti or (12 next step):ab,ti or meditation:ab,ti or bibliotherapy:ab,ti or telemedicine:ab,ti or (telephone next support):ab,ti or 'sms therapy':ab,ti or 'e-medicine':ab,ti or 'm-medicine':ab,ti
#12 ((narrative or drama) near/2 therap*):ab,ti
#13 (contingen* near/2 (management or reinforcement or prize)):ab,ti
#14 MeSH descriptor: [Rehabilitation] explode all trees
#15 (rehab* near/2 (service* or program*)):ab,ti
#16 ((drug or substance) near/3 rehab*)
#17 (employment near/2 (support* or scheme)):ab,ti or (training near/2 (program* or scheme or support)):ab,ti
#18 "education":ti,ab,kw (Word variations have been searched)
#19 'professional training':ab,ti or (literacy near/2 (training or program*)):ab,ti
#20 MeSH descriptor: [Community Integration] explode all trees
#21 'social welfare':ab,ti
#22 housing:ti,ab,kw (Word variations have been searched)
#23 (lesure near/2 activit*):ab,ti or hobbies:ab,ti
#24 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23
#25 (drug or substance or polidrug or alcohol* or cannabis or marihuana or marijuana or cocaine or amphetamine or methamphetamine or MDMA or ecstasy) near (abus* or dependen* or addict* or disorder* or misus*)
#26 "alcoholism":ti,ab,kw (Word variations have been searched)
#27 MeSH descriptor: [Alcohol Drinking] explode all trees

#28 #25 or #26 or #27
#29 #24 and #28

RCTs search in CENTRAL

1. MESH DESCRIPTOR Substance-Related Disorders
2. MESH DESCRIPTOR Alcoholism EXPLODE ALL TREES
3. MESH DESCRIPTOR Alcohol Drinking EXPLODE ALL TREES
4. MESH DESCRIPTOR Amphetamine-Related Disorders EXPLODE ALL TREES
5. MESH DESCRIPTOR cocaine-related disorders EXPLODE ALL TREES
6. MESH DESCRIPTOR marijuana abuse EXPLODE ALL TREES
7. ((drug or substance or polidrug or alcohol* or cannabis or marihuana or marijuana or cocaine or amphetamine or methamphetamine or MDMA or ecstasy) near (abus* or dependen* or addict* or disorder* or misus*)):TI,AB,KY
8. #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7
9. MESH DESCRIPTOR Psychotherapy EXPLODE ALL TREES
10. (cogniti* near3 (behavio* or intervention* or technique* or therap* or treat*)):ab,ti
11. (behavio* near3 (behavio* or intervention* or technique* or therap* or treat*)):ab,ti
12. cbt:ab,ti
13. counselling:TI,AB,KY
14. 'animal assisted therapy':ti,ab
15. ((coping or social) near2 skill*):ab,ti
16. "self-help":ti,ab
17. 'case management':ti,ab
18. ((social or peer or group) near2 support)
19. ((social or peer or group) near2 support):ab,ti or (relaxation near2 (therapy or therapies or technique*)):ab,ti
20. psychosocial*:ab,ti or psychotherap*:ab,ti or emdr:ab,ti or (rational next emotive):ab,ti or (reality next therapy):ab,ti or mindfulness:ab,ti or (dialectic next therapy):ab,ti or (relapse next prevention):ab,ti or (aversive next therapy):ab,ti or (self near2 training):ab,ti or (cue next exposure next treatment):ab,ti or (community next reinforcement):ab,ti or motivation*:ab,ti or voucher*:ab,ti or incentive*:ab,ti or psychoeducation*:ab,ti or counselling:ab,ti or (twelve next step):ab,ti or (12 next step):ab,ti or meditation:ab,ti or bibliotherapy:ab,ti or telemedicine:ab,ti or (telephone next support):ab,ti or 'sms therapy':ab,ti or 'e-medicine':ab,ti or 'm-medicine':ab,ti
21. ((narrative or drama) near2 therap*):ab,ti
22. (contingen* near2 (management or reinforcement or prize)):ab,ti
23. (rehab* near2 (service* or program*)):ab,ti
24. ((drug or substance) near3 rehab*)

25. (employment near2 (support* or scheme)):ab,ti or (training near2 (program* or scheme or support)):ab,ti
26. education:TI,AB,KY
27. (professional next training):ab,ti or (literacy near2 (training or program*)):ab,ti
28. MESH DESCRIPTOR Community Integration EXPLODE ALL TREES
29. ('social welfare'):TI,AB,KY
30. housing:TI,AB,KY
31. (lesure near2 activit*):ab,ti or hobbies:ab,ti
32. #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31
33. #8 AND #32