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[Intervention Review]

Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users

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ABSTRACT

Background

Problem alcohol use is common among illicit drug users and is associated with adverse health outcomes. It is also an important factor contributing to a poor prognosis among drug users with hepatitis C virus (HCV) as it impacts on progression to hepatic cirrhosis or opiate overdose in opioid users.

Objectives

To assess the effects of psychosocial interventions for problem alcohol use in illicit drug users (principally problem drug users of opiates and stimulants).

Search methods

We searched the Cochrane Drugs and Alcohol Group trials register (June 2014), the Cochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library*, Issue 11, June 2014), MEDLINE (1966 to June 2014); EMBASE (1974 to June 2014); CINAHL (1982 to June 2014); PsycINFO (1872 to June 2014) and the reference lists of eligible articles. We also searched: 1) conference proceedings (online archives only) of the Society for the Study of Addiction, International Harm Reduction Association, International Conference on Alcohol Harm Reduction and American Association for the Treatment of Opioid Dependence; 2) online registers of clinical trials: Current Controlled Trials, Clinical Trials.org, Center Watch and the World Health Organization International Clinical Trials Registry Platform.

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Selection criteria

Randomised controlled trials comparing psychosocial interventions with another therapy (other psychosocial treatment, including non-pharmacological therapies, or placebo) in adult (over the age of 18 years) illicit drug users with concurrent problem alcohol use.

Data collection and analysis

We used the standard methodological procedures expected by The Cochrane Collaboration.

Main results

Four studies, involving 594 participants, were included. Half of the trials were rated as having a high or unclear risk of bias. The studies considered six different psychosocial interventions grouped into four comparisons: (1) cognitive-behavioural coping skills training versus 12-step facilitation (one study; 41 participants), (2) brief intervention versus treatment as usual (one study; 110 participants), (3) group or individual motivational interviewing (MI) versus hepatitis health promotion (one study; 256 participants) and (4) brief motivational intervention (BMI) versus assessment-only (one study; 187 participants). Differences between studies precluded any data pooling. Findings are described for each trial individually.

Comparison 1: low-quality evidence; no significant difference for any of the outcomes considered

Alcohol abstinence as maximum number of weeks of consecutive alcohol abstinence during treatment: mean difference (MD) 0.40 (95% confidence interval (CI) -1.14 to 1.94); illicit drug abstinence as maximum number of weeks of consecutive abstinence from cocaine during treatment: MD 0.80 (95% CI -0.70 to 2.30); alcohol abstinence as number achieving three or more weeks of consecutive alcohol abstinence during treatment: risk ratio (RR) 1.96 (95% CI 0.43 to 8.94); illicit drug abstinence as number achieving three or more weeks of consecutive abstinence from cocaine during treatment: RR 1.10 (95% CI 0.42 to 2.88); alcohol abstinence during follow-up year: RR 2.38 (95% CI 0.10 to 55.06); illicit drug abstinence as abstinence from cocaine during follow-up year: RR 0.39 (95% CI 0.04 to 3.98), moderate-quality evidence.

Comparison 2: low-quality evidence, no significant difference for all the outcomes considered

Alcohol use as AUDIT scores at three months: MD 0.80 (95% -1.80 to 3.40); alcohol use as AUDIT scores at nine months: MD 2.30 (95% CI -0.58 to 5.18); alcohol use as number of drinks per week at three months: MD 0.70 (95% CI -3.85 to 5.25); alcohol use as number of drinks per week at nine months: MD -0.30 (95% CI -4.79 to 4.19); alcohol use as decreased alcohol use at three months: RR 1.13 (95% CI 0.67 to 1.93); alcohol use as decreased alcohol use at nine months: RR 1.34 (95% CI 0.69 to 2.58), moderate-quality evidence.

Comparison 3 (group and individual MI), low-quality evidence: no significant difference for all outcomes

Group MI: number of standard drinks consumed per day over the past month: MD -0.40 (95% CI -2.03 to 1.23); frequency of drug use: MD 0.00 (95% CI -0.03 to 0.03); composite drug score (frequency*severity for all drugs taken): MD 0.00 (95% CI -0.42 to 0.42); greater than 50% reduction in number of standard drinks consumed per day over the last 30 days: RR 1.10 (95% CI 0.82 to 1.48); abstinence from alcohol over the last 30 days: RR 0.88 (95% CI 0.49 to 1.58).

Individual MI: number of standard drinks consumed per day over the past month: MD -0.10 (95% CI -1.89 to 1.69); frequency of drug use (as measured using the Addiction Severity Index (ASI drug): MD 0.00 (95% CI -0.03 to 0.03); composite drug score (frequency*severity for all drugs taken): MD -0.10 (95% CI -0.46 to 0.26); greater than 50% reduction in number of standard drinks consumed per day over the last 30 days: RR 0.92 (95% CI 0.68 to 1.26); abstinence from alcohol over the last 30 days: RR 0.97 (95% CI 0.56 to 1.67).

Comparison 4: more people reduced alcohol use (by seven or more days in the past month at 6 months) in the BMI group than in the control group (RR 1.67; 95% CI 1.08 to 2.60), moderate-quality evidence. No significant difference was reported for all other outcomes: number of days in the past 30 days with alcohol use at one month: MD -0.30 (95% CI -3.38 to 2.78); number of days in the past month with alcohol use at six months: MD -1.50 (95% CI -4.56 to 1.56); 25% reduction of drinking days in the past month: RR 1.23 (95% CI 0.96 to 1.57); 50% reduction of drinking days in the past month: RR 1.27 (95% CI 0.96 to 1.68); 75% reduction of drinking days in the past month: RR 1.21 (95% CI 0.84 to 1.75); one or more drinking days' reduction in the past month: RR 1.12 (95% CI 0.91 to 1.38).

Authors' conclusions

There is low-quality evidence to suggest that there is no difference in effectiveness between different types of interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users and that brief interventions are not superior to assessment-

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only or to treatment as usual. No firm conclusions can be made because of the paucity of the data and the low quality of the retrieved studies.

PLAIN LANGUAGE SUMMARY

Which talking therapies (counselling) work for drug users with alcohol problems?

Review question

We wanted to determine whether talking therapies have an impact on alcohol problems in adult users of illicit drugs (mainly opiates and stimulants) and whether one type of therapy is more effective than another.

Background

Problematic use of alcohol (that is drinking above the recommended safe drinking limits) can lead to serious alcohol problems or dependence. Excessive drinking in people who also have problems with other drugs is common and often makes these problems worse as well as having serious health consequences for the person involved.

Psychosocial interventions are talking therapies that aim to identify an alcohol problem and motivate an individual to do something about it. They can be performed by trained staff (for example, doctors, nurses, counsellors, psychologists, etc.). Talking therapies may help people reduce their drinking but their impact in people who also have problems with other drugs is unknown.

Search date: The evidence is current to June 2014.

Study characteristics

We found four studies that examined 594 people with drug problems. One study focused on the way people think and act versus an approach based on Alcoholics Anonymous, aiming to motivate the person to develop a desire to stop using drugs or alcohol. One study looked at a practice that aimed to identify and alcohol problem and motivate the person to do something about it versus usual treatment. One study looked at a counselling style for helping people to explore and resolve doubts about changing their behaviour (group and individual format) versus hepatitis health promotion. The last study looked at the same style versus assessment-only.

Key results

Overall, there was low-quality evidence only for the comparisons reported in this review.

- The studies were so different that we could not combine their results to answer our question.

- It remains uncertain whether talking therapies affect drinking in people who have problems with both alcohol and other drugs because of the low quality of the evidence.

- It remains uncertain whether talking therapies for drinking affect illicit drug use in people who have problems with both alcohol and other drugs. There was not enough information to compare different types of talking therapies.

- Many of the studies did not account for possible sources of bias.

- More high-quality studies, such as randomised controlled trials, are needed to answer our question.

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SUMMARY OF FINDINGS FOR THE MAIN COMPARISON *[Explanation]*

Population: participants with alcohol use in concurrent problem alcohol and illicit drug users
Settings: substance abuse treatment centre
Intervention: CBT versus TSF

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Control	CBT versus TSF				
Maximum number of weeks of consecutive alcohol abstinence during treatment Substance abuse calendar and breathalyser. Scale from: 0 to 12. Follow up: 12 weeks	The mean maximum number of weeks of consecutive alcohol abstinence during treatment in the control groups was **1.8 weeks**	The mean maximum number of weeks of consecutive alcohol abstinence during treatment in the intervention group was **0.4 higher** (1.14 lower to 1.94 higher)	-	41 (1 study)	⊕⊕◯◯ **low**[1,2]	-
Maximum number of weeks of consecutive abstinence from cocaine during treatment Substance abuse calendar and urinalysis. Scale from: 0 to 12. Follow up: 12 weeks	The mean maximum number of weeks of consecutive abstinence from cocaine during treatment in the control groups was **1.3 weeks**	The mean maximum number of weeks of consecutive abstinence from cocaine during treatment in the intervention group was **0.8 higher** (0.7 lower to 2.3 higher)	-	41 (1 study)	⊕⊕◯◯ **low**[1,2]	-
Number of people achieving 3 or more weeks of consecutive alcohol abstinence during treatment Substance abuse calen-	**Study population**		**RR 1.96** (0.43 to 8.94)	41 (1 study)	⊕⊕◯◯ **low**[1,2]	-

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dar and breathalyser Follow up: 12 weeks						
	111 per 1000	**218 per 1000** (48 to 993)				
	Moderate					
	111 per 1000	**218 per 1000** (48 to 992)				
Alcohol abstinence Substance abuse calendar and breathalyser Follow up: 1 year	**Study population**		**RR 2.38** (0.1 to 55.06)	41 (1 study)	⊕⊕◯◯ **low**[1,2]	-
	0 per 1000	**0 per 1000** (0 to 0)				
	Moderate					
	0 per 1000	**0 per 1000** (0 to 0)				

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Incomplete outcome data
[2] Sparse data: only 1 study with relatively few participants included in comparison

BACKGROUND

Description of the condition

Problem alcohol use is common among illicit drug users and is associated with adverse health outcomes, which have physical, psychological and social implications (Staiger 2013). NIDA (National Institute on Drug Abuse) meta-analyses of US clinical trial data found alcohol use disorders (AUDs) in 38% and 45% of opiate- and stimulant-using treatment seekers, respectively (Hartzler 2010; Hartzler 2011). An earlier review of literature on the prevalence of 'heavy drinking' among drug users enrolled in a methadone maintenance treatment (MMT) found prevalence rates of 13% to 25% (Chen 2011), whereas more recent cross-sectional studies report prevalence rates of 33% up to 50% in this setting (Islam 2013;.Wurst 2011).

Problem alcohol use is an expression that represents a spectrum of distinct drinking patterns (i.e. hazardous, harmful and dependent drinking). Hazardous drinking "is likely to result in harm should present habits persist", whereas harmful drinking, which is an International Classification of Diseases - Tenth Revision (ICD-10) diagnosis (WHO 1993), "causes harm to the health (physical or mental) of the individual" without the presence of dependence (Babor 2001). The term 'dependent drinkers' refers to individuals who meet criteria for the alcohol dependence syndrome under Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) or ICD-10 criteria (DSM-IV; WHO 1993).

Problem drug users are at high risk of liver disease resulting from hepatitis C virus (HCV) infection because of its high prevalence in this population (Smyth 1998). Problem alcohol use is an important factor contributing to a poor prognosis among people with HCV as it impacts on progression to hepatic cirrhosis, increased HCV-RNA levels or fatal opiate overdose in opiate users (Du 2012; White 1999). Teplin 2007 noted that drug users have higher rates of mood, anxiety and personality disorders, all of which are exacerbated by alcohol use. In addition, there exists some evidence that alcohol may have a negative impact on outcomes of addiction treatment (Byrne 2011; Gossop 2000).

The emerging understanding of a high prevalence of problem alcohol use among current or former drug users, allied to the clear health implications of this problem for this population, necessitates a public health response to this issue.

Description of the intervention

Psychosocial interventions are best described as "psychologically-based interventions aimed at reducing consumption behaviour or alcohol-related problems" (Kaner 2007) that exclude any pharmacological treatments. The term refers to a heterogeneous collection of interventions, which vary depending on their: (a) theoretical underpinnings (e.g. psychodynamic, behavioural, motivational), (b) duration or intensity (e.g. brief, extended), (c) setting (e.g. primary-care based, inpatient), (d) mode of delivery (e.g. group, individual, web-based) or (e) treatment goals (e.g. abstinence oriented, harm reduction). To date, many psychosocial interventions specifically designed to address problem alcohol use have been described. The most frequently used interventions include: motivational interviewing (MI), cognitive-behavioural therapy (CBT), psychodynamic approaches, screening and brief interventions (SBIs), family therapy, drug counselling, 12-step programmes, therapeutic community (TC) and vocational rehabilitation (VR).

- MI is a client-centred approach, but in contrast to its non-directive Rogerian origins, it is a directive therapy system. A central role is played by the client's motivation and readiness to change. Change within this approach is facilitated over a series of stages (Prochaska 1992). Relapse is not viewed as a failure to maintain healthy behaviour, but rather as a part of the process of change (Miller 2004).
- CBT draws upon the principles of learning theory. Change in addictive behaviour is approached through altering irrational assumptions, coping skills training or other behavioural exercises. This therapy often deals with the identification and prevention of triggers contributing to drug use. Among the modern approaches utilising such behavioural techniques are relapse prevention (Marlatt 1996), contingency management (Budney 2001) and the community reinforcement approach, which combines both contingency management and positive reinforcement for non-drinking behaviours (Hunt 1973).
- Psychodynamic approaches are based on the assumptions of psychoanalytic theory, which focuses on addressing inner conflict, childhood trauma or problematic relationship themes. Such approaches include a range of different methods designed to deal with the underlying conflict (e.g. interpersonal therapy, supportive-expressive techniques, etc.) (Crits-Christoph 1999).
- SBIs are time limited and therefore suitable for non-specialist facilities. Usually, the length and intensity of the intervention is determined by the levels of risky alcohol consumption (i.e. screening results), and can range from a couple of minutes to several sessions (three to six). Each session includes the provision of information and advice (Babor 2001). Increasingly, brief interventions (BIs) are based on the principles and techniques of MI, so that the distinction between these two modalities is blurred in this regard.
- Family therapy: the therapeutic change is achieved via intervening in the interaction between family members. Families are directly involved in a therapy session. The family therapist must be competent in eliciting the strengths and support of the wider family system. Frequently used family therapy models include multisystemic therapy and network therapy solution-focused brief therapy (CSAT 2004).
- Drug counselling: addiction is viewed as a chronic illness that has serious consequences to the individual's health and social functioning, in consonance with the 12-step model (see below).

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Recovery includes spiritual components and attendance at fellowship meetings. The primary focus of this approach is to help the individual attain abstinence by promoting behavioural changes, including trigger avoidance, sport and other constructive activities. Both individual and group forms of drug counselling have been used in the largest collaborative cocaine treatment study (Crits-Christoph 1999).

- The 12-step model emphasises the powerlessness of an individual over the addiction, which is seen as a disease, and the need for a spiritual recovery. The foundations of this approach lie in the 12 steps and an accompanying document - 12 traditions (Alcoholics Anonymous 1939). The largest of all 12-step programmes is that of Alcoholics Anonymous (AA), and all other programmes (e.g. those of Narcotics Anonymous, Al-Anon etc.) have evolved from it. AA meetings, besides the 12 steps, utilise well-established therapeutic factors of group psychotherapy, such as group cohesiveness, interpersonal learning (i.e. sponsorship), peer pressure, etc.
- TC is a long-term (18 to 24 months), drug-free model of treatment, which usually runs in a residential form. This approach relies on the community itself, as the main therapeutic factor, and also on other factors, such as peer feedback, role-modelling or recapitulation of the primary family experience. The community has a high degree of autonomy, is democratic and each member has a clearly defined role and responsibilities within the structure of TC. A structured regimen of daily activities in the TC often includes formal individual or group therapy sessions along with other educational and work activities (De Leon 2000; Staiger 2009).
- VR employment is seen as an important element of successful rehabilitation from drug addiction and is often considered as one of its key indicators (Platt 1995). VR aims to increase the employability of drug users by developing their job interview skills or obtaining further qualifications. A necessary part of increasing ex-users' access to the job market is linking with potential employers and addressing their concerns and prejudices related to drug users. An example of VR for unemployed individuals receiving MMT is the customised employment supports model (Blankertz 2004).

How the intervention might work

Substantial evidence has described the value of psychosocial interventions in treating problem alcohol use.

A review by Raistrick 2006 presented data on the effectiveness of many such interventions, including screening, further assessment, BIs, more intensive treatments that can still be considered 'brief' and alcohol-focused specialist treatments. They reported mixed evidence on the longer-term effects of BIs and whether extended BIs add anything to the effects of simple BIs.

The Mesa Grande project, which reviewed 361 controlled clinical trials (CCTs) (a three-year update), found BIs to be the most strongly supported psychosocial treatment effective in treating AUDs (Miller 2002). These findings are supported by an Australian systematic review that found BIs to be effective in reducing alcohol consumption in drinkers without dependence or those with a low level of dependence (Shand 2003). Another meta-analysis found the positive effect of BIs to be evident at the follow-up points of 3, 6 and 12 months, and these results were more apparent when dependent drinkers were excluded (Moyer 2002). Indeed, dependent drinkers have been excluded from much of this research indicating that they are possibly unsuitable for BI and should be routinely referred to specialist treatment (Raistrick 2006).

While BIs are generally delivered across a range of settings, primary care has an important role in the delivery of BIs for problem alcohol use among problem drug users. BIs are well suited to primary care owing to their feasibility, and that they can be delivered in general settings by non-specialist staff in a short period of time, and to individuals not actively seeking treatment (Kaner 2007; Raistrick 2006).

The benefits of primary care-based interventions for people with problem alcohol use have been demonstrated in a Cochrane review (Kaner 2007), although the authors reported considerable variation in trials and that the effect of BIs appeared equivocal among women. Another systematic review of brief, multi-contact behavioural counselling among adults attending primary care reported an average reduction of 13% to 34% in drinks per week (Whitlock 2004).

In conclusion, brief psychosocial interventions are feasible and potentially highly effective components of an overall public health approach to reducing problem alcohol use, although considerable variation in trials of effectiveness exists and problem drug users from primary care settings are under-represented in these trials (Kaner 2007; Whitlock 2004).

Because BIs have been developed and evaluated mainly in conventional general practice settings, it is not clear whether they can be effectively applied to excessive drinking among illicit drug users, or whether new forms of intervention need to be developed and evaluated. Could the 'advice-giving' form of BI be effective in illicit drug users or are motivational techniques, in which the impetus for change comes from the user, more likely to be effective in this population?

Why it is important to do this review

The high prevalence and serious consequences of problem alcohol use among illicit drug users highlights an opportunity for a Cochrane systematic review in this population. The question being asked in this review is also of importance because there are no other systematic reviews published that could help answer it.

Two narrative literature reviews have dealt with this question to date. The older of these reviews discussed six reports of four stud-

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ies among methadone patients and saw some promise for contingency management procedures (Bickel 1987). A more recent review described the implications of combining behavioural and pharmacological treatments, which are effective in treating either alcohol- or drug-use disorders alone, for the treatment of people who have both these disorders (Arias 2008). While pointing to the paucity of research specifically focused on the treatment of people with co-occurring alcohol and other substance use disorders, the review concluded that successful treatment must take into account both alcohol- and drug-use disorders. Additionally, one narrative review on treating people seeking therapy primarily for alcohol problems, but who also use other drugs, concurred with this idea (Miller 1996).

Cochrane reviews have so far examined the effectiveness of psychosocial interventions for stimulant, opiate and alcohol use disorders (Amato 2011a; Amato 2011b; Knapp 2007; Lui 2008; Mayet 2004; Minozzi 2011). Although other reviews and review protocols have targeted poly-drug use, they concentrated either on specific populations, for example women and adolescents, or particular interventions, such as case management and MI, but not on 'alcohol-specific' interventions (Dalsbø 2010; Hesse 2007; Smedslund 2011; Smith 2006; Terplan 2007; Thomas 2008). None of the published reviews on psychosocial interventions examined the effectiveness of alcohol-specific interventions in problem drug users. The main problem driving the lack of good studies in this area seems to flow from the administrative separation of drug from alcohol problems. This separation has led researchers to focus on one or the other but not on both. In the USA, the National Institutes of Health plan to correct this separation by forming a new institute that covers both drugs and alcohol - the proposed National Institute of Substance Use and Addiction Disorders (NIH 2012).

The lack of systematic evaluation, together with the anticipated differences in the responsiveness of problem drug users to psychosocial interventions, provides additional reasons for conducting this review. In other words, the results of reviews on the effectiveness of this type of intervention among the general population might not be applicable to specific groups, such as drug users, because they may have a different responsiveness to psychosocial interventions (Nilsen 2010).

Several factors could possibly influence the responsiveness of drug users to treatment interventions (for example, stability of drug use, engagement with the service, concurrent personality disorders, etc). Evidence suggests that drug users with antisocial personality disorder are more likely to respond to rewarding than to punitive approaches (Messina 2003), and the use of more intensive psychosocial interventions is recommended in those who have achieved a sufficient degree of stability and compliance with a service regimen (Pilling 2010).

OBJECTIVES

To determine the effectiveness of psychosocial interventions targeting problem alcohol use versus other treatments in illicit drug users. Especially the effectiveness on reducing alcohol consumption.

METHODS

Criteria for considering studies for this review

Types of studies

Randomised controlled trials (RCTs) and CCTs.

Types of participants

Adult (aged ≥ 18 years) problem drug users attending a range of services (i.e. community, inpatient or residential (including opiate substitution treatment)). Problem drug use was defined according to the definition of the European Monitoring Centre for Drugs and Drug Addiction, as "injecting drug use or long-duration/regular use of opioids, cocaine and/or amphetamines" (EMCDDA 2008, p. 10). This definition also encompasses other, similar terms, for example substance use, misuse, abuse, dependence or addiction.

Only studies that defined participants as problem drug and alcohol users at randomisation were included. Studies including problem drug users without concurrent problem alcohol use were excluded. People whose primary drug of use was alcohol were excluded from this review.

Types of interventions

Experimental interventions: any psychosocial intervention that was described by the study's author as such.

Control interventions: other psychosocial interventions that will allow for comparisons between different types of interventions (e.g. CBT, contingency management, family therapy, etc.), standard care, no intervention, waiting list, placebo or any other non-pharmacological therapy (including moderate drinking, assessment-only).

We intended to exclude studies comparing psychosocial with pharmacological treatments. However, trials with two psychosocial arms in addition to pharmacological arms were exempted from this rule.

Types of outcome measures

Primary outcomes

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1. Alcohol use (reduction or stabilisation), as measured by either biological markers or self-report tests

Secondary outcomes

1. Illicit drug use (changes in illicit drug use), as measured by either biological markers or self-report tests
2. Engagement in further treatment (i.e. drop-out rates, utilisation of health services)
3. Alcohol-related problems or harms, as represented by physical or mental health outcomes associated with problem alcohol use.

Search methods for identification of studies

Electronic searches

For the original review Klimas 2012a, we searched the following electronic databases (search date: 22 November 2011):

1. Cochrane Drugs and Alcohol Group (CDAG) Specialised Register* (1956 to November 2011; 230 hits);
2. Cochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library*, Issue 11, November 2011);
3. MEDLINE (PubMed) (1966 to November 2011);
4. EMBASE (Elsevier, EMBASE.com) (1974 to November 2011);
5. CINAHL (EBSCO Host) (1982 to November 2011);
6. PsycINFO (ProQuest) (1872 to November 2011).

For this update, we searched the following electronic databases (search date: 23 June 2014):

1. CDAG Specialised Register* (November 2011 to June 2014; 67 hits)
2. CENTRAL (*The Cochrane Library*, Issue 6, Jun 2014);
3. MEDLINE (PubMed) (November 2011 to June 2014);
4. EMBASE (Elsevier, EMBASE.com) (November 2011 to June 2014);
5. CINAHL (EBSCO Host) (November 2011 to June 2014);
6. PsycINFO (ProQuest) (November 2011 to June 2014).

* All trials from the CDAG Specialised Register can be found in *The Cochrane Library* by searching on SR-ADDICTN.

We searched the databases using a strategy developed incorporating the filter for the identification of RCTs (Higgins 2011), combined with selected medical subject heading (MeSH) terms and free-text terms relating to alcohol use. The CDAG Group's Trials Search Co-ordinator conducted the electronic searches of databases 1 to 5, listed above, and the first author of the review conducted the electronic search of database 6. We adapted the MEDLINE search strategy for use with the other databases using the appropriate controlled vocabulary, as applicable. Since the initial search yielded several RCTs, we continued to use the RCT filter for subsequent databases searches. We collated the results of the two sets of electronic searches into a single EndNote database.

The search strategies for all databases are shown in Appendix 1, Appendix 2, Appendix 3, Appendix 4 and Appendix 5.

In addition, we searched for ongoing clinical trials and unpublished studies via Internet searches on the following sites:

1. www.controlled-trials.com (search date: 24 March 2014);
2. www.clinicaltrials.gov (search date: 25 March 2014);
3. www.centrewatch.com (search date: 26 March 2014);
4. www.who.int/ictrp/en/ World Health Organization International Clinical Trials Registry Platform (search date: 26 March 2014).

Searching other resources

We also searched:

1. reference lists of articles considered eligible based on full report screening and other relevant papers;
2. conference proceedings (online archives only) of the Society for the Study of Addiction, International Harm Reduction Association, International Conference on Alcohol Harm Reduction and American Association for the Treatment of Opioid Dependence.

In addition, we contacted investigators and relevant trial authors seeking information about unpublished or incomplete trials.

All searches included non-English language literature and we assessed any with English abstracts for inclusion. When considered likely to meet inclusion criteria, we obtained translations of any abstracts.

Data collection and analysis

Selection of studies

Two review authors (JK, HT) independently screened titles and abstracts and selected studies potentially relevant to the update. We resolved any differences between selection lists by discussion with a third and fourth review author with respective thematic and methodological expertise (WC, CSMOG). We obtained full-text copies of each potentially relevant paper, as well as full reports of references with inadequate information in order to definitively determine relevance. Two review authors (JK, HT) independently re-evaluated whether studies were eligible for the update or not, according to the inclusion criteria. A second opinion was not needed. We facilitated the processes of abstract screening, study selection and data extraction using Eppi Reviewer 4 software.

Data extraction and management

Two review authors (JK, HT) independently extracted data from the full-text reports using an electronic version of an amended data extraction form of the Cochrane Drug and Alcohol review group (CDAG). We resolved disagreements by mutual discussion.

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Assessment of risk of bias in included studies

We performed 'Risk of bias' assessments for RCTs and CCTs using the criteria recommended in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011). The recommended approach for assessing risk of bias in studies included in a Cochrane review is a two-part tool addressing five specific domains (namely sequence generation, allocation concealment, blinding, incomplete outcome data and other issues). The first part of the tool involves describing what was reported to have happened in the study. The second part of the tool involves assigning a judgement relating to the risk of bias for that entry in terms of high, low or unclear risk. To make these judgements we used the criteria indicated in the *Cochrane Handbook for Systematic Reviews of Interventions* adapted to the addiction field. See the table in Appendix 6 for details.

We addressed the domains of sequence generation and allocation concealment (avoidance of selection bias) using a single entry for each study.

Blinding of participants and providers was not possible for this kind of intervention. We considered the blinding of outcome assessors (avoidance of detection bias) separately for objective outcomes (e.g. drop-outs from therapy, substance use measured by urinalysis, participants relapsed at the end of follow up, participants engaged in further treatments) and subjective outcomes (e.g. duration and severity of signs and symptoms of withdrawal, individual self-reported use of substance, side effects, social functioning as integration at school or at work, family relationship, etc.).

We considered incomplete outcome data (avoidance of attrition bias) for all outcomes with the exception of drop-outs from therapy, which is usually the primary outcome measure in trials on addiction. We assessed this separately for results at the end of the study period, and for results at follow up.

Measures of treatment effect

For continuous data, we calculated mean differences (MD) between the intervention and comparator groups with 95% confidence intervals (CIs). We present dichotomous outcomes as risk ratios (RRs), with 95% CIs.

Unit of analysis issues

We did not perform a meta-analysis, therefore unit-of-analysis error was not an issue. We identified only one multiarm trial in the review and it was not included more than once in any of the comparisons.

Dealing with missing data

We contacted the authors of the four original studies by email for missing data (April 2012) and sent reminders after two weeks. To date, two study authors have responded and provided additional information.

Assessment of heterogeneity

We did not pool results in a meta-analysis owing to substantial clinical and statistical heterogeneity.

Assessment of reporting biases

We planned to further explore the potential for reporting bias using funnel plots if more than 10 RCTs were included; however, this was not possible because only four RCTs were identified.

Data synthesis

Formal meta-analysis was not possible owing to substantial differences between studies; we considered that no two studies were sufficiently similar to allow pooling of data. We therefore report the results of included studies individually for each trial. We used a xed-effect model because there was only one study for each comparison.

Subgroup analysis and investigation of heterogeneity

We did not conduct investigations of heterogeneity. If sufficient information had been available, we had planned to conduct the following subgroup analyses:

1. types of psychosocial intervention (e.g. motivational versus behavioural or BIs);
2. length of the intervention (short, medium, extended).

We had also intended to conduct the following subgroup analyses, but did not due to insufficient data:

1. sustained benefit at 6 and 12 months after intervention;
2. gender differences;
3. single-drug (alcohol) versus poly-drug-focused interventions;
4. single-drug (alcohol) versus poly-drug-focused interventions that also address other health-related behaviours.

Sensitivity analysis

We did not perform sensitivity analyses because we were unable to pool the study results. If sufficient information had been available, we intended to conduct the following sensitivity analyses according to the methodological quality criteria used for study inclusion:

- excluding studies with a high risk of bias from the analysis; this decision was to be based on a predefined cut-off score (i.e. studies judged to be at high risk of bias for three or more risk items, including selection bias, were to be excluded);
- excluding CCTs.

Summary of findings tables

We used GRADE methodology to produce a 'Summary of findings' table for MI, as this is of more interest when considering the typical psychosocial interventions provided in opioid agonist treatments.

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Consumer participation

We sought consumer participation in the preparation of the protocol and the original review: a) the first review author (JK) is a member of the Cochrane Consumers Network, b) the Cochrane Consumers Network was approached to assist with the plain language summary of the review, and c) one of the co-authors of this review (EK) contributed to consumer consultation during the protocol and review development, as he was a practicing clinician in a healthcare facility with a high prevalence of this problem.

RESULTS

Description of studies

See the 'Characteristics of included studies' and the 'Characteristics of excluded studies' tables.

Results of the search

This is an update of a Cochrane review first published in 2012 (Klimas 2012a). In the first version of our review, we retrieved a total of 7207 records from the initial search of the CDAG Register, CENTRAL, PubMed, EMBASE, CINAHL and PsycINFO. Removing duplicates left 5548 records. After screening titles and abstracts, we identified 25 potentially eligible studies; 18 full-text reports were excluded and 7 reports were included (describing 4 RCTs). No additional studies were found through reference checking. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart of study selection for the first version is shown in Figure 1 according to the PRISMA statement (Moher 2009).

For this 2014 update, we retrieved a total of 1836 records from a more up-to-date search of the CDAG Register, CENTRAL, PubMed, EMBASE, CINAHL and PsycINFO. Removing duplicates left 960. After screening titles and abstracts we identified 16 potentially eligible records and included one record (Feldman 2013). This record was a 2013 correction of a paper for one of the studies (Feldman 2013) included in our first Cochrane review (Klimas 2012a). A PRISMA flowchart of study selection for this review update is shown in Figure 2.

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Figure 1. Study flow diagram from first publication of this review in 2012.

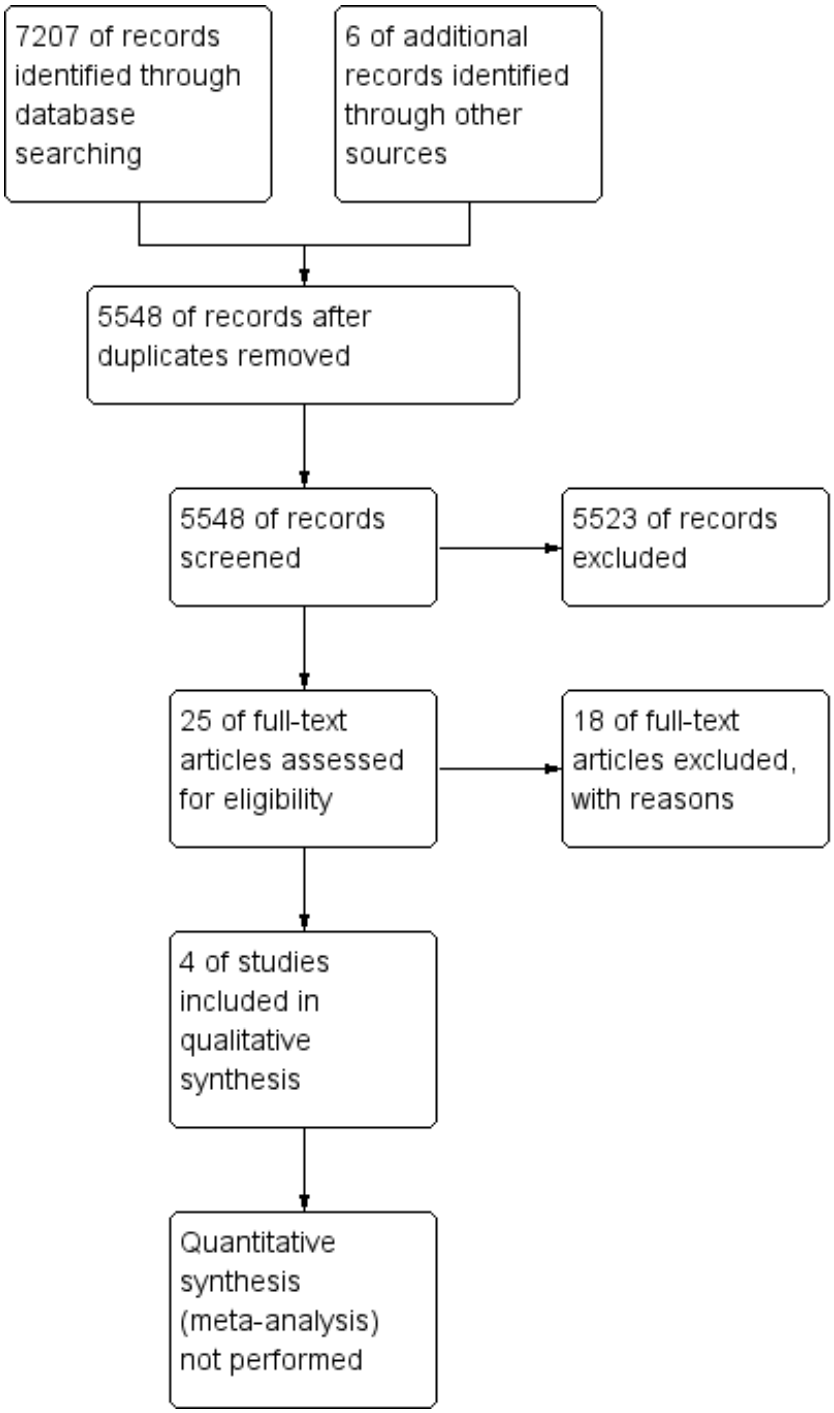

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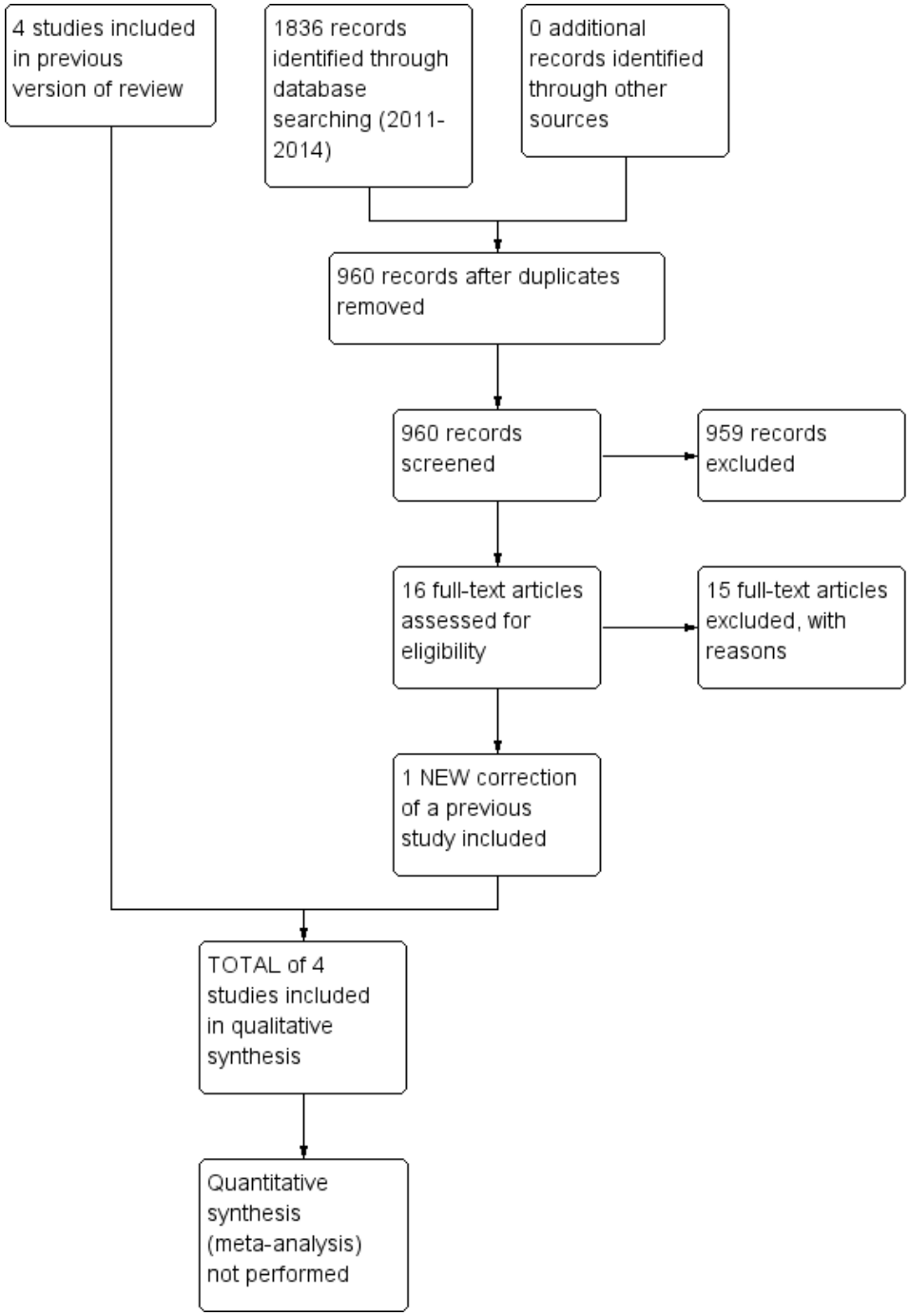
Figure 2. Study flow diagram for a review update: previous studies incorporated into results of new literature search



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Included studies

We included four studies (594 participants)in this review. The studies assessed the effectiveness of six psychosocial interventions: CBT, 12-step facilitation (TSF), BI, hepatitis health promotion (HHP), MI and brief motivational intervention (BMI).

Type of psychosocial intervention and setting

1. CBT versus TSF in an outpatient clinic (Carroll 1998)
2. BI versus treatment as usual in an outpatient clinic with/without opioid substitution treatment (Feldman 2013)
3. MI (group) versus HHP in an opioid substitution clinic (Nyamathi 2010)
4. MI (single) versus HHP in an opioid substitution clinic (Nyamathi 2010)
5. BMI versus assessment-only in a needle exchange programme (Stein 2002a)

Three studies were conducted in the USA and one in Switzerland. Duration of the trials ranged from 4 to 12 weeks (plus various follow ups) (mean 7.5 weeks). Between 1 and 16 sessions were offered to participants (mean 5.5,providing from 15 minutes to 16 hours of treatment time).

Participants included 594 problem drug users (one multiarm trial included 122 participants (Carroll 1998); however, only 41 participants from two psychosocial therapy arms were considered for this review); 33% were female; mean age was 38.3 years.
See the 'Characteristics of included studies' table for more detailed information.

Excluded studies

We excluded 33 studies (18 in 2012 and 15 in 2014) that did not meet the criteria for inclusion in this review; for more information see the 'Characteristics of excluded studies' table.
Grounds for exclusion were: type of intervention not in the inclusion criteria (no studies); type of participants not in the inclusion criteria (24 studies); types of outcomes not in the inclusion criteria (6 studies); study design not in the inclusion criteria (3 studies).

Risk of bias in included studies

For a summary of the our judgements regarding risk of bias for each domain in each included study and across studies, see Figure 3 and Figure 4. See the 'Characteristics of included studies' table for more detailed information.

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Figure 3. Risk of bias summary: review authors' judgements about each risk of bias item for each included study.

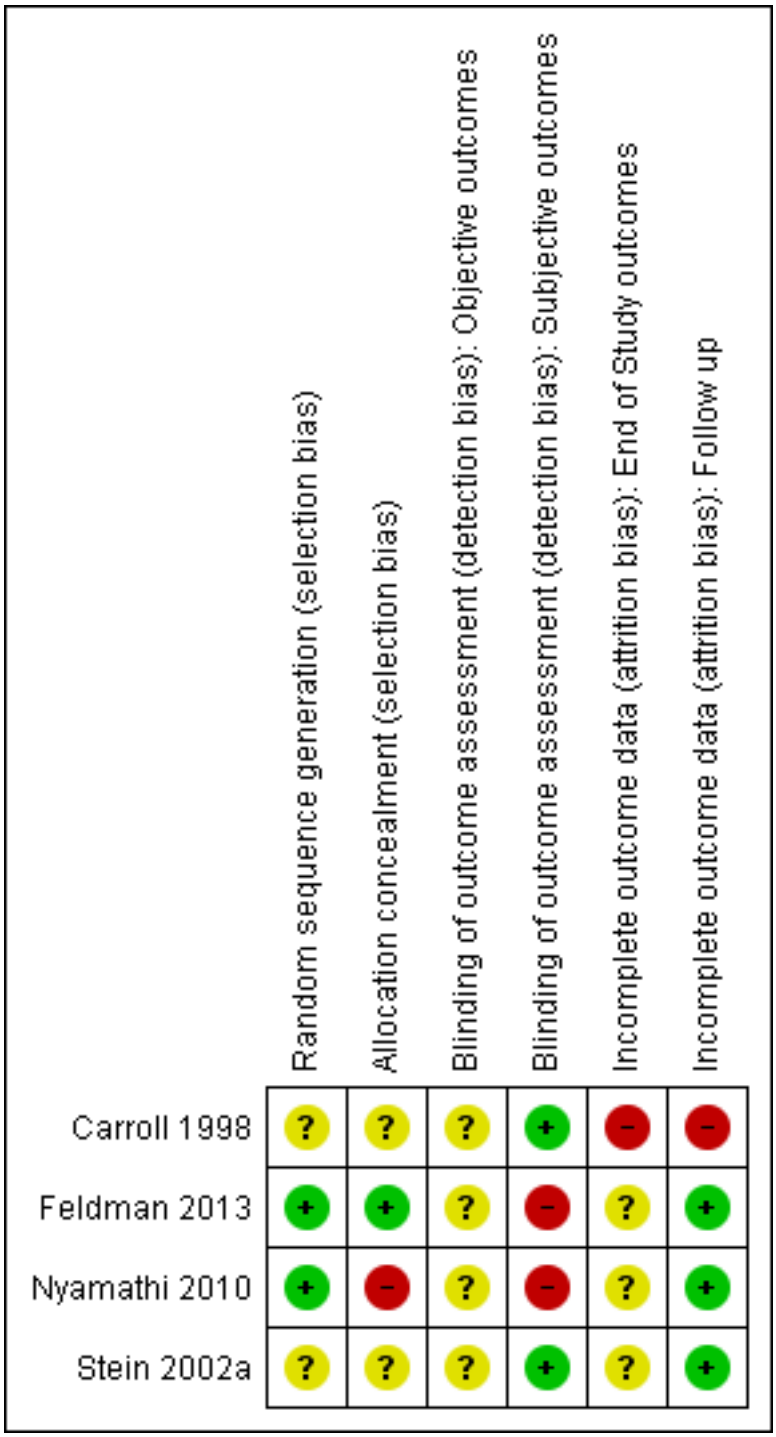

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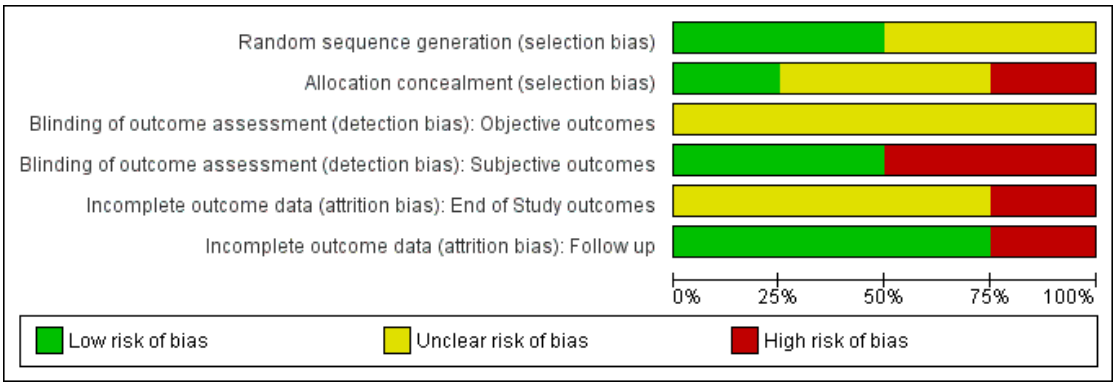
Figure 4. Risk of bias graph: review authors' judgements about each risk of bias item presented as percentages across all included studies.



Allocation

Random sequence generation

We judged random sequence generation to be adequate in two studies (for one this was based on unpublished information obtained via email communication with the study authors), and unclear in the remaining trials.

Allocation concealment

We judged only one study as being at low risk of bias, one at high risk of bias and the remaining studies at unclear risk of bias.

Blinding

Objective outcomes

- Abstinence or use of substance, as measured by participants using urine tests, or breathalysers: participants and personnel were not blinded in all studies for these kind of interventions, and objective outcomes were not reported in the trials. They were used as an additional measure to confirm abstinence in two studies.

Subjective outcomes

- Abstinence or use of substance, as measured by self-reported or interviewer-administered questionnaires: participants and personnel were not blinded in all studies for these kind of interventions; two studies (50%) specified that outcome assessors were blinded and were judged to be at low risk of bias. Two studies reported that the outcome assessor was not blinded and we judged these to be at high risk of bias; for one of them this was unpublished information obtained via email communication with the study authors.

Incomplete outcome data

End of study outcomes

- With the exception of retention in treatment, only one study measured end-of-study outcomes and we judged it to be at high risk of bias because the drop-out rates were not balanced across all groups (e.g. "the psychotherapy groups had significantly lower retention rates than the medication groups" (Carroll 1998)).

Follow-up outcomes

- With the exception of retention in treatment, we judged three studies to be at low risk of attrition bias because few participants (less than 10%) withdrew from the studies, there was a high rate of drop-out but percentages were balanced across

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intervention groups and reasons for withdrawal were provided or authors performed an intention to treat (ITT) analysis. We judged one study to be at high risk of bias because of a high drop-out rate that was unbalanced across groups.

Effects of interventions

See: **Summary of findings for the main comparison** Cognitive-behavioural coping skills training (CBT) versus 12-step facilitation (TSF) for alcohol use in concurrent problem alcohol and illicit drug users; **Summary of findings 2** Brief intervention (BI) versus treatment as usual for alcohol use in concurrent problem alcohol and illicit drug users; **Summary of findings 3** Motivational interviewing (group) (MI-G) versus hepatitis health promotion (HHP) for alcohol use in concurrent problem alcohol and illicit drug users; **Summary of findings 4** Motivational interviewing (single) (MI-S) versus hepatitis health promotion (HHP) for alcohol use in concurrent problem alcohol and illicit drug users; **Summary of findings 5** Brief motivational intervention (BMI) versus assessment-only for alcohol use in concurrent problem alcohol and illicit drug users

We were unable to pool data from the included studies in order to conduct a meta-analysis. We therefore summarise the results according to the type of psychosocial intervention, with comparisons of quantitative data where possible. The included studies used different questionnaires to measure their outcomes and for many the authors did not report post-treatment/follow-up scores or they did not state what was considered to represent mild, moderate and severe categories. This prevented comparison of results across studies. One study had three arms, which we entered into two separate comparisons (group and single format) so they were not counted twice. See the 'Characteristics of included studies' table for more detailed information.

We present the effects of the interventions by the comparisons examined in the primary studies. The primary outcome of this review was alcohol use or abstinence and the main secondary outcome was illicit drug use or abstinence. We were unable to report the other planned secondary outcomes (engagement in further treatment (i.e. drop-out rates, utilisation of health services) and alcohol-related problems or harms) because they were not measured in the identified trials. See: 'Summary of findings for the main comparison'; 'Summary of findings 2'; 'Summary of findings 3'; 'Summary of findings 4'; 'Summary of findings 5' for all comparisons.

1. Cognitive-behavioural coping skills training versus TSF

Continuous outcomes

1.1.1 Alcohol abstinence as maximum number of weeks of consecutive alcohol abstinence during treatment

One study, 41 participants (Carroll 1998), MD 0.40 (95% CI -1.14 to 1.94); the difference was not statistically significant, see Analysis 1.1.

1.1.2 Illicit drug abstinence as maximum number of weeks of consecutive abstinence from cocaine during treatment

One study, 41 participants (Carroll 1998), MD 0.80 (95% CI -0.70 to 2.30); the difference was not statistically significant, see Analysis 1.1.

Dichotomous outcomes

1.2.1 Alcohol abstinence as number achieving three or more weeks of consecutive alcohol abstinence during treatment

One study, 41 participants (Carroll 1998), RR 1.96 (95% CI 0.43 to 8.94); the difference was not statistically significant, see Analysis 1.2.

1.2.2 Illicit drug abstinence as number achieving three or more weeks of consecutive abstinence from cocaine during treatment

One study, 41 participants (Carroll 1998), RR 1.10 (95% CI 0.42 to 2.88); the difference was not statistically significant, see Analysis 1.2.

1.2.3 Alcohol abstinence during follow-up year

One study, 41 participants (Carroll 1998), RR 2.38 (95% CI 0.10 to 55.06); the difference was not statistically significant, see Analysis 1.2.

1.2.4 Illicit drug abstinence as abstinence from cocaine during follow-up year

One study, 41 participants (Carroll 1998), RR 0.39 (95% CI 0.04 to 3.98); the difference was not statistically significant, see Analysis 1.2.

See: 'Summary of findings for the main comparison' for this comparison.

2. BI versus treatment as usual

Continuous outcomes

2.1.1 Alcohol use as AUDIT scores at three months

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One study, 110 participants (Feldman 2013), MD 0.80 (95% -1.80 to 3.40); the difference was not statistically significant, see Analysis 2.1.

2.1.2 Alcohol use as AUDIT scores at nine months

One study, 110 participants (Feldman 2013), MD 2.30 (95% CI -0.58 to 5.18); the difference was not statistically significant, see Analysis 2.1.

2.1.3 Alcohol use as number of drinks per week at three months

One study, 110 participants (Feldman 2013), MD 0.70 (95% CI -3.85 to 5.25); the difference was not statistically significant, see Analysis 2.1.

2.1.4 Alcohol use as number of drinks per week at nine months

One study, 110 participants (Feldman 2013), MD -0.30 (95% CI -4.79 to 4.19); the difference was not statistically significant, see Analysis 2.1.

Dichotomous outcomes

2.2.1 Alcohol use as decreased alcohol use at three months

One study, 110 participants (Feldman 2013), RR 1.13 (95% CI 0.67 to 1.93); the difference was not statistically significant, see Analysis 2.2.

2.2.2 Alcohol use as decreased alcohol use at nine months

One study, 110 participants (Feldman 2013), RR 1.34 (95% CI 0.69 to 2.58) the difference was not statistically significant, see Analysis 2.2.
See 'Summary of findings 2' for this comparison.

3. MI (group) versus HHP

Continuous outcomes

3.1.1 Alcohol use (unpublished) as number of standard drinks consumed per day over the last 30 days

One study, 147 participants (Nyamathi 2010), MD -0.40 (95% CI -2.03 to 1.23); the difference was not statistically significant, see Analysis 3.1.

3.1.2 Illicit drug use (unpublished) as frequency of drug use (as measured by Addiction Severity Index (ASI drug))

One study, 147 participants (Nyamathi 2010), MD 0.00 (95% CI -0.03 to 0.03); the difference was not statistically significant, see Analysis 3.1.

3.1.3 Illicit drug use (unpublished) as a composite drug score (frequency*severity for all drugs taken)

One study, 151 participants (Nyamathi 2010), MD 0.00 (95% CI -0.42 to 0.42); the difference was not statistically significant, see Analysis 3.1.
This study reported an additional outcome as a change score for: daily drug use since baseline (past 30 days and six-month recall). We do not report this calculated variable here because the authors provided us with unpublished results of two original variables that fed into this aggregate variable. Moreover, the published article reported scores for this variable as a mean change between assessment scores together with standard errors (SEs), which would have to be transformed into standard deviations (SDs).

Dichotomous outcomes

3.2.1 Alcohol use as greater than 50% reduction in number of standard drinks consumed per day over the last 30 days

One study, 166 participants (Nyamathi 2010), RR 1.10 (95% CI 0.82 to 1.48); the difference was not statistically significant, see Analysis 3.2.

3.2.2 Alcohol abstinence as abstinence from alcohol over the last 30 days

One study, 166 participants (Nyamathi 2010), RR 0.88 (95% CI 0.49 to 1.58); the difference was not statistically significant, see Analysis 3.2.
See: 'Summary of findings 3' for this comparison.

4. MI (single) versus HHP

Continuous outcomes

4.1.1 Alcohol use (unpublished) as number of standard drinks consumed per day over the last 30 days

One study, 155 participants (Nyamathi 2010), MD -0.10 (95% CI -1.89 to 1.69); the difference was not statistically significant, see Analysis 4.1.

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4.1.2 Illicit drug use (unpublished) as frequency of drug use (as measured by ASI drug)

One study, 155 participants (Nyamathi 2010), MD 0.00 (95% CI -0.03 to 0.03); the difference was not statistically significant, see Analysis 4.1.

4.1.3 Illicit drug use (unpublished) as a composite drug score (frequency*severity for all drugs taken)

One study, 157 participants (Nyamathi 2010), MD -0.10 (95% CI -0.46 to 0.26); the difference was not statistically significant, see Analysis 4.1.
This study reported an additional outcome as a change score for: daily drug use since baseline (past 30 days and six-month recall). We do not report this calculated variable here because the authors provided us with unpublished results of two original variables which fed into this aggregate variable.

Dichotomous outcomes

4.2.1 Alcohol use as greater than 50% reduction in number of standard drinks consumed per day over the last 30 days

One study, 177 participants (Nyamathi 2010), RR 0.92 (95% CI 0.68 to 1.26); the difference was not statistically significant, see Analysis 4.1.

4.2.2 Alcohol abstinence as abstinence from alcohol over the last 30 days

One study, 177 participants (Nyamathi 2010), RR 0.97 (95% CI 0.56 to 1.67); the difference was not statistically significant, see Analysis 4.1.
See 'Summary of findings 4' for this comparison.

5. BMIversus assessment-only

Continuous outcomes

5.1.1 Alcohol use as number of days in the past 30 days with alcohol use at one month

One study, 187 participants (Stein 2002a), MD -0.30 (95% CI -3.38 to 2.78); the difference was not statistically significant, see Analysis 5.1.

5.1.2 Alcohol use as number of days in the past 30 days with alcohol use at six months

One study, 187 participants (Stein 2002a), MD -1.50 (95% CI -4.56 to 1.56); the difference was not statistically significant, see Analysis 5.1.

Dichotomous outcomes

5.2.1 Alcohol use as 25% reduction of drinking days in the past 30 days

One study, 187 participants (Stein 2002a), RR 1.23 (95% CI 0.96 to 1.57); the difference was not statistically significant, see Analysis 5.2.

5.2.2 Alcohol use as 50% reduction of drinking days in the past 30 days

One study, 187 participants (Stein 2002a), RR 1.27 (95% CI 0.96 to 1.68); the difference was not statistically significant, see Analysis 5.2.

5.2.3 Alcohol use as 75% reduction of drinking days in the past 30 days

One study, 187 participants (Stein 2002a), RR 1.21 (95% CI 0.84 to 1.75); the difference was not statistically significant, see Analysis 5.2.

5.2.4 Alcohol use as one or more drinking days' reduction in the past 30 days

One study, 187 participants (Stein 2002a), RR 1.12 (95% CI 0.91 to 1.38); the difference was not statistically significant, see Analysis 5.2.

5.2.5 Alcohol use as seven or more drinking days' reduction in the past 30 days

One study, 187 participants (Stein 2002a), RR 1.67 (95% CI 1.08 to 2.60); the difference was statistically significant in favour of BI (P value = 0.02), see Analysis 5.2.
See 'Summary of findings' table 5 for this comparison

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ADDITIONAL SUMMARY OF FINDINGS *[Explanation]*

Population: participants with alcohol use in concurrent problem alcohol and illicit drug users
Settings:
Intervention: BI versus treatment as usual

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Control	BI versus treatment as usual				
Number of standard drinks per week unreported Follow up: 3 months	The mean number of standard drinks per week in the control groups was **16.3 standard drinks**	The mean number of standard drinks per week in the intervention groups was **0.7 higher** (3.85 lower to 5.25 higher)	-	110 (1 study)	⊕⊕◯◯ **low**[1,2]	-
Number of standard drinks per week unreported Follow up: 9 months	The mean number of standard drinks per week in the control groups was **18.7 standard drinks**	The mean number of standard drinks per week in the intervention groups was **0.3 lower** (4.79 lower to 4.19 higher)	-	110 (1 study)	⊕⊕◯◯ **low**[1,2]	-
Decreased alcohol use 1st question from the Alcohol Use Disorders Identification Test: How often do you have a drink containing alcohol? Follow up: 3 months	**Study population**		**RR 1.13** (0.67 to 1.93)	110 (1 study)	⊕⊕◯◯ **low**[1,2]	-

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	314 per 1000	**355 per 1000** (210 to 605)				
	Moderate					
	314 per 1000	**355 per 1000** (210 to 606)				
Decreased alcohol use 1st question from the Alcohol Use Disorders Identification Test: How often do you have a drink containing alcohol? Follow up: 9 months	**Study population**		**RR 1.34** (0.69 to 2.58)	110 (1 study)	⊕⊕◯◯ **low**[1,2]	-
	216 per 1000	**289 per 1000** (149 to 556)				
	Moderate					
	216 per 1000	**289 per 1000** (149 to 557)				

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Allocation and assessment of outcomes weren't blinded
[2] Sparse data: only 1 study with relatively few participants included in comparison

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Population: participants with alcohol use in concurrent problem alcohol and illicit drug users
Settings: methadone outpatient clinics
Intervention: MI-G versus HHP

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Control	MI-G versus HHP				
Number of standard drinks per day counts Follow up: 6 months	The mean number of standard drinks per day in the control groups was **3.9 standard drinks**	The mean number of standard drinks per day in the intervention groups was **0.4 lower** (2.03 lower to 1.23 higher)	-	147 (1 study)	⊕⊕◯◯ **low**[1,2]	-
Over 50% less standard drinks per day Timeline follow back Follow up: 6 months	**Study population**		**RR 1.1** (0.82 to 1.48)	166 (1 study)	⊕⊕◯◯ **low**[1,2]	-
	494 per 1000	**544 per 1000** (405 to 731)				
	Moderate					
	494 per 1000	**543 per 1000** (405 to 731)				
Alcohol abstinence Timeline follow back Follow up: 6 months	**Study population**		**RR 0.88** (0.49 to 1.58)	166 (1 study)	⊕⊕◯◯ **low**[1,2]	-
	230 per 1000	**202 per 1000** (113 to 363)				
	Moderate					

	230 per 1000	**202 per 1000** (113 to 363)		

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Masking: open label. Allocation and assessment of outcomes weren't blinded
[2] Sparse data: only 1 study with relatively few participants included in comparison

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Population: participants with alcohol use in concurrent problem alcohol and illicit drug users
Settings:
Intervention: MI-S versus HHP

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	**Corresponding risk**				
	Control	**MI-S versus hepatitis HHP**				
Number of standard drinks consumed per day counts Follow up: 6 months	The mean number of standard drinks consumed per day in the control groups was **3.9 standard drinks**	The mean number of standard drinks consumed per day in the intervention groups was **0.1 lower** (1.89 lower to 1.69 higher)	-	155 (1 study)	⊕⊕◯◯ **low**[1,2]	-
Over 50% less standard drinks per day Timeline follow back Follow up: 6 months	**Study population**		**RR 0.92** (0.68 to 1.26)	177 (1 study)	⊕⊕◯◯ **low**[1,2]	-
	494 per 1000	**455 per 1000** (336 to 623)				
	Moderate					
	494 per 1000	**454 per 1000** (336 to 622)				
Alcohol abstinence Timeline follow back Follow-up: 6 months	**Study population**		**RR 0.97** (0.56 to 1.67)	177 (1 study)	⊕⊕◯◯ **low**[1,2]	-
	230 per 1000	**223 per 1000** (129 to 384)				
	Moderate					

	230 per 1000	**223 per 1000** (129 to 384)	

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Masking: open label. Allocation and assessment of outcomes weren't blinded
[2] Sparse data: only 1 study with relatively few participants included in comparison

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Population: participants with alcohol use in concurrent problem alcohol and illicit drug users
Settings: addiction clinic
Intervention: BMI versus assessment-only

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	**Corresponding risk**				
	Control	**BMI) versus assessment-only**				
Number of days with alcohol use at 6 months Timeline follow back. Scale from: 0 to 31. Follow up: 6 months	The mean number of days with alcohol use at 6 months in the control groups was **9.1 days**	The mean number of days with alcohol use at 6 months in the intervention groups was **1.5 lower** (4.56 lower to 1.56 higher)	-	187 (1 study)	⊕⊕⊕◯ **moderate**[1]	-
25% reduction of drinking days in the past 30 days Timeline follow back Follow up: 6 months	**Study population**		**RR 1.23** (0.96 to 1.57)	187 (1 study)	⊕⊕⊕◯ **moderate**[1]	-
	522 per 1000	**642 per 1000** (501 to 819)				
	Moderate					
	522 per 1000	**642 per 1000** (501 to 820)				
50% reduction of drinking days in the past 30 days Timeline follow back Follow up: 6 months	**Study population**		**RR 1.27** (0.96 to 1.68)	187 (1 study)	⊕⊕⊕◯ **moderate**[1]	-

	457 per 1000	**580 per 1000** (438 to 767)				
	Moderate					
	457 per 1000	**580 per 1000** (439 to 768)				
Seven or more drinking days' reduction in the past 30 days Timeline follow back Follow up: 6 months	**Study population**		**RR 1.67** (1.08 to 2.6)	187 (1 study)	⊕⊕⊕○ **moderate**[1]	-
	239 per 1000	**399 per 1000** (258 to 622)				
	Moderate					
	239 per 1000	**399 per 1000** (258 to 621)				

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Sparse data: only 1 study with relatively few participants included in comparison

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DISCUSSION

Summary of main results

We included four studies involving 594 participants in this review. The studies assessed the effectiveness of six psychosocial interventions: CBT, TSF, BI, HHP, MI and BMI. In the 2014 update of this review, we retrieved only one potentially eligible record (Feldman 2013), which was a 2013 correction of a paper included in our original Cochrane review (Klimas 2012a).

We identified significant clinical and reporting heterogeneity among the included studies, which precluded meta-analysis. We therefore analysed outcomes from individual studies only. Comparing different psychosocial interventions, we found only one study investigating each comparison. Most of the comparisons did not produce statistically significant findings, with the exception that participants receiving BMI were significantly more likely to reduce their alcohol use by seven or more days in the past 30 days at six months' follow up compared with participants receiving assessment-only(RR 1.67; 95% CI 1.08 to 2.60; P value = 0.02).

Overall completeness and applicability of evidence

The studies identified are insufficient to address all the objectives of this review. All included studies were conducted either in the USA or Switzerland, which limits their applicability to other contexts. A substantial proportion of participants in the included studies had significant problems with alcohol (e.g. a diagnosis of abuse or dependence), which may have impacted on the effectiveness of the short-term therapies offered to them. These people may require more intensive interventions, as BIs have been shown to be effective among people with less severe alcohol problems (Raistrick 2006). Only one study examined a longer type of intervention (i.e. 16 sessions); however, it included only 41 participants and reported their outcomes in a way that precluded comparison with other studies (Carroll 1998).

How do the results of this review fit into the context of current practice? This review selected a very narrow clinical question that was limited to a very specific population. Although the size of this population is not negligible, it is highly unlikely that all of the individuals in a treatment service in a real-life setting will have both of the conditions selected as the eligibility criteria for this review. These stringent eligibility criteria strengthened the internal validity of the review; however, with an inevitable detriment to its external validity. A typical clinician in an actual treatment clinic would normally deal with a mixture of problem drug users who may or may not have other concurrent conditions or comorbidities. To manage this demanding workload, they may want to consider other studies, which did not meet the eligibility criteria of our review (see the 'Characteristics of excluded studies' table).

Quality of the evidence

Key methodological limitations

Overall, we found only low-quality evidence for the comparisons reported in this review. The methodological quality of studies included in the review was variable.

Half of the studies failed to describe the random sequence generation and allocation concealment satisfactorily, and we judged one trial to have a high risk of allocation concealment bias. We considered two studies to have a low risk of bias for sequence generation. None of the studies were double blind owing to the type of intervention assessed (psychosocial). With regard to the risk of bias related to incomplete outcome data, end-of-study outcomes were assessed in one trial only, and this we judged to be at high risk of bias. We judged three studies to be at low risk of bias relating to incomplete outcome data at follow up, and we judged one study to be at unclear risk of bias.

With regard to the risk of bias at an outcome level, we could not assess the objective outcomes (alcohol/drug use measured by breathalysers or urinalysis) because they were used only as an additional measure to check the accuracy of self-reported alcohol/drug use in two studies; hence, these scores were not reported in the primary studies. Two studies did not use objective measures of outcomes at all. For subjective outcomes (alcohol/drug use measured by self-reports), we judged two studies to be at unclear or high risk of detection bias. We did not perform sensitivity analyses, including or excluding studies at high risk of bias, owing to the small number of studies identified. Similarly, we were unable to pool the data for illicit drug use outcomes or any other of the anticipated secondary outcomes (e.g. physical or psychological health).

Indirectness of evidence

We did not include studies providing indirect evidence about our research question in this review, for example trials that included illicit drug users with and without a concurrent problem alcohol use. We did not identify other sources of indirectness, for example interventions, outcomes or comparators.

Inconsistency of results

We identified only small unexplained heterogeneity or inconsistency in the results. Most studies did not find significant, or found only a small, differences in effectiveness between the compared interventions on their primary outcomes.

Potential biases in the review process

There is a small chance that we missed some trials during the identification of relevant studies. We did not limit our searches to studies published in English; however, studies in non-English

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languages may have been missed because they are commonly less indexed in the selected databases. We may also have missed unpublished studies. Unpublished studies are likely to have negative results, which is why they are not published. None of the authors who were contacted for information about unpublished or ongoing trials provided any information. Owing to the small number of included studies, we did not construct a funnel plot to assess publication bias. The major limitation of the review process was that most trials did not provide enough published data, or data in a form that could be extracted for meta-analysis. Although we emailed authors from all four studies, only two responded and provided further data. Furthermore, we could not include a number of potentially relevant studies, because they involved drug users without problem alcohol use in their samples.

Agreements and disagreements with other studies or reviews

Comparison of the findings of our review with those of other studies or reviews is complicated by the fact that we did not perform any meta-analyses and therefore have no aggregated results that would allow this type of comparison. As described in the background section, two narrative literature reviews have to date dealt with our research question (Arias 2008; Bickel 1987). Similarly to our work, these reviews were unable to identify evidence to answer our question or to conduct a meta-analysis. Subsequently, they based their conclusions on evidence from a mixed type of studies (e.g. case studies, RCTs) or studies that included illicit drug users without a concurrent problem alcohol use. We excluded this type of study in our review (see 'Characteristics of excluded studies'). However, the review by Arias 2008 discussed 14 reports/studies about the treatment of co-occurring alcohol and cocaine/opioid dependence, two of which were included in our review.

This review is unintentionally tapping into a sensitive controversy regarding the requirement of providing ancillary counselling services to individuals in opioid substitution treatments. The questions are: do additional services provided to individuals receiving MMT improve their outcomes? Does adding any psychosocial support to standard maintenance treatments yield additional benefits?

There are a number of ways to answer these questions. Previous studies (Amato 2011a; Gossop 2006; McLellan 1993; Schwartz 2012) have answered these questions by providing evidence of the effectiveness of psychosocial interventions in general/mixed conditions/outcomes, in studies in mixed populations with or without concurrent alcohol problems, or involving mixed types of interventions (i.e. pharmacological plus psychosocial). In this review, however, we focused on a single type of intervention and a 'pure' population in which all participants had both alcohol and drug problems. This may be one of the reasons why our review found such a small number of studies. Nevertheless, our findings support the weakness of the evidence base to answer this important question, as reported in a previous Cochrane review (Amato 2011a).

Another important question is: what constitutes standard maintenance/outpatient treatment? It appears that all standard treatments contain some type of psychosocial support, which varies considerably, and this makes it difficult to evaluate the added value of additional services. This was apparent in studies included in our review.

AUTHORS' CONCLUSIONS

Implications for practice

Based on the low-quality evidence identified in this review, we cannot recommend using or ceasing psychosocial interventions for problem alcohol use in illicit drug users. In addition, no reliable conclusions can be drawn from these data regarding the effectiveness of different types of psychosocial interventions for the target condition.

Similarly to other conditions, problem alcohol use has better prospects for successful treatment if approached early. Evidence from the general population suggests that we need to focus on early*detection and* intervention as well as trying to influence more established alcohol patterns of use. Early interventions are not implemented in routine care, especially in settings where there is a potential for impact owing to high exposure, such as primary health care. Notwithstanding the clear benefit and feasibility of such early interventions (Kaner 2007), systematic reviews of the literature show that their integration into primary care is variable (2% to 93%) (e.g. Anderson 2004; Williams 2011), and a similar variation has been documented in state-level approaches to addressing problem alcohol use in opioid treatment programmes (Harris 2010). In addition, challenges to the successful integration of alcohol-related interventions for problem drug users into general medical care have been reported (Klimas 2012b). Educational interventions may help (Klimas 2014).

Given the high rates of co-occurrence of alcohol and drug problems, the integration of alcohol- and drug-

orientated interventions appears a logical action; however, in the light of the findings of this review such an approach remains without an evidence base.

Implications for research

This review emphasises the need for RCTs to test the effectiveness of psychosocial interventions in reducing problem alcohol use in illicit drug users. We recommend trials of robust methodology that are well reported to allow for critical appraisal. For researchers planning an RCT in this area, we recommend that they design their

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study as follows (according to the EPICOT format for research recommendations on the effects of treatments; Brown 2006).

- **E** Evidence (what is the current state of the evidence?): the current evidence is limited to four RCTs conducted in an outpatient/community setting, two of them with an accompanying opioid substitution treatment. More RCTs are needed

- **P** Population (what is the population of interest?): adults, including younger adults, who are identified as problem drug users with a concurrent and confirmed problem alcohol use; people in or out of formal addiction treatment

- **I** Intervention (what are the interventions of interest?): psychosocial interventions (e.g. MI, CBT, contingency management, family therapy, BI, etc.)

- **C** Comparison (what are the comparisons of interest?): treatment as usual, no intervention, waiting list, other psychosocial interventions; pharmacological treatments (alone, or in combination with psychosocial treatments); interventions of different type, length and intensity

- **O** Outcome (what are the outcomes of interest?): reduction in/abstinence from alcohol or drug use, or from both. In order to be able to combine the outcomes of future trials with our current data, outcome measures of future trials should include formal validated instruments, for example the AUDIT questionnaire. Objective measures of these outcomes should be used in conjunction with self-reports wherever possible (for example, breathalysers, urinalysis)

- **T** Time stamp (date of literature search): 22 November 2011, update June 2014

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* *Indicates the major publication for the study*

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CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

Carroll 1998

Methods	Study design: RCT, single blind. Recruitment modality of participants: individuals seeking treatment at the outpatient treatment unit of the APT Foundation, or respondents to newspaper advertisements or public service announcements
Participants	Number of participants: 122 (41 in 2 arms selected for this review) Gender: 27% female. Age: mean age 30.8 years (SD 5.5 years). Condition: "All subjects met current DSM-III-R criteria for cocaine dependence, and for concurrent alcohol dependence (85%) or alcohol abuse (15%)" Other relevant information: TSF arm: Baseline substance use: • mean weekly cocaine use 5.4 ± 8.6; • days cocaine use/past 30 12.7 ± 8.0; • cocaine use g/week/past 30 days 4.6 ± 6.6; • mean drinks per drinking day/past 30 days 10.2 ± 5.7; • days of alcohol use/past 30 days 12.3 ± 8.0; • years of cocaine use - lifetime 7.5 ± 3.9; • years of alcohol misuse - lifetime 7.1 ± 6.3; • life-time psychiatric disorders: any affective disorder 24%, any anxiety disorder 24%, ASP 42%, any non-ASP 35%; • ASI composite scores: medical 0.15 ± 0.26, employment 0.71 ± 0.28, legal 0.09 ± 0.18, family/social 0.21 ± 0.15, psychological 0.26 ± 0.17, alcohol 0.30 ± 0.19, cocaine 0.58 ± 0.24, other drugs 0.06 ± 0.06; • race: white 40%, African-American 56%, Hispanic 0%, other 4%; • married/cohabiting 42%; • unemployed 76%; • education: less than high school 40%; • primary route of administration: nasal 20%, smoking 72%, intravenous 8%; • previous treatment: alcohol 36%, drugs 72%. CBT arm: Baseline substance use: • mean weekly cocaine use (mean ± SD) 5.6 ± 6.2; • days cocaine use/past 30 days; 15.6 ± 6.5; • cocaine use g/week/past 30 days 5.0 ± 5.1; • mean drinks per drinking day/past 30 days 10.6 ± 8.0; • days of alcohol use/past 30 days 18.5 ± 7.6; • years of cocaine use - lifetime 5.8 ± 3.1; • years of alcohol misuse - lifetime 7.3 ± 6.4; • life-time psychiatric disorders: any affective disorder 33%, any anxiety disorder 6%, ASP 46%, any non-ASP 50%; • ASI composite scores: medical 0.19 ± 0.29, employment 0.67 ± 0.32, legal 0.09 ±

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	0.17, family/social 0.12 ± 0.15, psychological 0.16 ± 0.19, alcohol 0.40 ± 0.20, cocaine 0.58 ± 0.18, other drugs 0.07 ± 0.05; • race: white 32%, African-American 63%, Hispanic 1%, other 0%; • married/cohabiting 32%; • unemployed 53%; • education: less than high school 32%; • primary route of administration: nasal 11%, smoking 84%, intravenous 5%; • previous treatment: alcohol 32%, drugs 58%.
Interventions	Description of the experimental and control interventions The trial included 5 treatment arms: CBT plus disulphiram; TSF plus disulphiram; CM plus disulphiram; CBT plus no medication; TSF plus no medication. We considered only the latter 2 psychosocial therapy arms. CBT was based on Marlatt's relapse prevention model and TSF was adapted from that used in Project MATCH and was grounded in the concept of substance dependence as a spiritual and medical disease Route of delivery: treatments were manual-guided; 4 doctoral-level psychologists conducted CBT; 2 masters-level clinicians conducted TSF Number of participants allocated to each group: 25 in CBT plus no medication; 19 in TSF plus no medication Duration of the intervention: 12 weeks, 16 individual sessions Duration of follow up: 12 weekly assessments within-treatment, and at 1, 3, 6, 12 months Country of origin, setting: a non-profit substance abuse treatment centre (APT Foundation) affiliated with Yale University in New Haven, Connecticut, USA
Outcomes	1.1.1 Alcohol abstinence as maximum number of weeks of consecutive alcohol abstinence during treatment 1.1.2 Illicit drug abstinence as maximum number of weeks of consecutive abstinence from cocaine during treatment 1.2.1 Alcohol abstinence as number achieving 3 or more weeks of consecutive alcohol abstinence during treatment 1.2.2 Illicit drug abstinence as number achieving 3 or more weeks of consecutive abstinence from cocaine during treatment 1.2.3 Alcohol abstinence during follow-up year 1.2.4 Illicit drug abstinence as abstinence from cocaine during follow-up year
Notes	All sessions were recorded and checked and rated for accuracy and fidelity of the intervention "Subjects also met weekly with an independent clinical evaluator who collected urine specimens, assessed cocaine and alcohol use and monitored other clinical symptoms" "Patients were paid $25 for each follow-up interview, with a $10 increase for each consecutive interview they attended, to encourage more complete data collection. In addition, patients were paid a $5 bonus for attending an interview within 28 days of the target interview date" • Only 39 subjects completed the full 12-week treatment (compliant treatment completers) • Participants in the pharmacological arms stayed longer in treatment (participants were not blind to their intervention) • The specific type of self-report questionnaires was not reported in the primary paper (1998), only in the follow-up paper

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Carroll 1998 (*Continued*)

	• Results are reported as number of weeks of continuous abstinence • The follow-up report (2000) does not provide any endpoint scores (only results of the random-effects regression model) • Use of cocaine and alcohol were strongly associated with each other during treatment, particularly for the subjects assigned to disulphiram

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Not enough information provided; e.g. "Of the 122 randomised subjects, 117 initiated the treatment"
Allocation concealment (selection bias)	Unclear risk	Not stated.
Blinding of outcome assessment (detection bias) Objective outcomes	Unclear risk	Not available. Objective measures used rather as an accuracy check than an outcome (urine specimens and breathalyser tests conducted by a blinded evaluator)
Blinding of outcome assessment (detection bias) Subjective outcomes	Low risk	Within-study assessments: "independent clinical evaluator who collected urine specimens, assessed cocaine and alcohol use; the evaluator saw patients in an office physically separated from the therapy offices and instructed patients not to disclose detail of their therapist or treatment". Follow-up assessments (2000 paper): "Patients were assessed at face-to-face follow-up interviews conducted 1, 3, 6 and 12 months after the 12-week termination point by an independent clinical evaluator who was blind to both psychotherapy and pharmacotherapy condition"
Incomplete outcome data (attrition bias) End of Study outcomes	High risk	Within-treatment assessments (1998): "Assignment to disulphiram was associated with significantly better retention in treatment" The psychotherapy groups had significantly lower retention rates than the medication groups: "subjects assigned to disulphiram treatment were retained significantly longer than those assigned to no medication (8.4 versus 5.8 weeks. F= 8.7, p< 0.05)"

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		Retention rates: • CBT/disulphiram group (mean 8.8 weeks); • CM/disulphiram (8.4 weeks); • TSF/disulphiram (8.0); • CBT/no medication (6.3); • TSF/no medication (5.3). "However, such analyses, ..., are confounded by differences among the treatments in retention" Only 30% completed treatment, however: "Subjects who remained in treatment the full 12 weeks/16 sessions (n=39) did not differ from those who did not start treatment or dropped out (n=83) in terms of gender, race, employment status, route of administration, presence of lifetime affective, anxiety or antisocial personality disorder, but those who met criteria for a nonASP Axis II disorder, were significantly more likely to complete treatment than these who did not (48.1% versus 23.1%)" Comments: 1) baseline characteristics provided for the ITT sample (n = 122); but 2) rates of consecutive abstinence provided for the exposed sample (n = 117); 3) it is not known whether missing outcome data were balanced in numbers across intervention groups, because group breakdowns for drop-outs are not provided; 4) psychotherapy groups (CBT, TSF) differed significantly at baseline: for frequency of alcohol use; and medication groups had lower baseline cocaine use
Incomplete outcome data (attrition bias) Follow up	High risk	All groups had a comparable number of follow-up data points. However, number of drop-outs was not reported for each group separately "It is possible that poorer-functioning subjects who dropped out of treatment early were under-represented in the follow-up data, inflating outcomes in all groups" "Participants who completed more sessions had better outcomes during follow-up" • Subjects with higher age of onset of drug use had more follow-up data • Subjects with non-ASP Axis II

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Carroll 1998 (*Continued*)

		disorders had more follow-up data • No significant differences between those followed up and those not followed up Percentage of treatment days abstinent from cocaine, percentage of treatment days abstinent from alcohol, percentage of cocaine-negative urine screens, medication compliance during treatment Number of drop-outs and reasons: Number randomised: 122 (25 TSF, 19 CBT); Number initiated: 117 (23 TSF, 18 CBT) - no other reason provided; Number removed from the trial: 8 (1 did not comply with medication, 1 medication side effects. 4 clinical deterioration, 2 administrative discharge); Number drop-outs: 70 (no group breakdowns - no other reasons); Number completed treatment: 39; Number followed up at least once: 96, i.e.: • 1 month: 68; • 3 months: 67; • 6 months: 63; • 12 months: 72.

Feldman 2013

Methods	Study design: RCT. Recruitment modality of participants: for 1 year, participation in the study was proposed systematically to each adult outpatient who was treated for opioid or cocaine dependence
Participants	Number of participants: 110. Gender: 72.3% male. Age (mean ± SD): 35 ± 7.8 years. Condition: problem alcohol use based on questions from the AUDIT questionnaire, i.e. excessive drinking (7 ≤ AUDIT score < 13 for men and 6 ≤ AUDIT score < 13 for women); and alcohol dependence (score > 13); 43.8% were classified as excessive drinkers and 56.2% as alcohol dependents Other relevant information: opiate dependence treatment with methadone substitution (56.2%) or diacetyl morphine (heroin treatment; 12%); no opioid substitution and treatment for opiate or cocaine dependence (31.7%). Most participants with cocaine dependence or with opiate dependence also had tobacco or cannabis dependence. Most participants had 1 or more concomitant psychiatric disorders (mood disorder, 35.6%; personality disorder, 34%; anxiety disorders, 14.7%; psychotic disorders, 9.4%). "Diagnoses were established according to the criteria of the ICD-10) by a resident and a senior psychiatrist"

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Interventions	Description of the experimental and control interventions: the intervention group was BI and the control group was TAU (1) BI: BI was delivered in 1 session, based on WHO guidelines, delivered by a trained staff (4 hours' training). The intervention group received the same TAU as controls. The outpatient staff consisted of a psychiatrist, general practitioner, psychologist, nurse, and social worker (2) TAU: "The control group received TAU in addition to AUDIT and score feedback. TAU refers to outpatient pharmacological and psychosocial treatment. Maintenance treatment with methadone or heroin included medical and psychiatric follow-up, primary health care, psychosocial interventions, and administration of opiate treatments in a clinical setting. Psychosocial treatment included medical and psychiatric follow-up, primary health care, psychosocial interventions, and, if necessary, administration of pharmacotherapy in a clinical setting" Number of participants allocated to each group: 60 in BI, 52 in TAU Duration of the intervention (mean ± SD): 16 ± 4.7 minutes. Duration of follow up: 3 and 9 months. Country of origin, setting: specialised outpatient clinic in the Division of Substance Abuse of the University Hospitals of Geneva, Switzerland
Outcomes	2.1.1 Alcohol use as AUDIT scores at 3 months 2.1.2 Alcohol use as AUDIT scores at 9 months 2.1.3 Alcohol use as number of drinks per week at 3 months (number of glasses of alcohol per week, 1 glass: 10 g of alcohol; wine = 100 mL; beer = 250 mL; spirits = 25 mL) 2.1.4 Alcohol use as number of drinks per week at 9 months 2.2.1 Alcohol use as decreased alcohol use at 3 months 2.2.2 Alcohol use as decreased alcohol use at 9 months 2.2.3 and 2.2.4 Increased or unchanged alcohol use at 3 and 9 months (i.e. reverse of the above)
Notes	The participants in both groups were already in treatment for opioid or cocaine dependence before study inclusion. Participants allocated to BI received this intervention 2 or 3 weeks after AUDIT screening The WHO Manual recommends the referral of individuals with alcohol dependence to specialist treatment without providing BI All screened participants received feedback that explained the meaning of their AUDIT score Almost 40% of the sample was lost to follow up.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Quote: "The randomisation scheme was drawn by a statistician, who used the Web site [http://www.randomizer.org/]. A random permuted block method was used, with blocks of 4 patients"

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Allocation concealment (selection bias)	Low risk	Quote: "The sequence was concealed from all investigators with numbered opaque sealed envelopes prepared by the statistician and handed over to the physician in charge of the study"
Blinding of outcome assessment (detection bias) Objective outcomes	Unclear risk	Not available, objective measures not used.
Blinding of outcome assessment (detection bias) Subjective outcomes	High risk	Not stated. Unpublished information: "There is no blinding assessment".
Incomplete outcome data (attrition bias) End of Study outcomes	Unclear risk	Not available. The study did not assess outcomes at the time of the study end
Incomplete outcome data (attrition bias) Follow up	Low risk	Modified ITT analysis (multiple imputation, random assumption). At T0 - 1 person not included in analysis because of data-entry errors, both in both control and intervention group Number of drop-outs and reasons: "Of the BI group, 59.3% completed the last observation and of the control group, 58.8% completed it" • Intervention (T0 = 51, T3 = 29, T9 = 30); • Control (T0 = 59, T3 = 30, T9 = 35) . No reasons provided for drop-outs, but regression showed no differences: "Logistic regressions showed that the - Type of drinker - and - Treatment group - did not explain the missingness of data". "Hence, these variables displayed no particular pattern, meaning that the data for excessive drinkers and for alcohol-dependent patients, as well as for the control group and the intervention group, were equally likely to be missing" Comment: dichotomous outcomes: 40% of participants dropped out, but the observed event risk was 10% to 20% (control) , and 60% to 80% (intervention)

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Nyamathi 2010

Methods	Study design: RCT open label, 3 arms. Recruitment modality of participants: flyers displayed in 5 methadone treatment sites
Participants	Number of participants: 256. Gender: 59.2% male. Age (mean ± SD): 51.2 ± 8.4 years. Condition: reported moderate-to-heavy alcohol use based on questions from the ASI. Methadone maintenance treatment was an inclusion criterion (minimum 3 months) Other relevant information: fair/poor health: 60.4%. Depressive symptoms: 80.8%. Poor emotional well-being: 67.5%. Ethnicity: African-American: 45.1%; white: 18.8, Latino: 26.7, Other: 9.4. Education: high school graduate 58%. Partnered: 54.3%. Employed: 17.3%. Recent alcohol use at baseline (Mean number standard drinks last 30 days): 0-40: 25.1; 41-89: 24.7; 90-180: 26.7; 180+: 23.5. Marijuana use in past 30 days: 16%. IDU in past 30 days: 40%. Smoke > 1 pack/day: 56.1%. Self-help programme in past 30 days: 21.2%. Social support: primarily from drug users 12.6%; primarily non-drug users 48.6%, both: 34.9%
Interventions	Description of the experimental and control interventions: (1) nurse-led HHP group sessions; (2) MI delivered in group sessions (MI-group), and (3) MI delivered in 1-on-1 sessions (MI-single) (1) HHP: didactic style, also interactive as the group raised questions. Delivered by a nurse and hepatitis-trained research assistant. Sessions based on "The comprehensive health seeking and coping paradigm (CHSCP; Nyamathi 1989), originally adapted from Lazarus and Folkman's (1984) stress and coping paradigm and Schlotfeldt's (1981) health seeking paradigm". Staff trained on the integration of the CHSCP into their education delivery Focus: progression of HCV infection and the culturally sensitive strategies that infected individuals can adopt to prevent or reduce accumulated damage to liver functioning. Strategies included: discussing the dangers of alcohol use on hepatitis (cognitive factors) , discussing ways to avoid alcohol and other drugs, eating a balanced diet, dangers of reinfection of HCV by IDU, receiving unsafe tattoos and piercing, having unprotected sexual behaviour, and being consistent in engaging in other health-related behaviours. Additional health promoting activities: enhancing coping, such as seeking positive social support, getting support from religion and building self-esteem in individuals with a history of drug and alcohol addiction. The HHP was directed by a detailed protocol (2) MI-group: focus: alcohol, risky behaviours, MI spirit; by trained MI specialists, i.e. a PhD-prepared psychologist conducted primarily the MI-group sessions. Content of the individual and group sessions was identical, guided by a detailed protocol and biweekly meetings with the investigator and therapists. The average number of participants was 6 (range 5 to 7) (3) MI-single: focus: alcohol, risky behaviours, MI spirit; a MSW-prepared researcher

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	conducted primarily the individual MI sessions Number of participants allocated to each group: HHP: N = 87; MI group: N = 79; MI single: N = 90 Duration of the intervention: 3 x 60-minute sessions, spaced 2 weeks apart Duration of follow-up: 6 months. Country of origin, setting: 5 methadone treatment sites in Los Angeles and Santa Monica, USA
Outcomes	3.1.1 Alcohol use (unpublished) as number of standard drinks consumed per day over the last 30 days 3.1.2 Illicit drug use (unpublished) as frequency of drug use (as measured by ASI drug) 3.1.3 Illicit drug use (unpublished) as a composite drug score (frequency*severity for all drugs taken) 3.2.1 Alcohol use as > 50% reduction in number of standard drinks consumed per day over the last 30 days 3.2.2 Alcohol abstinence as abstinence from alcohol over the last 30 days Outcomes 4.1.1 to 4.2.2 refer to the individual (single) format of MI
Notes	6 participants reported no alcohol use at baseline. A total of 86.7% of participants completed all 3 sessions and 91.3% completed the 6-month follow up The sessions were open; i.e. participants who had not completed their 3 sessions with their original cohort could complete with a later cohort The original protocol describes HHP as a control intervention (UCG) Means (SD) of outcomes measures (ASI, TLFB) are not provided for any of the outcomes; baseline scores are also not provided

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Quote: "This study was a randomised controlled trial" Unpublished information: "As participants were enrolled, they were systematically assigned to each of the three arms. In terms of randomisation, we used random assignment using a random number table"
Allocation concealment (selection bias)	High risk	Masking: open label. Source of information: published protocol of the trial.
Blinding of outcome assessment (detection bias) Objective outcomes	Unclear risk	Not available, objective measures not used.

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Blinding of outcome assessment (detection bias) Subjective outcomes	High risk	Masking: open label. Source of information: published protocol of the trial.
Incomplete outcome data (attrition bias) End of Study outcomes	Unclear risk	Not available. The study did not assess outcomes at the time of the study end
Incomplete outcome data (attrition bias) Follow up	Low risk	Comment: All analyses were ITT; however, it is not stated which method of data imputation was used for ITT analysis. Missing data balanced across groups. Comparability of all 3 arms assessed at baseline. Number of drop-outs and reasons: • MI-S (90), 86% completed all sessions, 9% lost to follow up; • MI-G (79), 85% completed all sessions, 10% lost to follow up; • HHP (87), 89% completed all sessions, 7% lost to follow up. Unpublished information: "The 6 reported abstainers were distributed as follows: 2 in MI-Single, 3 in MI-Group and 1 in HHP. No one was excluded from the final regression model based on ethnicity. The statement was erroneously carried over from preliminary modelling. However, since ethnicity was not important in that modelling, it was not included in the final model and there was no need to exclude anyone based on ethnicity. The 6 abstainers were excluded from the logistic regression analysis. "A missing value for drug-using partners caused an additional case to be omitted (actually there were 248 cases in the regression model rather than 249. Two subjects had missing values for drug-using partners)"

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Stein 2002a

Methods	Study design: RCT. Recruitment modality of participants: study was advertised at 3 NEP sites using posters and NEP volunteers offered all clients referral cards. NEP clients called a study telephone to be screened by a research assistant at a separate research site in hospital. During the initial study visit, all NEP clients presented their study cards (received at NEP). Between February 1998 and October 1999
Participants	Number of participants: 187. Gender: 119 male (63.6%). Age: mean 36.2 years. Condition: problem alcohol use, i.e. AUDIT-positive (> 8) active IDUs. "Current alcohol abuse or dependence diagnosis was ascertained using the SCID interview. 159 (85.0%) met DSM-IV criteria for current alcohol abuse or dependence (80% for abuse, 70% for dependence)" Other relevant information: • mean education: 11.5 years; • ethnicity: 162 (86.6%) Caucasian; • most frequently injected drug: heroin for 141 (75.4%) subjects, cocaine for 15 (8. 0%), heroin and cocaine for 31 (16.6%); • 120 (64.1%) participants visited the NEP at least once a month; • mean AUDIT score at screening was 22.2; • 159 (85.0%) met DSM-IV criteria for current alcohol abuse or dependence (80% for abuse, 70% for dependence); • mean ± SD number of drinking days in the past 30 days prior to baseline assessment: 12.0 ± 10.3; • 71.4% of quantities on all drinking days exceeded conventional criteria defining heavy alcohol consumption (5+ drinks for men and 3+ drinks for women); • mean ± SD drinks per drinking days 7.3 ± 5.8.
Interventions	Description of the experimental and control interventions: (1) brief MI and (2) control group (1) MI: focus on alcohol use and HIV risk-taking Goals: to assess the degree to which the participant engages in hazardous drinking; to identify relationships between alcohol consumption and alcohol-related negative consequences including HIV risk behaviour; to identify goals for behaviour change and any barriers to change • Included a written change plan, designed to reduce the link between alcohol consumption and hazardous behaviours that may lead to negative consequences of drinking, including HIV risk behaviour • Interventionist trained by studying the manual and watching MI tapes from Project MATCH • Standard delivery of the MI protocol • Adherence monitoring by: an MI checklist completed by the therapist after each session and audiotapes of sessions were randomly reviewed by a supervisor trained in MI (2) Control: assessment-only, approximately 3 hours Number of participants allocated to each group: 95 in MI, 92 in control group Duration of the intervention: 2 therapist sessions, 1 month apart; 1st session: 60 minutes, 2nd session: 30 to 45 minutes

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	Duration of follow-up: 1 and 6 months. Country of origin, setting: NEP clients, study site: Rhode Island Hospital in Providence, USA
Outcomes	5.1.1 Alcohol use as number of days in the past 30 days with alcohol use at 1 month 5.1.2 Alcohol use as number of days in the past 30 days with alcohol use at 6 months 5.2.1 Alcohol use as 25% reduction of drinking days in the past 30 days 5.2.2 Alcohol use as 50% reduction of drinking days in the past 30 days 5.2.3 Alcohol use as 75% reduction of drinking days in the past 30 days 5.2.4 Alcohol use as 1 or more drinking days' reduction in the past 30 days 5.2.5 Alcohol use as 7 or more drinking days' reduction in the past 30 days Secondary outcome: number of days in the past 30 days with IRRB - defined as answer to 1 question: have you used needles etc. after someone else? (reported only for a subset of 109 participants in the 2002b paper)
Notes	Study retention: 96.8% at 6 months. Control and MI subjects received identical research assessments at baseline, 1 and 6 months: • at baseline and 1 month later, both MI and control group received a list of referrals for substance abuse and medical treatment; • participants in the control group spent approximately 3 total hours (assessment time) with research staff, "the assessment included sections on demographics, drug and alcohol use, drug and alcohol treatment, health-related quality of life, attitudes and experiences with alcohol and HIV risk behavior"; • the assessment control group also experienced meaningful reduction in alcohol use; • 6-month follow up: 11 subjects were interviewed in prison and 6 were interviewed by telephone; • total reimbursement: $90 with $20 given at baseline, $30 at the 1-month interview and $40 at the final interview; • 65 (34.8%) participants reported 4 or fewer drinking days at baseline: their maximum possible decrease in drinking days at follow-up is 4 or less (i.e. floor and ceiling effects); • change in heroin use was not associated with change in alcohol use; • the association between change in IRRB days and change in alcohol use days was not statistically significant. The paper reporting IRRB outcomes (Stein 2002b) was included in another Cochrane review (Meader 2010), therefore it was not considered for this review.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not enough information provided: "Following the baseline interview subjects were assigned to treatment conditions using a randomisation schedule created with permuted blocks of eight assignments." "After randomisation, the research interventionist

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		saw participants assigned to MI..."
Allocation concealment (selection bias)	Unclear risk	Not stated how the randomisation schedule was prepared: "This method ensured that the treatment groups were balanced in number to within four patients throughout the trial. The data manager prepared the randomisation schedule before the first patient enrolled"
Blinding of outcome assessment (detection bias) Objective outcomes	Unclear risk	Not available. Objective measures used rather as an accuracy check than an outcome: "During the initial study visit, all NEP subjects presented their study cards (received at NEP), underwent blood alcohol level testing (to ensure subjects were not inebriated, BAL < 0.04)"
Blinding of outcome assessment (detection bias) Subjective outcomes	Low risk	"At each follow-up assessment, research assistants were blinded to the treatment condition of the subject; the interventionist did not perform research assessments"
Incomplete outcome data (attrition bias) End of Study outcomes	Unclear risk	Not available. The study did not assess outcomes at the time of the study end
Incomplete outcome data (attrition bias) Follow up	Low risk	"We conducted an intent-to-treat analysis using a conservative 'worst case scenario' strategy in which observations with missing follow-up data were assigned the maximum value of 30 drinking days, a data imputation approach which tends to minimize observed reductions in mean drinking days across time To ensure that our substantive results were not sensitive to missing observations (there were no condition differences in missing data) we replicated our analyses using observations with complete data (n = 181), and using other imputation strategies (e. g. mean substitution, regression estimation and 'best case scenario'). All imputation strategies resulted in substantively consistent findings To evaluate the adequacy of random assignment, we used t- and x2-tests to compare treatment groups with respect to back-

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Stein 2002a (*Continued*)

		ground characteristics and baseline measures of drinking behaviours and alcohol problems" Number of drop-outs and reasons: There were no study withdrawals: 93 of 95 in the MI group received both MI sessions: 2 people missed their second session. 6-month follow-up data were available for 96. 8% (n = 181) of the 187 randomly assigned subjects. 3 subjects in each treatment arm were lost to follow-up at 6 months

ASI: Addiction Severity Index; ASP: antisocial personality disorder; BAL: blood alcohol level; BI: brief intervention; CBT: cognitive-behavioural coping skills training; CM: clinical management; DSM-III-R: Diagnostic and Statistical Manual of Mental Disorders, Third Edition - Revised; DSM-IV: Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition; HCV: hepatitis C virus; HIV: human immunodeficiency virus; HHP: hepatitis health promotion; ICD-10: International Classification of Diseases - Tenth Revision; IDU: injection drug use; ITT: intention to treat; IRRB: injection-related HIV risk behaviour; MI: motivational intervention; MSW: master in social work; NEP: needle exchange programme; PhD: doctor of philosophy; RCT: randomised controlled trial; SD: standard deviation; TAU: treatment as usual; TLFB: timeline follow-back; TSF: 12-step facilitation; UCG: usual care group; WHO: World Health Organization.

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Abou-Saleh 2008	Participants not in the inclusion criteria: concurrent problem alcohol and drug use not an inclusion criterion
Alessi 2007	Participants not in the inclusion criteria: concurrent problem alcohol and drug use not an inclusion criterion
Andreasson 2002	Participants not in the inclusion criteria: participants had alcohol dependence only
Azrin 1994	Participants not in the inclusion criteria: participants were not problem drug users and concurrent problem alcohol use not an inclusion criterion
Azrin 1996	Participants not in the inclusion criteria: participants were not problem drug users and concurrent problem alcohol use not an inclusion criterion
Baker 2005	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion
Baker 2006	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion
Ball 2007	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion
Bennett 2002	Study design not in the inclusion criteria: not an RCT

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(*Continued*)

Bernstein 2005	Outcome not in the inclusion criteria: alcohol use was not measured, because the intervention focused on drug use and the participants were not reported to have problem alcohol use at randomisation
Black 2011	Participants not in the inclusion criteria: concurrent problem alcohol and drug use not an inclusion criterion
Bowen 2006	Study design not in the inclusion criteria: not an RCT
Brown 2007	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion
Burling 2001	Participants not in the inclusion criteria: the MST (multi-component smoking treatment) condition had a continuous drug and alcohol abstinence rate
Chermack 2002	Study design not in the inclusion criteria: not an RCT
Cohen 1982	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion for all subjects randomised into trial. Quote: "Approximately one-third of all the active alcoholics [n=105] were assigned to each of the three study groups (1983, p864; 1982, p360)." Comment: it is highly probable that non-alcoholics were randomised into trial. Operative alcoholics (N = 105) versus all subjects randomised into trial (N = 127)
Daeppen 2010	Participants not in the inclusion criteria: concurrent problem drug use not an inclusion criterion. Only 10% to 11% participants smoked cannabis once per week
Darker 2011	Study design not in the inclusion criteria: not an RCT
Darker 2012	Study design not in the inclusion criteria: not an RCT
Drapkin 2008	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion
Drumright 2011	Study design not in the inclusion criteria: not an RCT. A secondary analysis of 2 RCTs that did not have concurrent problem alcohol use not an inclusion criterion
Forsberg 2011	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion
Gruber 2008	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion
Klimas 2013	Study design not in the inclusion criteria: not an RCT
Marsden 2006	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion
O'Farrell 2008	Participants not in the inclusion criteria: participants were eligible if they had alcohol dependence diagnosis with or without comorbid drug diagnosis
Ruger 2012	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion
Sanson-Fisher 2010	Study design not in the inclusion criteria: not an RCT

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(*Continued*)

Staiger 2009	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion. Alcohol was used only by 149 of the 166 participants in the 90 days prior to initial presentation
Van Der Hyde 1995	Participants not in the inclusion criteria: concurrent problem alcohol and drug use not an inclusion criterion
Worden 2010	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion. Additionally, 46.6% reported alcohol as their primary drug (review exclusion criterion)
Zule 2007	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion
Zule 2009	Participants not in the inclusion criteria: concurrent problem alcohol use not an inclusion criterion

RCT: randomised controlled trial.

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DATA AND ANALYSES

Comparison 1. Cognitive-behavioural coping skills training (CBT) versus 12-step facilitation (TSF)

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Continuous outcomes	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.1 Alcohol abstinence as maximum number of weeks of consecutive alcohol abstinence during treatment	1	41	Mean Difference (IV, Fixed, 95% CI)	0.40 [-1.14, 1.94]
1.2 Illicit drug abstinence as maximum number of weeks of consecutive abstinence from cocaine during treatment	1	41	Mean Difference (IV, Fixed, 95% CI)	0.8 [-0.70, 2.30]
2 Dichotomous outcomes	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 Alcohol abstinence as number achieving 3 or more weeks of consecutive alcohol abstinence during treatment	1	41	Risk Ratio (M-H, Fixed, 95% CI)	1.96 [0.43, 8.94]
2.2 Illicit drug abstinence as number achieving 3 or more weeks of consecutive abstinence from cocaine during treatment	1	41	Risk Ratio (M-H, Fixed, 95% CI)	1.10 [0.42, 2.88]
2.3 Alcohol abstinence during follow-up year	1	41	Risk Ratio (M-H, Fixed, 95% CI)	2.38 [0.10, 55.06]
2.4 Illicit drug abstinence as abstinence from cocaine during follow-up year	1	41	Risk Ratio (M-H, Fixed, 95% CI)	0.39 [0.04, 3.98]

Comparison 2. Brief intervention (BI) versus treatment as usual

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Continuous outcomes	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.1 Alcohol use as AUDIT scores at 3 months	1	110	Mean Difference (IV, Fixed, 95% CI)	0.80 [-1.80, 3.40]
1.2 Alcohol use as AUDIT Scores at 9 months	1	110	Mean Difference (IV, Fixed, 95% CI)	2.30 [-0.58, 5.18]
1.3 Alcohol use as number of drinks per week at 3 months	1	110	Mean Difference (IV, Fixed, 95% CI)	0.70 [-3.85, 5.25]
1.4 Alcohol use as number of drinks per week at 9 months	1	110	Mean Difference (IV, Fixed, 95% CI)	-0.30 [-4.79, 4.19]
2 Dichotomous outcomes	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only

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2.1 Alcohol use as decreased alcohol use at 3 months	1	110	Risk Ratio (M-H, Fixed, 95% CI)	1.13 [0.67, 1.93]
2.2 Alcohol use as decreased alcohol use at 9 months	1	110	Risk Ratio (M-H, Fixed, 95% CI)	1.34 [0.69, 2.58]

Comparison 3. Motivational interviewing (group) (MI-G) versus hepatitis health promotion (HHP)

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Continuous outcomes	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.1 Alcohol use as number of standard drinks consumed per day over the last 30 days	1	147	Mean Difference (IV, Fixed, 95% CI)	-0.40 [-2.03, 1.23]
1.2 Illicit drug use as frequency of drug use (as measured by Addiction Severity Index - ASI drug)	1	147	Mean Difference (IV, Fixed, 95% CI)	0.0 [-0.03, 0.03]
1.3 Illicit drug use as a composite drug score (frequency*severity for all drugs taken)	1	151	Mean Difference (IV, Fixed, 95% CI)	0.0 [-0.42, 0.42]
2 Dichotomous outcomes	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 Alcohol use as greater than 50% reduction in number of standard drinks consumed per day over the last 30 days	1	166	Risk Ratio (M-H, Fixed, 95% CI)	1.10 [0.82, 1.48]
2.2 Alcohol abstinence as abstinence from alcohol over the last 30 days	1	166	Risk Ratio (M-H, Fixed, 95% CI)	0.88 [0.49, 1.58]

Comparison 4. Motivational interviewing (single) (MI-S) versus hepatitis health promotion (HHP)

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Continuous outcomes	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.1 Alcohol use as number of standard drinks consumed per day over the last 30 days	1	155	Mean Difference (IV, Fixed, 95% CI)	-0.10 [-1.89, 1.69]
1.2 Illicit drug use as frequency of drug use (as measured by Addiction Severity Index - ASI drug)	1	155	Mean Difference (IV, Fixed, 95% CI)	0.0 [-0.03, 0.03]

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1.3 Illicit drug use as a composite drug score (frequency*severity for all drugs taken)	1	157	Mean Difference (IV, Fixed, 95% CI)	-0.10 [-0.46, 0.26]
2 Dichotomous outcomes	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 Alcohol use as greater than 50% reduction in number of standard drinks consumed per day over the last 30 days	1	177	Risk Ratio (M-H, Fixed, 95% CI)	0.92 [0.68, 1.26]
2.2 Alcohol abstinence as abstinence from alcohol over the last 30 days	1	177	Risk Ratio (M-H, Fixed, 95% CI)	0.97 [0.56, 1.67]

Comparison 5. Brief motivational intervention (BMI) versus assessment-only

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Continuous outcomes	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.1 Alcohol use as number of days in the past 30 days with alcohol use at 1 month	1	187	Mean Difference (IV, Fixed, 95% CI)	-0.30 [-3.38, 2.78]
1.2 Alcohol use as number of days in the past 30 days with alcohol use at 6 months	1	187	Mean Difference (IV, Fixed, 95% CI)	-1.5 [-4.56, 1.56]
2 Dichotomous outcomes	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 Alcohol use as 25% reduction of drinking days in the past 30 days	1	187	Risk Ratio (M-H, Fixed, 95% CI)	1.23 [0.96, 1.57]
2.2 Alcohol use as 50% reduction of drinking days in the past 30 days	1	187	Risk Ratio (M-H, Fixed, 95% CI)	1.27 [0.96, 1.68]
2.3 Alcohol use as 75% reduction of drinking days in the past 30 days	1	187	Risk Ratio (M-H, Fixed, 95% CI)	1.21 [0.84, 1.75]
2.4 Alcohol use as 1 or more drinking days' reduction in the past 30 days	1	187	Risk Ratio (M-H, Fixed, 95% CI)	1.12 [0.91, 1.38]
2.5 Alcohol use as 7 or more drinking days' reduction in the past 30 days	1	187	Risk Ratio (M-H, Fixed, 95% CI)	1.67 [1.08, 2.60]

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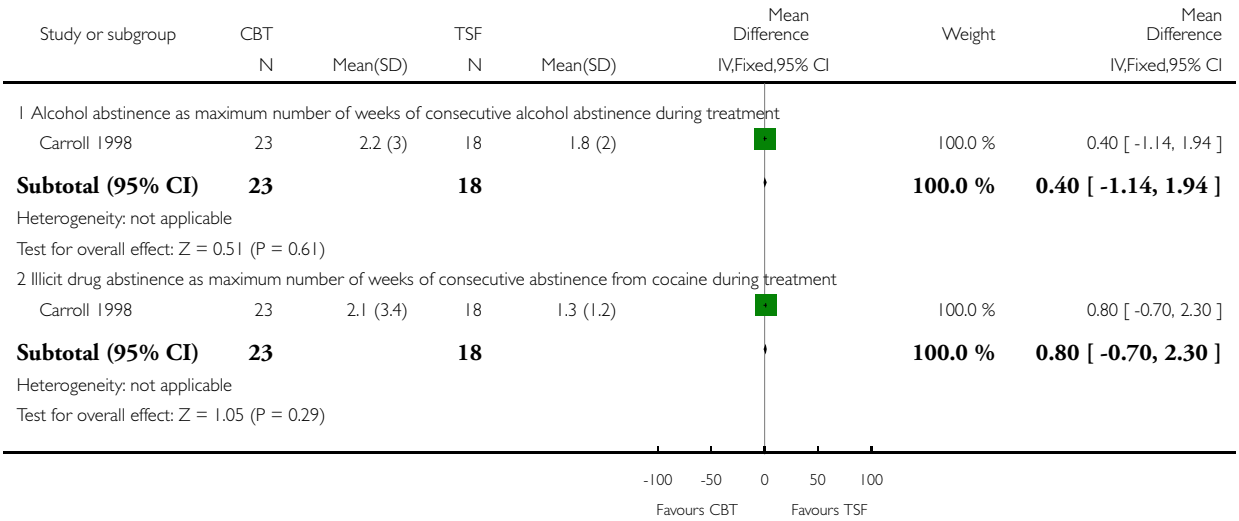
Analysis 1.1. Comparison 1 Cognitive-behavioural coping skills training (CBT) versus 12-step facilitation (TSF), Outcome 1 Continuous outcomes.

Review: Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users

Comparison: 1 Cognitive-behavioural coping skills training (CBT) versus 12-step facilitation (TSF)

Outcome: 1 Continuous outcomes

Study or subgroup	CBT N	Mean(SD)	TSF N	Mean(SD)	Mean Difference IV,Fixed,95% CI	Weight	Mean Difference IV,Fixed,95% CI
1 Alcohol abstinence as maximum number of weeks of consecutive alcohol abstinence during treatment							
Carroll 1998	23	2.2 (3)	18	1.8 (2)		100.0 %	0.40 [-1.14, 1.94]
Subtotal (95% CI)	**23**		**18**			**100.0 %**	**0.40 [-1.14, 1.94]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.51 (P = 0.61)							
2 Illicit drug abstinence as maximum number of weeks of consecutive abstinence from cocaine during treatment							
Carroll 1998	23	2.1 (3.4)	18	1.3 (1.2)		100.0 %	0.80 [-0.70, 2.30]
Subtotal (95% CI)	**23**		**18**			**100.0 %**	**0.80 [-0.70, 2.30]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.05 (P = 0.29)							



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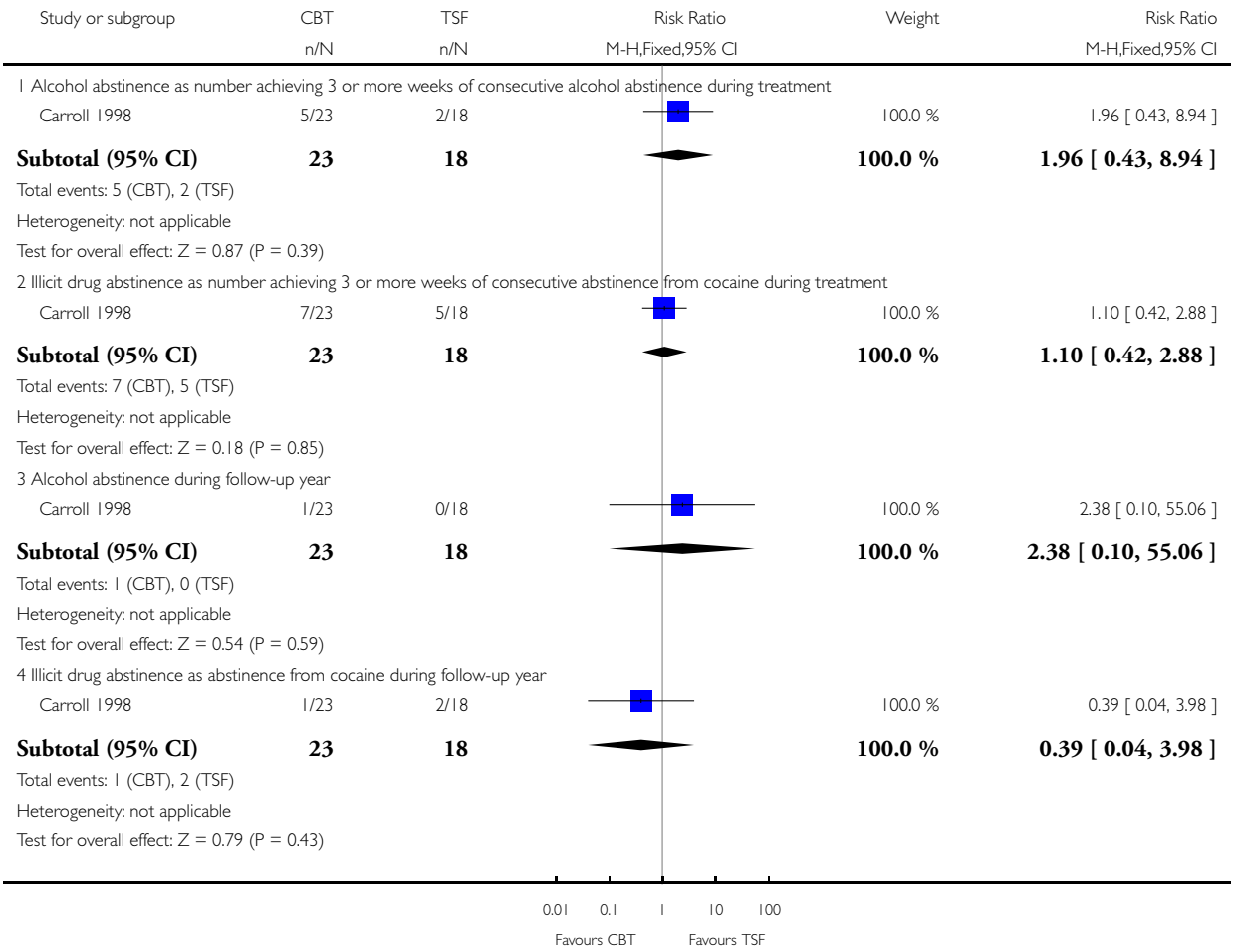
Analysis 1.2. Comparison 1 Cognitive-behavioural coping skills training (CBT) versus 12-step facilitation (TSF), Outcome 2 Dichotomous outcomes.

Review: Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users

Comparison: 1 Cognitive-behavioural coping skills training (CBT) versus 12-step facilitation (TSF)

Outcome: 2 Dichotomous outcomes



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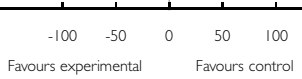
Analysis 2.1. Comparison 2 Brief intervention (BI) versus treatment as usual, Outcome 1 Continuous outcomes.

Review: Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users

Comparison: 2 Brief intervention (BI) versus treatment as usual

Outcome: 1 Continuous outcomes

Study or subgroup	BI N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Fixed,95% CI	Weight	Mean Difference IV,Fixed,95% CI
1 Alcohol use as AUDIT scores at 3 months							
Feldman 2013	59	13.2 (6.2)	51	12.4 (7.5)		100.0 %	0.80 [-1.80, 3.40]
Subtotal (95% CI)	**59**		**51**			**100.0 %**	**0.80 [-1.80, 3.40]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.60 (P = 0.55)							
2 Alcohol use as AUDIT Scores at 9 months							
Feldman 2013	59	13.9 (8.1)	51	11.6 (7.3)		100.0 %	2.30 [-0.58, 5.18]
Subtotal (95% CI)	**59**		**51**			**100.0 %**	**2.30 [-0.58, 5.18]**
Heterogeneity: not applicable							
Test for overall effect: Z = 1.57 (P = 0.12)							
3 Alcohol use as number of drinks per week at 3 months							
Feldman 2013	59	17 (11.6)	51	16.3 (12.6)		100.0 %	0.70 [-3.85, 5.25]
Subtotal (95% CI)	**59**		**51**			**100.0 %**	**0.70 [-3.85, 5.25]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.30 (P = 0.76)							
4 Alcohol use as number of drinks per week at 9 months							
Feldman 2013	59	18.4 (10.4)	51	18.7 (13.2)		100.0 %	-0.30 [-4.79, 4.19]
Subtotal (95% CI)	**59**		**51**			**100.0 %**	**-0.30 [-4.79, 4.19]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.13 (P = 0.90)							



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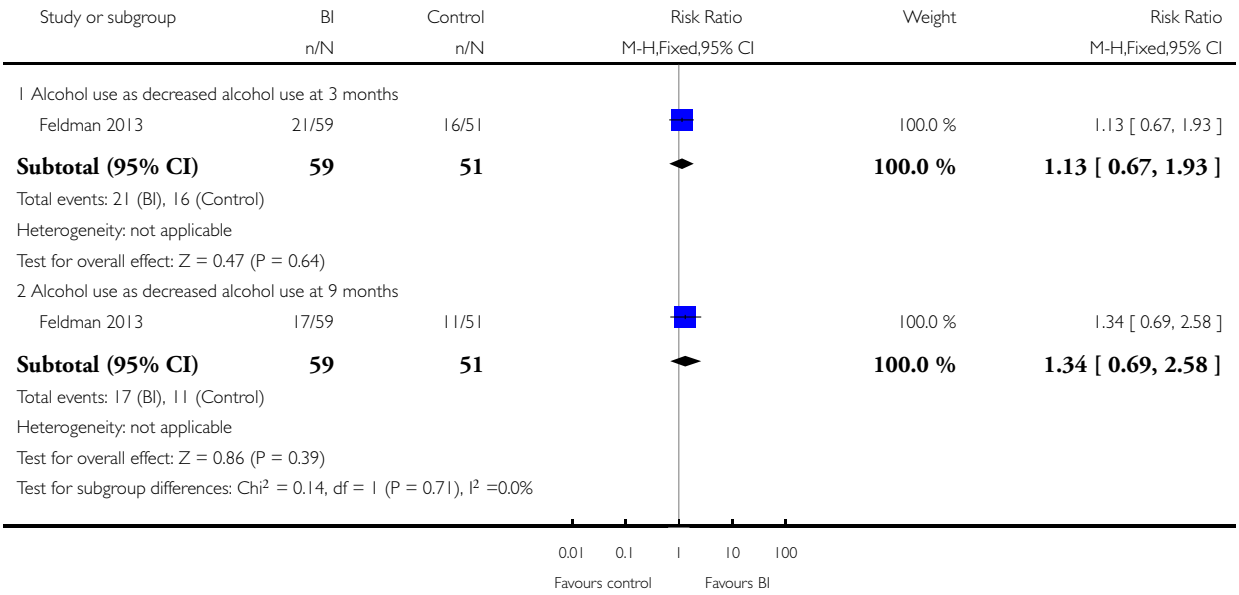
Analysis 2.2. Comparison 2 Brief intervention (BI) versus treatment as usual, Outcome 2 Dichotomous outcomes.

Review: Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users

Comparison: 2 Brief intervention (BI) versus treatment as usual

Outcome: 2 Dichotomous outcomes



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Analysis 3.1. Comparison 3 Motivational interviewing (group) (MI-G) versus hepatitis health promotion (HHP), Outcome 1 Continuous outcomes.

Review: Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users

Comparison: 3 Motivational interviewing (group) (MI-G) versus hepatitis health promotion (HHP)

Outcome: 1 Continuous outcomes

Study or subgroup	MI-G N	Mean(SD)	HHP N	Mean(SD)	Mean Difference IV,Fixed,95% CI	Weight	Mean Difference IV,Fixed,95% CI
1 Alcohol use as number of standard drinks consumed per day over the last 30 days							
Nyamathi 2010	70	3.5 (3.7)	77	3.9 (6.2)		100.0 %	-0.40 [-2.03, 1.23]
Subtotal (95% CI)	**70**		**77**			**100.0 %**	**-0.40 [-2.03, 1.23]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.48 (P = 0.63)							
2 Illicit drug use as frequency of drug use (as measured by Addiction Severity Index - ASI drug)							
Nyamathi 2010	70	0.1 (0.1)	77	0.1 (0.1)		100.0 %	0.0 [-0.03, 0.03]
Subtotal (95% CI)	**70**		**77**			**100.0 %**	**0.0 [-0.03, 0.03]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.0 (P = 1.0)							
3 Illicit drug use as a composite drug score (frequency*severity for all drugs taken)							
Nyamathi 2010	72	1.1 (1.4)	79	1.1 (1.2)		100.0 %	0.0 [-0.42, 0.42]
Subtotal (95% CI)	**72**		**79**			**100.0 %**	**0.0 [-0.42, 0.42]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.0 (P = 1.0)							

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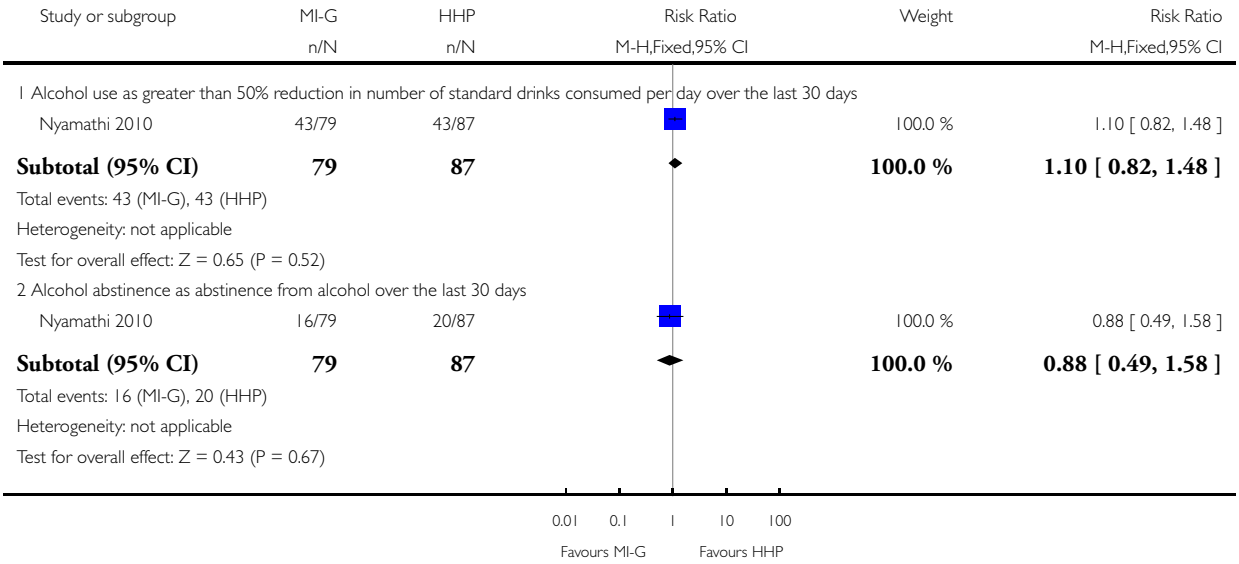
Analysis 3.2. Comparison 3 Motivational interviewing (group) (MI-G) versus hepatitis health promotion (HHP), Outcome 2 Dichotomous outcomes.

Review: Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users

Comparison: 3 Motivational interviewing (group) (MI-G) versus hepatitis health promotion (HHP)

Outcome: 2 Dichotomous outcomes



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Analysis 4.1. Comparison 4 Motivational interviewing (single) (MI-S) versus hepatitis health promotion (HHP), Outcome 1 Continuous outcomes.

Review: Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users

Comparison: 4 Motivational interviewing (single) (MI-S) versus hepatitis health promotion (HHP)

Outcome: 1 Continuous outcomes

Study or subgroup	MI-S N	Mean(SD)	HHP N	Mean(SD)	Mean Difference IV,Fixed,95% CI	Weight	Mean Difference IV,Fixed,95% CI
1 Alcohol use as number of standard drinks consumed per day over the last 30 days							
Nyamathi 2010	78	3.8 (5.1)	77	3.9 (6.2)		100.0 %	-0.10 [-1.89, 1.69]
Subtotal (95% CI)	**78**		**77**			**100.0 %**	**-0.10 [-1.89, 1.69]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.11 (P = 0.91)							
2 Illicit drug use as frequency of drug use (as measured by Addiction Severity Index - ASI drug)							
Nyamathi 2010	78	0.1 (0.1)	77	0.1 (0.1)		100.0 %	0.0 [-0.03, 0.03]
Subtotal (95% CI)	**78**		**77**			**100.0 %**	**0.0 [-0.03, 0.03]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.0 (P = 1.0)							
3 Illicit drug use as a composite drug score (frequency*severity for all drugs taken)							
Nyamathi 2010	78	1 (1.1)	79	1.1 (1.2)		100.0 %	-0.10 [-0.46, 0.26]
Subtotal (95% CI)	**78**		**79**			**100.0 %**	**-0.10 [-0.46, 0.26]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.54 (P = 0.59)							

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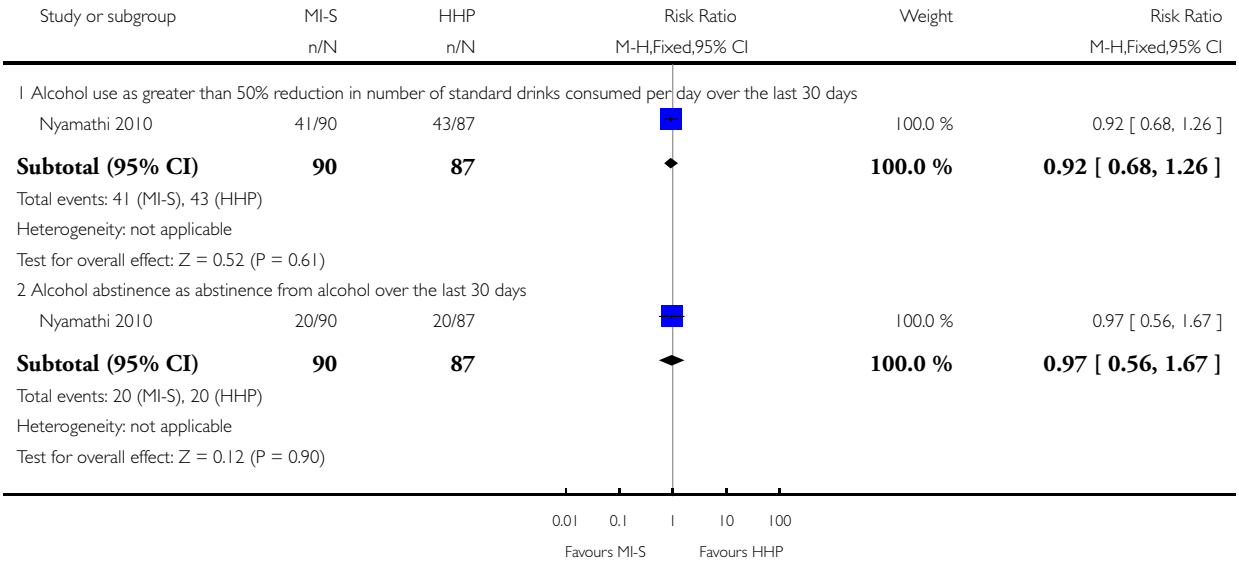
Analysis 4.2. Comparison 4 Motivational interviewing (single) (MI-S) versus hepatitis health promotion (HHP), Outcome 2 Dichotomous outcomes.

Review: Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users

Comparison: 4 Motivational interviewing (single) (MI-S) versus hepatitis health promotion (HHP)

Outcome: 2 Dichotomous outcomes



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Analysis 5.1. Comparison 5 Brief motivational intervention (BMI) versus assessment-only, Outcome 1 Continuous outcomes.

Review: Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users

Comparison: 5 Brief motivational intervention (BMI) versus assessment-only

Outcome: 1 Continuous outcomes

Study or subgroup	BMI N	Mean(SD)	Control N	Mean(SD)	Mean Difference IV,Fixed,95% CI	Weight	Mean Difference IV,Fixed,95% CI
1 Alcohol use as number of days in the past 30 days with alcohol use at 1 month							
Stein 2002a	95	11.1 (10.9)	92	11.4 (10.6)		100.0 %	-0.30 [-3.38, 2.78]
Subtotal (95% CI)	**95**		**92**			**100.0 %**	**-0.30 [-3.38, 2.78]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.19 (P = 0.85)							
2 Alcohol use as number of days in the past 30 days with alcohol use at 6 months							
Stein 2002a	95	7.6 (10.3)	92	9.1 (11)		100.0 %	-1.50 [-4.56, 1.56]
Subtotal (95% CI)	**95**		**92**			**100.0 %**	**-1.50 [-4.56, 1.56]**
Heterogeneity: not applicable							
Test for overall effect: Z = 0.96 (P = 0.34)							

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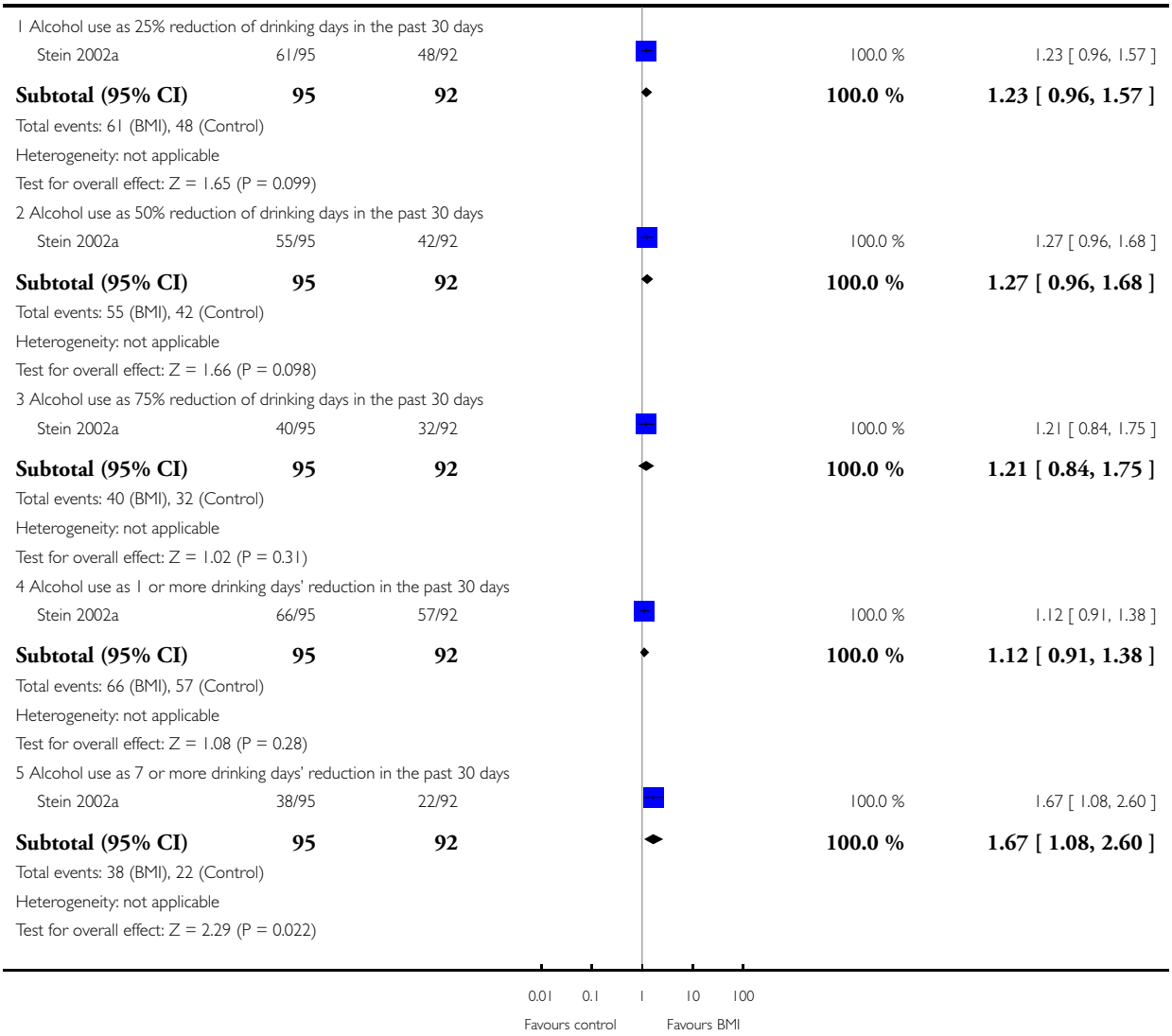
Analysis 5.2. Comparison 5 Brief motivational intervention (BMI) versus assessment-only, Outcome 2 Dichotomous outcomes.

Review: Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users

Comparison: 5 Brief motivational intervention (BMI) versus assessment-only

Outcome: 2 Dichotomous outcomes

Study or subgroup	BMI n/N	Control n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Alcohol use as 25% reduction of drinking days in the past 30 days					
Stein 2002a	61/95	48/92		100.0 %	1.23 [0.96, 1.57]
Subtotal (95% CI)	**95**	**92**		**100.0 %**	**1.23 [0.96, 1.57]**
Total events: 61 (BMI), 48 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.65 (P = 0.099)					
2 Alcohol use as 50% reduction of drinking days in the past 30 days					
Stein 2002a	55/95	42/92		100.0 %	1.27 [0.96, 1.68]
Subtotal (95% CI)	**95**	**92**		**100.0 %**	**1.27 [0.96, 1.68]**
Total events: 55 (BMI), 42 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.66 (P = 0.098)					
3 Alcohol use as 75% reduction of drinking days in the past 30 days					
Stein 2002a	40/95	32/92		100.0 %	1.21 [0.84, 1.75]
Subtotal (95% CI)	**95**	**92**		**100.0 %**	**1.21 [0.84, 1.75]**
Total events: 40 (BMI), 32 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.02 (P = 0.31)					
4 Alcohol use as 1 or more drinking days' reduction in the past 30 days					
Stein 2002a	66/95	57/92		100.0 %	1.12 [0.91, 1.38]
Subtotal (95% CI)	**95**	**92**		**100.0 %**	**1.12 [0.91, 1.38]**
Total events: 66 (BMI), 57 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.08 (P = 0.28)					
5 Alcohol use as 7 or more drinking days' reduction in the past 30 days					
Stein 2002a	38/95	22/92		100.0 %	1.67 [1.08, 2.60]
Subtotal (95% CI)	**95**	**92**		**100.0 %**	**1.67 [1.08, 2.60]**
Total events: 38 (BMI), 22 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 2.29 (P = 0.022)					



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APPENDICES

Appendix 1. MEDLINE search strategy

MEDLINE (via PubMed)
Monday, June 23, 2014 (564 hits):
Search terms to locate drug abuse:
1. "Substance-Related Disorders"[MeSH]
2. addict*[tiab] OR overdose[tiab] OR intoxicat*[tiab] OR abstin*[tiab] OR abstain*[tiab] OR withdrawal*[tiab] OR abuse*[tiab] OR use*[tiab] OR misuse[tiab] OR disorder*[tiab] OR dependen*[tiab]
3. #1 or #2
Search terms to identify drugs:
4. "heroin"[mh] OR heroin[tiab]
5. narcotic*[tiab]
6. drug[tiab] OR polydrug[tiab] OR substance[tiab] OR opioid[tw] OR opiate[tw] OR hallucinogen[tiab] OR cocaine[tw] OR benzodiazepine*[tw] OR amphetamine*[tw] OR "anti-anxiety-agents"[tiab] OR barbiturate*[tiab] OR "lysergic acid"[tiab] OR ketamine[tiab] OR cannabis[tiab] OR marihuana[tiab] OR hashish[tiab] OR opium[tiab] OR inhalant*[tiab] OR solvent[tiab] OR steroid*[tiab] OR methadone[tiab] OR morphine[tiab] OR ecstasy[tiab] OR MDMA[tiab]
7. "Street Drugs"[MeSH]
8. "Designer Drugs"[MeSH]
9. #4 or #5 or #6 or #7 or #8
Search terms to identify alcohol:
10. alcohol*[tiab]
11. binge[tiab] OR drink*[tiab]
12. alcoholism[MeSH]
13. alcoholic Intoxication [MeSH]
14. "Drinking behavior"[MeSH]
15. #10 or #11 or #12 or #13 or #14
Search terms to locate interventions:
16. psychotherapy [MeSH]
17. incentive*[tiab] OR voucher[tiab] OR psychotherap*[tiab] OR psychosocial*[tiab] OR "behaviour therapy" [tiab] OR "behavior therapy"[tiab] OR reinforcement[tiab] OR motivation*[tiab] OR contingent*[tiab] OR advice[tiab] OR biofeedback[tiab] OR community[tiab] OR stimulation[tiab] OR education*[tiab]
18. "brief intervention"[tiab]
19. "early intervention"[tiab]
20. "minimal intervention" [tiab]
21. "counselling"[MeSH] or counsel*[tiab]
22. "cognitive therapy" [tiab]
23. "family therapy" [tiab]
24. "social skill"[tiab]
25. "stress management training" [tiab]
26. "supportive expressive therapy" [tiab]
27. neurobehavioral* [tiab]
28. "coping skill"[tiab]
29. "self-control training"[tiab]
30. "social support"[MeSH]
31. "relaxation techniques"[MeSH]
32. "case management"[MeSH]
33. #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 or #32
Search terms to locate randomised controlled trials
34. randomised controlled trial [pt]
35. controlled clinical trial [pt]
36. random*[tiab]

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37. placebo [tiab]
38. drug therapy [sh]
39. trial [tiab]
40. groups [tiab]
41. #34 or #35 or #36 or #37 or #38 or #39 or #40
42. Animals [mh] NOT Humans [mh]
43. #41 NOT #42
44. #3 AND #9 AND ##15 AND #33 AND #43

Appendix 2. CENTRAL (CLIB) search strategy

The Cochrane Library
Issue 6, June 2014 (372 hits)
#1. MeSH descriptor Substance-Related Disorders explode all trees
#2. ((stimulant* or polydrug* or drug* or substance) near/3 (abuse* or abusing or depend* or addict* or disorder* or intoxicat* or misus* or use*)):ti,ab
#3. (#1 OR #2)
#4. (abuse* or abusing or depend* or addict* or depend* or overdos* or withdraw* or abstain* or abstinen* or disorder* or intoxicat* or misus*):ti,ab,kw
#5. use*:ti,ab
#6. (#4 OR #5)
#7. MeSH descriptor Narcotics explode all trees
#8. (heroin or morphine* or diamorphine or diacetylmorphine or morfin* or narcotic* or methadone):ti,ab,kw
#9. MeSH descriptor Methadone explode all trees
#10. (Opioid* or opiate* or opium):ti,ab,kw
#11. MeSH descriptor Amphetamine explode all trees
#12. (amphetamine* or dextroamphetamine* or methamphetamine or Methylamphetamine*):ti,ab,kw
#13. MeSH descriptor Methamphetamine explode all trees
#14. (ecstasy or MDMA or hallucinogen*):ti,ab,kw
#15. MeSH descriptor Hallucinogens explode all trees
#16. MeSH descriptor Street Drugs explode all trees
#17. MeSH descriptor Cocaine explode all trees
#18. (crack or cocaine):ti,ab,kw
#19. MeSH descriptor Cannabis explode all trees
#20. (cannabis or marijuana or marihuana or Hashish):ti,ab,kw
#21. (Lysergic NEXT Acid):ti,ab,kw
#22. (LSD):ti,ab,kw
#23. (benzodiazepine* or barbiturate* or ketamine or solvent or inhalant):ti,ab,kw
#24. (#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. (#6 AND #24)
#26. (#3 OR #25)
#27. (alcohol*):ti,ab,kw
#28. (binge or drink*):ti,ab
#29. MeSH descriptor Drinking Behavior explode all trees
#30. MeSH descriptor Alcoholism explode all trees
#31. MeSH descriptor Alcoholic Intoxication explode all trees
#32. (#27 OR #28 OR #29 OR #30 OR #31)
#33. MeSH descriptor Psychotherapy explode all trees
#34. (psychotherap* or psychosocial or voucher or reinforcement or motivation* or contingent* or biofeedback or community or stimulation or education* or counsel*):ti,ab,kw
#35. (social near/2 skill*):ti,ab

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#36. (coping near/2 skill):ti,ab
#37. MeSH descriptor Counseling explode all trees
#38. (behavi* near/2 therap*):ti,ab
#39. MeSH descriptor Reinforcement (Psychology) explode all trees
#40. (brief near intervention):ti,ab
#41. (early near intervention):ti,ab
#42. (minimal near intervention):ti,ab
#43. (cognitive near therapy):ti,ab
#44. (family near therapy):ti,ab
#45. (stress near management near training):ti,ab
#46. (supportive near expressive near therapy):ti,ab
#47. MeSH descriptor Social Support explode all trees
#48. MeSH descriptor Case Management explode all trees
#49. (self near control near training):ti,ab
#50. neurobehavioral*:ab,ti
#51. (#33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50)
#52. (#26 AND #32 AND #51)
#53. "(#26 AND #32 AND #51) in Cochrane Central Register of Controlled Trials"

Appendix 3. EMBASE search strategy

EMBASE (via embase.com)
Monday, June 23, 2014 (632 hits)
#1. 'addiction'/exp
#2. dependen*:ab,ti OR addict*:ab,ti OR overdos*:ab,ti OR intoxicat*:ab,ti OR abstin*:ab,ti OR abstain:ab,ti OR withdraw*:ab,ti OR abus*:ab,ti OR use*:ab,ti OR misus*:ab,ti OR disorder*:ab,ti
#3. #1 OR #2
#4. 'diamorphine'/exp
#5. diamorphine:ab,ti OR heroin:ab,ti OR narcotic*:ab,ti OR drug*:ab,ti OR polydrug:ab,ti OR substance:ab,ti OR opioid:ab,ti OR opiate:ab,ti OR hallucinogen:ab,ti OR cocaine:ab,ti OR benzodiazepine:ab,ti OR amphetamine:ab,ti OR 'anti-anxiety-agents':ab,ti OR barbiturate:ab,ti OR 'lysergic acid':ab,ti OR ketamine:ab,ti OR cannabis:ab,ti OR marihuana:ab,ti OR marijuana:ab,ti OR hashish:ab,ti OR opium:ab,ti OR inhalant:ab,ti OR solvent:ab,ti OR steroid:ab,ti OR methadone:ab,ti OR morphine:ab,ti OR ecstasy:ab,ti OR mdma:ab,ti
#6. 'designer drug'/exp
#7. 'street drug'/exp
#8. #5 OR #6 OR #7
#9. alcohol*:ab,ti OR binge:ab,ti OR drink*:ab,ti
#10. 'alcohol intoxication'/exp
#11. drinking behavior'/exp
#12. 'alcohol abuse'/exp
#13. #9 OR #10 OR #11 OR #12
#14. 'psychotherapy'/exp
#15. incentive*:ab,ti OR voucher:ab,ti OR psychotherap*:ab,ti OR psychosocial*:ab,ti OR reinforcement:ab,ti OR motivation*:ab,ti OR contingent*:ab,ti OR advice:ab,ti OR biofeedback:ab,ti OR community:ab,ti OR stimulation:ab,ti OR education*:ab,ti
#16. 'behaviour therapy':ab,ti OR 'behavior therapy':ab,ti
#17. counsel*:ab,ti
#18. 'counseling'/exp
#19. 'cognitive therapy':ab,ti OR 'family therapy':ab,ti OR 'social skill':ab,ti OR 'stress management training':ab,ti OR 'supportive expressive therapy':ab,ti
#20. 'coping skill':ab,ti OR 'social skill':ab,ti
#21. 'social support'/exp

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#22. 'case management'/exp
#23. 'relaxation therapy':ab,ti
#24. 'self-control training':ab,ti
#25. neurobehavioral*:ab,ti
#26. #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
#27. 'crossover procedure'/exp
#28. 'double blind procedure'/exp
#29. 'single blind procedure'/exp
#30. 'controlled clinical trial'/exp
#31. 'clinical trial'/exp
#32. placebo:ab,ti OR 'double blind':ab,ti OR 'single blind':ab,ti OR assign*:ab,ti OR allocat*:ab,ti OR volunteer*:ab,ti
#33. random*:ab,ti OR factorial*:ab,ti OR crossover:ab,ti OR (cross:ab,ti AND over:ab,ti)
#34. 'randomized controlled trial'/exp
#35. #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34
#36. #3 AND #8 AND #13 AND #26 AND #35 AND [humans]/lim AND [embase]/lim

Appendix 4. CINAHL search strategy

CINAHL (via EBSCO)
Monday, June 23, 2014 (56 hits)
S01. MH "Substance Use Disorders"
S02. TX(drug N3 addict*) or TX(drug N3 dependen*) or TX(drug N3 abuse*) or TX(drug N3 misus*) or TX(drug N3 use*)
S03. TX(substance N3 addict*) or TX(substance N3 dependen*) or TX(substance N3 abuse*) or TX(substance N3 misus*)
S04. S1 or S2 or S3
S05. TX(addict* OR overdos* OR intoxicat* OR abstin* OR abstain OR withdraw* OR abus* OR misus* OR disorder* OR dependen* OR use*)
S06. MH "Heroin"
S07. MH "Narcotics"
S08. MH "Designer Drugs"
S09. TX(polydrug or opioid or opiate or opium or hallucinogen or cocaine or benzodiazepine* or amphetamine*or "anti-anxiety-agents" or barbiturate* or "lysergic acid" or ketamine or cannabis or marihuana or hashish or inhalant* or solvent or steroid* or methadone or morphine)
S10. TI ecstasy or TI mdma or AB ecstasy or AB mdma
S11. S6 or S7 or S8 or S9 or S10
S12. S5 and S11
S13. S4 or S12
S14. TI alcohol* or AB alcohol*
S15. TI drink* or TI binge or AB drink* or AB binge
S16. MH "Alcoholism"
S17. MH "Alcoholic Intoxication"
S18. (MH "Drinking Behavior+")
S19. S14 or S15 or S16 or S17 or S18
S20. MH "Clinical Trials+"
S21. PT Clinical trial
S22. TI clinic* N1 trial* or AB clinic* N1 trial*
S23. TI (singl* or doubl* or trebl* or tripl*) and TI (blind* or mask*)
S24. AB (singl* or doubl* or trebl* or tripl*) and AB (blind* or mask*)
S25. TI randomi?ed control* trial* or AB randomi?ed control* trial*
S26. MH "Random Assignment"
S27. TI random* allocat* or AB random* allocat*
S28. MH "Placebos"

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S29. TI placebo* or AB placebo*
S30. MH "Quantitative Studies"
S31. S20 or S21 or S22 or S23 or S24 or S25 or S26 or S27 or S28 or S29 or S30
S32. S13 and S19 and S31
S33. S13 and S19 and S31
Limiters - Exclude MEDLINE records; Human

Appendix 5. PsycINFO search strategy

PsycINFO (via EBSCO)
Friday, March 14, 2014 (212 hits)
1. (((psychotherap*) OR TI(psychosocial*) OR TI("behaviour therapy") OR TI("behavior therapy") OR TI(reinforcement) OR TI(motivation*) OR TI(contingent*) OR TI(advice) OR TI(biofeedback) OR TI(community) OR TI(stimulation) OR TI(education*) OR TI(incentive*) OR TI(voucher)) OR ((psychotherap*) OR AB(psychosocial*) OR AB("behaviour therapy") OR AB("behavior therapy") OR AB(reinforcement) OR AB(motivation*) OR AB(contingent*) OR AB(advice) OR AB(biofeedback) OR AB(community) OR AB(stimulation) OR AB(education*) OR MJ("psychotherapy") OR AB(incentive*) OR AB(voucher)))
2. ((TI(alcohol*) OR TI(binge) OR TI(drink*)) OR (AB(alcohol*) OR AB(binge) OR AB(drink*)) OR (KW(alcohol*) OR KW(binge) OR KW(drink*)) OR DE(Alcoholism) OR DE("Alcohol intoxication") OR DE("Alcohol drinking patterns"))
3. ((KW("heroin") OR KW("morphine")) OR KW("narcotics") OR (TI(drug) OR AB(drug) OR TI(polydrug) OR AB(polydrug) OR TI(substance) OR AB(substance) OR TI(opioid) OR AB(opioid) OR TI(opiate) OR AB(opiate) OR TI("hallucinogenic drugs") OR AB("hallucinogenic drugs") OR KW("psychedelic drugs") OR KW("Lysergic Acid Diethylamide") OR TI(LSD) OR AB(LSD) OR TI(cocaine) OR AB(cocaine) OR TI(benzodiazepine*) OR AB(benzodiazepine*) OR TI("amphetamine") OR AB("amphetamine") OR TI("anti-anxiety-agents") OR AB("anti-anxiety-agents") OR TI(barbiturate*) OR AB(barbiturate*) OR TI(ketamine) OR AB(ketamine) OR TI("cannabis") OR AB("cannabis") OR TI("marihuana") OR AB("marihuana") OR TI(hashish) OR AB(hashish) OR TI(opium) OR AB(opium) OR TI("inhalant abuse") OR AB("inhalant abuse") OR TI(solvent) OR AB(solvent) OR TI(steroid*) OR AB(steroid*) OR TI("methadone") OR AB("methadone") OR TI(ecstasy) OR AB(ecstasy) OR TI("methylenedioxyamphetamine") OR AB("methylenedioxyamphetamine")) OR (KW(street drug*) OR KW(designer drug*)))
4. (SU("drug abuse") OR (KW(addict* OR abus* OR dependen*)) OR TX(overdose) OR TX(intoxicat*) OR TX(abstin*) OR TX(abstain) OR TX(withdrawal) OR TX(abuse) OR TX(use) OR TX(misuse) OR TX(disorder*) OR KW("drug addiction"))
5. DE(treatment effectiveness evaluation)
6. DE(clinical trials)
7. DE(mental health program evaluation)
8. DE(placebo)
9. TI(placebo*) OR AB(placebo*)
10. AB(randomly)
11. TI(randomi*ed) OR AB(randomi*ed)
12. TI(trial) OR AB(trial)
13. TI((singl* OR doubl* OR trebl* OR tripl*) W3 (blind* OR mask* OR dummy)) OR AB((singl* OR doubl* OR trebl* OR tripl*) W3 (blind* OR mask* OR dummy))
14. TI((control*) W3 (trial* OR study OR studies OR group*)) OR AB((control*) W3 (trial* OR study OR studies OR group*))
15. TI(factorial*) OR AB(factorial*)
16. TI(allocat*) OR AB(allocat*)
17. TI(assign*) OR AB(assign*)
18. TI(volunteer*) OR AB(volunteer*)
19. 5 AND 6 AND 7 AND 8 AND 9 AND 10 AND 11 AND 12 AND 13 AND 14 AND 15 AND 16 AND 17 AND 18
20. 1 AND 2 AND 3 AND 4 AND 19
21. 20 AND (Population Group: Human)

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Appendix 6. Criteria for risk of bias in RCTs and CCTs

Item	Judgement	Description
1. Random sequence generation (selection bias)	Low risk	The investigators describe a random component in the sequence generation process such as: random number table; computer random number generator; coin tossing; shuffling cards or envelopes; throwing dice; drawing of lots; minimisation
	High risk	The investigators describe a non-random component in the sequence generation process such as: odd or even date of birth; date (or day) of admission; hospital or clinic record number; alternation; judgement of the clinician; results of a laboratory test or a series of tests; availability of the intervention
	Unclear risk	Insufficient information about the sequence generation process to permit judgement of low or high risk
2. Allocation concealment (selection bias)	Low risk	Investigators enrolling participants could not foresee assignment because one of the following, or an equivalent method, was used to conceal allocation: central allocation (including telephone, web-based, and pharmacy-controlled, randomisation); sequentially numbered drug containers of identical appearance; sequentially numbered, opaque, sealed envelopes
	High risk	Investigators enrolling participants could possibly foresee assignments because one of the following method was used: open random allocation schedule (e.g. a list of random numbers); assignment envelopes without appropriate safeguards (e.g. if envelopes were unsealed or nonopaque or not sequentially numbered); alternation or rotation; date of birth; case record number; any other explicitly unconcealed procedure
	Unclear risk	Insufficient information to permit judgement of low or high risk This is usually the case if the method of concealment is not described or not described in sufficient detail to allow a definite judgement
3. and 4. Blinding of outcome assessor (detection bias). Objective outcomes. Subjective outcomes.	Low risk	No blinding of outcome assessment, but the review authors judge that the outcome measurement is not likely to be influenced by lack of blinding Blinding of outcome assessment ensured, and unlikely that the blinding could have been broken
	High risk	No blinding of outcome assessment, and the outcome measurement is likely to be influenced by lack of blinding Blinding of outcome assessment, but likely that the blinding could have been broken, and the outcome measurement is likely to be influenced by lack of blinding
	Unclear risk	Insufficient information to permit judgement of low or high risk

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(*Continued*)

5. Incomplete outcome data (attrition bias) For all outcomes except retention in treatment or drop-out	Low risk	No missing outcome data Reasons for missing outcome data unlikely to be related to true outcome (for survival data, censoring unlikely to be introducing bias) Missing outcome data balanced in numbers across intervention groups, with similar reasons for missing data across groups For dichotomous outcome data, the proportion of missing outcomes compared with observed event risk not enough to have a clinically relevant impact on the intervention effect estimate For continuous outcome data, plausible effect size (difference in means or standardised difference in means) among missing outcomes not enough to have a clinically relevant impact on observed effect size Missing data have been imputed using appropriate methods All randomised participants are reported/analysed in the group they were allocated to by randomisation irrespective of non-compliance and co-interventions (intention to treat)
	High risk	Reason for missing outcome data likely to be related to true outcome, with either imbalance in numbers or reasons for missing data across intervention groups For dichotomous outcome data, the proportion of missing outcomes compared with observed event risk enough to induce clinically relevant bias in intervention effect estimate For continuous outcome data, plausible effect size (difference in means or standardised difference in means) among missing outcomes enough to induce clinically relevant bias in observed effect size 'As-treated' analysis done with substantial departure of the intervention received from that assigned at randomisation
	Unclear risk	Insufficient information to permit judgement of low or high risk (e.g. number randomised not stated, no reasons for missing data provided; number of drop-out not reported for each group)

WHAT'S NEW

Last assessed as up-to-date: 25 August 2014.

Date	Event	Description
14 November 2014	New citation required but conclusions have not changed	No new studies included.
14 November 2014	Amended	Amended typo in the PLS
23 June 2014	New search has been performed	Searches updated

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CONTRIBUTIONS OF AUTHORS

JK: designed and coordinated the review, wrote and re-drafted the protocol and full review.

HT: double screened titles, abstracts and full texts, carried out double data extraction and commented on draft updates

WC, CAF, CSMOG: contributed to design of the first version of this review and commented on drafts

LGG, JS: provided methodological advice and commented on review drafts

GB, EK, CD: commented on review drafts

DECLARATIONS OF INTEREST

The authors declare that they have no competing interests.

SOURCES OF SUPPORT

Internal sources

- No sources of support supplied

External sources

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DIFFERENCES BETWEEN PROTOCOL AND REVIEW

According to the protocol we intended to exclude studies comparing psychosocial with pharmacological treatments. However, we exempted trials with two psychosocial arms in addition to pharmacological arms from this rule in the review. We did not conduct the subgroup/sensitivity analyses planned in the protocol owing to the lack of studies identified. We simplified the wording of the primary and secondary outcome measures from those in the protocol for ease of presentation, as follows:

1. reduction and/or stabilisation of alcohol use = alcohol use or abstinence;
2. illicit drug use outcomes (changes in illicit drug use) = illicit drug use or abstinence.

We have added new references to the Background sections 'Description of the condition' and 'Why is it important to do this review', to reflect recent developments in the field. We reduced the text in the sections 'Experimental interventions' and 'Types of participants' so as to exclude examples. We removed mention of the Newcastle-Ottawa scale for assessing the quality of non-randomised studies from the review as it was not used in any of the studies (observational studies were not included in the review).

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INDEX TERMS

Medical Subject Headings (MeSH)

Adaptation, Psychological; Alcohol Drinking [*prevention & control; psychology]; Cocaine-Related Disorders [complications; therapy]; Hepatitis C [prevention & control]; Motivational Interviewing [methods]; Psychotherapy [*methods]; Psychotherapy, Brief; Randomized Controlled Trials as Topic; Substance-Related Disorders [*complications; therapy]; Temperance

MeSH check words

Adult; Humans

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