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Effectiveness of psychosocial interventions for reducing parental substance misuse (Review)

McGovern R, Newham JJ, Addison MT, Hickman M, Kaner EFS

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[Intervention Review]

Effectiveness of psychosocial interventions for reducing parental substance misuse

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ABSTRACT

Background

Parental substance use is a substantial public health and safeguarding concern. There have been a number of trials of interventions relating to substance-using parents that have sought to address this risk factor, with potential outcomes for parent and child.

Objectives

To assess the effectiveness of psychosocial interventions in reducing parental substance use (alcohol and/or illicit drugs, excluding tobacco).

Search methods

We searched the following databases from their inception to July 2020: the Cochrane Drugs and Alcohol Group Specialised Register; CENTRAL; MEDLINE; Embase; PsycINFO; CINAHL; Applied Social Science (ASSIA); Sociological Abstracts; Social Science Citation Index (SSCI), Scopus, ClinicalTrials.gov, WHO ICTRP, and TRoPHI. We also searched key journals and the reference lists of included papers and contacted authors publishing in the field.

Selection criteria

We included data from trials of complex psychosocial interventions targeting substance use in parents of children under the age of 21 years. Studies were only included if they had a minimum follow-up period of six months from the start of the intervention and compared psychosocial interventions to comparison conditions. The primary outcome of this review was a reduction in the frequency of parental substance use.

Data collection and analysis

We used standard methodological procedures expected by Cochrane.

Main results

We included 22 unique studies with a total of 2274 participants (mean age of parents ranged from 26.3 to 40.9 years), examining 24 experimental interventions. The majority of studies intervened with mothers only (n = 16; 73%). Heroin, cocaine, and alcohol were the most commonly reported substances used by participants. The interventions targeted either parenting only (n = 13; 59%); drug and alcohol use only (n = 5; 23%); or integrated interventions which addressed both (n = 6; 27%). Half of the studies (n = 11; 50%) compared the experimental intervention to usual treatment. Other comparison groups were minimal intervention, attention controls, and alternative intervention.

Eight of the included studies reported data relating to our primary outcome at 6- and/or 12-month follow-up and were included in a meta-analysis. We investigated intervention effectiveness separately for alcohol and drugs.

Studies were found to be mostly at low or unclear risk for all 'Risk of bias' domains except blinding of participants and personnel and outcome assessment.

We found moderate-quality evidence that psychosocial interventions are probably more effective at reducing the frequency of parental alcohol misuse than comparison conditions at 6-month (mean difference (MD) −0.32, 95% confidence interval (CI) −0.51 to −0.13; 6 studies, 475 participants) and 12-month follow-up (standardised mean difference (SMD) −0.25, 95% CI −0.47 to −0.03; 4 studies, 366 participants). We found a significant reduction in frequency of use at 12 months only (SMD −0.21, 95% CI −0.41 to −0.01; 6 studies, 514 participants, moderate-quality evidence).

We examined the effect of the intervention type. We found low-quality evidence that psychosocial interventions targeting substance use only may not reduce the frequency of alcohol (6 months: SMD −0.35, 95% CI −0.86 to 0.16; 2 studies, 89 participants and 12 months: SMD −0.09, 95% CI −0.86 to 0.61; 1 study, 34 participants) or drug use (6 months: SMD 0.01, 95% CI −0.42 to 0.44; 2 studies; 87 participants and 12 months: SMD −0.08, 95% CI −0.81 to 0.65; 1 study, 32 participants). A parenting intervention only, without an adjunctive substance use component, may not reduce frequency of alcohol misuse (6 months: SMD −0.21, 95% CI −0.46 to 0.04, 3 studies; 273 participants, low-quality evidence and 12 months: SMD −0.11, 95% CI −0.64 to 0.41; 2 studies; 219 participants, very low-quality evidence) or frequency of drug use (6 months: SMD 0.10, 95% CI −0.11 to 0.30; 4 studies; 407 participants, moderate-quality evidence and 12 months: SMD −0.13, 95% CI −0.52 to 0.26; 3 studies; 351 participants, very low-quality evidence). Parents receiving integrated interventions which combined both parenting- and substance use-targeted components may reduce alcohol misuse with a small effect size (6 months: SMD −0.56, 95% CI −0.96 to −0.16 and 12 months: SMD −0.42, 95% CI −0.82 to −0.03; 2 studies, 113 participants) and drug use (6 months: SMD −0.39, 95% CI −0.75 to −0.03 and 12 months: SMD −0.43, 95% CI −0.80 to −0.07; 2 studies, 131 participants). However, this evidence was of low quality.

Psychosocial interventions in which the child was present in the sessions were not effective in reducing the frequency of parental alcohol or drug use, whilst interventions that did not involve children in any of the sessions were found to reduce frequency of alcohol misuse (6 months: SMD −0.47, 95% CI −0.76 to −0.18; 3 studies, 202 participants and 12 months: SMD −0.34, 95% CI −0.69 to 0.00; 2 studies, 147 participants) and drug use at 12-month follow-up (SMD −0.34, 95% CI −0.69 to 0.01; 2 studies, 141 participants). The quality of this evidence was low.

Interventions appeared to be more often beneficial for fathers than for mothers. We found low- to very low-quality evidence of a reduction in frequency of alcohol misuse for mothers at six months only (SMD −0.27, 95% CI −0.50 to −0.04; 4 studies, 328 participants), whilst in fathers there was a reduction in frequency of alcohol misuse (6 months: SMD −0.43, 95% CI −0.78 to −0.09; 2 studies, 147 participants and 12 months: SMD −0.34, 95% CI −0.69 to 0.00; 2 studies, 147 participants) and drug use (6 months: SMD −0.31, 95% CI −0.66 to 0.04; 2 studies, 141 participants and 12 months: SMD −0.34, 95% CI −0.69 to 0.01; 2 studies, 141 participants).

Authors' conclusions

We found moderate-quality evidence that psychosocial interventions probably reduce the frequency at which parents use alcohol and drugs. Integrated psychosocial interventions which combine parenting skills interventions with a substance use component may show the most promise. Whilst it appears that mothers may benefit less than fathers from intervention, caution is advised in the interpretation of this evidence, as the interventions provided to mothers alone typically did not address their substance use and other related needs. We found low-quality evidence from few studies that interventions involving children are not beneficial.

PLAIN LANGUAGE SUMMARY

Do psychosocial interventions help parents reduce how often they drink heavily or use drugs?

Aim of the review

Psychosocial interventions are talking or practical interventions, or both, delivered to individuals or groups. The interventions examined in this review seek to help parents to change their drinking or drug use and address any related problems they are having regarding the care of their children. We aimed to find out if such interventions could help parents to reduce their alcohol and drug use and if this might also benefit their children.

Background

Heavy alcohol or drug use, or both, by a parent can be harmful to the person using these substances, their partner, and the children living with them. Children where one or both parents are heavy drinkers or use drugs are more likely to be injured, experience physical and mental health problems, and go on to use alcohol and drugs themselves. Consequently, heavy drinking and illicit drug use by a parent is often considered to be a child protection concern.

Search date

The evidence in this review is current to July 2020.

Key results

We included 22 studies in the review with a total of 2274 adult participants who drank heavily or used drugs. A number of different types of psychosocial interventions were tested in the studies; some of the interventions focused on the parents' drinking and drug use, whilst others on parenting skills and parent-child relationships. Some psychosocial interventions combined both. The majority of the studies evaluated interventions delivered to mothers. Most of the studies were conducted in the USA and were funded by research councils or charities.

We found that psychosocial interventions probably help parents to make a small reduction in how often they drank alcohol and used drugs. It appears that interventions that focus on the parents' drinking and drug use as well as their role as parents may be best at reducing parental drinking and drug use. These interventions may be more helpful to fathers than mothers. More research is needed to understand whether these interventions can be helpful to both mothers and fathers. The current evidence suggests that interventions that do not involve children may result in a greater reduction in how often parents drink alcohol and/or use drugs.

Conclusion

Interventions for parents who are heavy drinkers or drug users which focus both on parenting skills and drinking/drug use may be the most helpful, as may interventions which do not involve children, although there were some weaknesses in the quality of the evidence. These interventions may be more helpful to fathers than to mothers.

Quality of evidence

Th quality of the evidence ranged from moderate to very low.

Summary of findings 1. Any psychosocial interventions compared with control intervention for substance-using parents

Any psychosocial interventions compared with control intervention for substance-using parents

Patient or population: Parents who use substances

Settings: Outpatient drug and alcohol treatment, homeless shelter, child welfare services

Intervention: Psychosocial intervention

Comparison: Treatment as usual, minimal intervention, or attention control

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	Psychosocial intervention			
Frequency of alcohol misuse 6 months	No meaningful estimate for control score can be derived from SMD measure.	The mean proportion of days of alcohol misuse was 0.32 SDs lower than the control group (-0.51 to -0.13 lower).	475 (6 RCTs)	⊕⊕⊕⊖ **moderate**[1]	The heterogeneity was 0%; interventions differed to a large extent in content and delivery. The direction of the effect favoured the intervention in 89% of the trials.
Frequency of alcohol misuse 12 months	See comment	The mean proportion of days of alcohol misuse was 0.25 SDs lower than the control group (0.47 to 0.03 lower).	366 (4 RCTs)	⊕⊕⊕⊖ **moderate**[1]	The heterogeneity was 0%; interventions differed to a large extent in content and delivery. The direction of the effect favoured the intervention in 71% of the trials.
Frequency of drug use 6 months	See comment	The mean proportion of days of drug use was 0.02 SDs lower than the control group (0.18 lower to 0.15 higher).	625 (8 RCTs)	⊕⊕⊕⊖ **moderate**[1]	The heterogeneity was 0%; interventions differed to a large extent in content and delivery. The direction of the effect favoured the intervention in 60% of the trials.
Frequency of drug use 12 months	See comment	The mean proportion of days of drug use was 0.21 SDs lower than the control group (0.41 to 0.01 lower).	514 (6 RCTs)	⊕⊕⊕⊖ **moderate**[1]	The heterogeneity was 12% and may not be important; interventions differed to a large extent in content and delivery. The direction of the effect favoured the intervention in 75% of the trials.

*The risk in the intervention group (and its 95% confidence interval) is based upon the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **RCT:** randomised controlled trial; **SD:** standard deviation; **SMD:** standardised mean difference

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]Downgraded one level due to serious risk of performance and detection bias.

Summary of findings 2. Drug and alcohol use only-focused psychosocial interventions compared with control intervention for substance-using parents

Drug and alcohol use only-focused psychosocial interventions compared with control intervention for substance-using parents

Patient or population: Parents who use substances

Settings: Homeless shelter, outpatient drug and alcohol treatment

Intervention: Drug and alcohol psychosocial intervention

Comparison: Treatment as usual or attention control

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	Drug and alcohol psychosocial interventions			
Frequency of alcohol misuse 6 months	No meaningful estimate for control score can be derived from SMD measure.	The mean proportion of days of alcohol misuse was 0.35 SDs lower than the control group (0.86 lower to 0.16 higher).	89 (2 RCTs)	⊕⊕⊖⊖ **low[1 2]**	The heterogeneity was 27%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 100% of the trials.
Frequency of alcohol misuse 12 months	See comment	The mean proportion of days of alcohol misuse was 0.09 SDs lower than the control group (0.80 lower to 0.61 higher).	34 (1 RCT)	⊕⊕⊖⊖ **low[1 2]**	Heterogeneity not applicable. The direction of the effect favoured the intervention in this study.
Frequency of drug use	See comment	The mean proportion of days of drug use was 0.01 SDs higher than the control group (0.42 lower to 0.44 higher).	87 (2 RCTs)	⊕⊕⊖⊖ **low[1 2]**	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the

6 months					effect favoured the intervention in 50% of the trials.
Frequency of drug use 12 months	See comment	The mean proportion of days of drug use was 0.08 SDs lower than the control group (0.81 lower to 0.65 higher).	32 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	Heterogeneity not applicable. The direction of the effect favoured the intervention in this study.

*The risk in the intervention group (and its 95% confidence interval) is based upon the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **RCT:** randomised controlled trial; **SD:** standard deviation; **SMD:** standardised mean difference

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]Downgraded one level due to serious risk of performance and detection bias.
[2]Downgraded one level due to serious imprecision.

Summary of findings 3. Parenting-focused psychosocial interventions WITHOUT substance use-focused component compared with treatment as usual and attention control for substance-using parents

Parenting-focused psychosocial interventions WITHOUT substance use-focused component compared with treatment as usual and attention control for substance-using parents

Patient or population: Parents who use substances

Settings: Outpatient drug and alcohol treatment and child welfare services

Intervention: Parenting interventions without substance-focused component (non-integrated)

Comparison: Treatment as usual and attention control

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	Parenting psychosocial intervention only			

Frequency of alcohol misuse 6 months	No meaningful estimate for control score can be derived from SMD measure.	The mean proportion of days of alcohol misuse was 0.21 SDs lower than the control group (0.46 lower to 0.04 higher).	273 (3 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 67% of the trials.
Frequency of alcohol misuse 12 months	See comment	The mean proportion of days of alcohol misuse was 0.11 SDs lower than the control group (0.64 lower to 0.41 higher).	219 (2 RCTs)	⊕⊖⊖⊖ **very low**[1 23]	The heterogeneity was substantial at 66%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 50% of the trials.
Frequency of drug use 6 months	See comment	The mean proportion of days of drug use was 0.10 SDs higher than the control group (0.11 lower to 0.30 higher).	407 (4 RCTs)	⊕⊕⊕⊖ **moderate**[2]	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 25% of the trials.
Frequency of drug use 12 months	See comment	The mean proportion of days of drug use was 0.13 SDs lower than the control group (0.52 lower to 0.26 higher).	351 (3 RCTs)	⊕⊖⊖⊖ **very low**[1 23]	The heterogeneity was substantial at 67%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 33% of the trials.

*The risk in the intervention group (and its 95% confidence interval) is based upon the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **RCT:** randomised controlled trial; **SD:** standard deviation; **SMD:** standardised mean difference

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]Downgraded one level due to serious imprecision.
[2]Downgraded one level due to serious risk of performance and detection bias.
[3]Downgraded one level due to unexplained heterogeneity or inconsistency of results.

Summary of findings 4. Integrated parenting and substance use-focused component psychosocial interventions compared with treatment as usual and attention control for substance-using parents

Integrated parenting and substance use-focused component psychosocial interventions compared with treatment as usual and attention control for substance-using parents

Patient or population: Parents who use substances

Settings: Outpatient drug and alcohol treatment and child welfare services (family drug court)

Intervention: Integrated parenting interventions with substance-focused component

Comparison: Treatment as usual, minimal intervention, and attention control

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	Integrated parenting intervention			
Frequency of alcohol misuse 6 months	No meaningful estimate for control score can be derived from SMD measure.	The mean proportion of days of alcohol misuse was 0.56 SDs lower than the control group (0.96 to 0.16 lower).	113 (2 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 11%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 100% of the trials.
Frequency of alcohol misuse 12 months	See comment	The mean proportion of days of alcohol misuse was 0.42 SDs lower than the control group (0.77 to 0.21 lower).	113 (2 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 25%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 75% of the trials.
Frequency of drug use 6 months	See comment	The mean proportion of days of drug use was 0.39 SDs lower than the control group (0.75 to 0.03 lower).	131 (2 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 100% of the trials.
Frequency of drug use 12 months	See comment	The mean proportion of days of drug use was 0.43 SDs lower than the control group (0.80 to 0.07 lower).	131 (2 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 100% of the trials.

*The risk in the intervention group (and its 95% confidence interval) is based upon the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **RCT:** randomised controlled trial; **SD:** standard deviation; **SMD:** standardised mean difference

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]Downgraded one level due to serious risk of performance and detection bias.
[2]Downgraded one level due to serious imprecision.

Summary of findings 5. Psychosocial interventions WITH child involvement compared with control for substance-using parents

Psychosocial interventions WITH child involvement compared with control for substance-using parents

Patient or population: Parents who use substances

Settings: Family drug court, child welfare services, community outpatient clinic

Intervention: Psychosocial interventions which involve the child in at least 1 session

Comparison: Treatment as usual, alternative intervention, attention control

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	With child involvement			
Frequency of alcohol misuse 6 months	No meaningful estimate for control score can be derived from SMD measure.	The mean proportion of days of alcohol misuse was 0.21 SDs lower than the control group (0.46 lower to 0.04 higher).	273 (3 RCTs)	⊕⊖⊖⊖ **very low[1 2 3]**	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 67% of the trials.
Frequency of alcohol misuse 12 months	See comment	The mean proportion of days of alcohol misuse was 0.11 SDs lower than the control group (0.64 lower to 0.41 higher).	219 (2 RCTs)	⊕⊖⊖⊖ **very low[1 2 3]**	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 50% of the trials.
Frequency of drug use 6 months	See comment	The mean proportion of days of drug use was 0.07 SDs higher than the control group (0.13 lower to 0.26 higher).	429 (5 RCTs)	⊕⊕⊖⊖ **low[2 3]**	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 40% of the trials.
Frequency of drug use 12 months	See comment	The mean proportion of days of drug use was 0.17 SDs lower than the control group (0.51 lower to 0.17 higher).	373 (4 RCTs)	⊕⊖⊖⊖ **very low[1 2 3]**	The heterogeneity was moderate at 54%; interventions differed to some extent in content and delivery. The direction of the

					effect favoured the intervention in 50% of the trials.

*The risk in the intervention group (and its 95% confidence interval) is based upon the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **RCT:** randomised controlled trial; **SD:** standard deviation; **SMD:** standardised mean difference

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]Downgraded one level due to serious imprecision.
[2]Downgraded one level due to unexplained heterogeneity or inconsistency of results.
[3]Downgraded one level due to serious risk of performance and detection bias.

Summary of findings 6. Psychosocial interventions WITHOUT child involvement compared with control for substance-using parents

Psychosocial interventions WITHOUT child involvement compared with control for substance-using parents

Patient or population: Parents who use substances

Settings: Outpatient treatment clinic, community services, homeless shelter

Intervention: Psychosocial interventions WITHOUT child involvement in sessions

Comparison: Treatment as usual, minimal intervention, attention control

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	Without child involvement			
Frequency of alcohol misuse 6 months	No meaningful estimate for control score can be derived from SMD measure.	The mean proportion of days of alcohol misuse was 0.47 SDs lower than the control group (0.76 to 0.18 lower).	202 (3 RCTs)	⊕⊕⊝⊝ **low**[1 2]	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 100% of the trials.
Frequency of alcohol misuse	See comment	The mean proportion of days of alcohol misuse was 0.34 SDs low-	147	⊕⊕⊝⊝ **low**[1 2]	The heterogeneity was 0%; interventions differed to some extent in content and de-

12 months		er than the control group (0.69 to 0.00 lower).	(2 RCTs)		livery. The direction of the effect favoured the intervention in 80% of the trials.
Frequency of drug use 6 months	See comment	The mean proportion of days of drug use was 0.20 SDs lower than the control group (0.49 lower to 0.09 higher).	196 (3 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 80% of the trials.
Frequency of drug use 12 months	See comment	The mean proportion of days of drug use was 0.34 SDs lower than the control group (0.69 lower to 0.01 higher).	141 (2 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 100% of the trials.

*The risk in the intervention group (and its 95% confidence interval) is based upon the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **RCT:** randomised controlled trial; **SD:** standard deviation; **SMD:** standardised mean difference

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]Downgraded one level due to serious risk of performance and detection bias.
[2]Downgraded one level due to serious imprecision.

Summary of findings 7. Psychosocial interventions compared with control for mothers who use substances

Psychosocial interventions compared with control for mothers who use substances

Patient or population: Mothers who use substances

Settings: Outpatient drug and alcohol treatment, homeless shelter, child welfare services

Intervention: Psychosocial interventions

Comparison: Treatment as usual, minimal intervention, or attention control

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	Psychosocial interventions			

Frequency of alcohol misuse 6 months	No meaningful estimate for control score can be derived from SMD measure.	The mean proportion of days of alcohol misuse was 0.27 SDs lower than the control group (0.50 to 0.04 lower).	328 (3 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 0%; interventions differed to a large extent in content and delivery. The direction of the effect favoured the intervention in 80% of the trials.
Frequency of alcohol misuse 12 months	See comment	The mean proportion of days of alcohol misuse was 0.04 SDs lower than the control group (0.39 lower to 0.32 higher).	325 (3 RCTs)	⊕⊖⊖⊖ **very low**[1 2 3]	The heterogeneity was moderate at 58%; interventions differed to a large extent in content and delivery. The direction of the effect favoured the intervention in 33% of the trials.
Frequency of drug use 6 months	See comment	The mean proportion of days of drug use was 0.07 SDs higher than the control group (0.12 lower to 0.25 higher).	484 (6 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 0%; interventions differed to a large extent in content and delivery. The direction of the effect favoured the intervention in 33% of the trials.
Frequency of drug use 12 months	See comment	The mean proportion of days of drug use was 0.17 SDs lower than the control group (0.51 lower to 0.17 higher).	373 (4 RCTs)	⊕⊖⊖⊖ **very low**[1 2 3]	The heterogeneity was moderate at 54%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 50% of the trials.

*The risk in the intervention group (and its 95% confidence interval) is based upon the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **RCT:** randomised controlled trial; **SD:** standard deviation; **SMD:** standardised mean difference

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]Downgraded one level due to serious risk of performance and detection bias.
[2]Downgraded one level due to serious imprecision.
[3]Downgraded one level due to unexplained heterogeneity or inconsistency of results.

Summary of findings 8. Psychosocial interventions compared with control for fathers who use substances

Psychosocial interventions compared with control for fathers who use substances

Patient or population: Fathers who use substances

Settings: Outpatient drug and alcohol treatment

Intervention: Psychosocial interventions

Comparison: Treatment as usual or attention control

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	Psychosocial interventions			
Frequency of alcohol misuse 6 months	No meaningful estimate for control score can be derived from SMD measure.	The mean proportion of days of alcohol misuse was 0.43 SDs lower than the control group (0.78 to 0.09 lower).	147 (2 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 100% of the trials.
Frequency of alcohol misuse 12 months	See comment	The mean proportion of days of alcohol misuse was 0.34 SDs lower than the control group (0.69 lower to 0.00).	147 (2 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 100% of the trials.
Frequency of drug use 6 months	See comment	The mean proportion of days of drug use was 0.31 SDs lower than the control group (0.66 lower to 0.04 higher).	141 (2 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 100% of the trials.
Frequency of drug use 12 months	See comment	The mean proportion of days of drug use was 0.34 SDs lower than the control group (0.69 lower to 0.01 higher).	141 (2 RCTs)	⊕⊕⊖⊖ **low**[1 2]	The heterogeneity was 0%; interventions differed to some extent in content and delivery. The direction of the effect favoured the intervention in 100% of the trials.

*The risk in the intervention group (and its 95% confidence interval) is based upon the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **RCT:** randomised controlled trial; **SD:** standard deviation; **SMD:** standardised mean difference

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]Downgraded one level due to serious risk of performance and detection bias.

2Downgraded one level due to serious imprecision.

BACKGROUND

Description of the condition

Heavy substance use, defined as dependence upon, or regular excessive consumption of, psychoactive substances leading to physical, mental, or social problems (NICE 2016), is a major public health concern worldwide (Degenhardt 2013; WHO 2011). Whilst there is significant variation in consumption levels globally, alcohol and drug use has been rising over recent decades in many low-income countries, with high-income countries currently experiencing the greatest burden (Degenhardt 2013; WHO 2009). As well as contributing to more than 60 diseases, many fatalities are attributable to alcohol misuse (Health and Social Care Information Centre 2013). Indeed, alcohol misuse represents the fifth-leading cause of morbidity and premature death worldwide (Lim 2012), with 3.8% of all deaths being attributed to it (Rëhm 2009), and a further 0.4% of deaths attributed to illicit drug use (Degenhardt 2012). Moreover, 4.6% of the global disability-adjusted life-years are attributable to alcohol misuse (Rëhm 2009), and 0.8% to illicit drug use (Degenhardt 2013). In addition to causing a significant risk to individuals, substance use is harmful to others, with alcohol being the most harmful substance (Nutt 2010). Indeed, there are numerous social risks associated with alcohol and drug use including family disruption and deprivation (Holland 2014), violent and antisocial behaviour (Hughes 2008), interpersonal violence (Anderson 2009), and child abuse and neglect (Taplin 2015). Substance use may lead to dependence and associated consequences for health, social stigma (Earnshaw 2013), and social exclusion (Anderson 2009).

Research estimates that between 5% and 30% of children in European countries live with at least one parent who uses substances (EMCDDA 2010). In England it is estimated that 162,000 children live with a dependent opiate user (Pryce 2017), and between 189,119 and 207,617 live with an alcohol-dependent parent (Department of Work and Pensions 2017). Twelve per cent of children in the USA (SAMHSA 2017), and 14% of children in Australia, have at least one parent who uses illicit drugs (AIHW 2019). Many of these children are infants. In the UK, it is estimated that 124,500 babies under the age of one year live with at least one parent who misuses alcohol, and 70,500 live with a parent who uses illicit drugs. In total, over 14% of UK infants are exposed to parental problem-drinking or illicit drug use (Manning 2011).

In addition to well-documented harms of substance use to the individual user, parental substance use has been found to be associated with adverse childhood experiences and poor outcomes for children. Research has shown that children of parents who use substances are more likely to sustain an unintentional injury (Barczyk 2013), as well as injuries of greater severity than children whose parents do not use substances (Damashek 2009). Children whose mothers' medical records showed a history of alcohol misuse have a significantly higher chance of long bone fracture (Baker 2015), as well as medicinal poisoning (Tyrrell 2012), than children whose mothers do not have a record of alcohol misuse. Parental substance use has an impact upon child mental health (Jääskeläinen 2016; Kelley 2010), with both mothers' and fathers' substance use being significantly associated with childhood externalising disorders such as conduct disorder and oppositional defiant disorder (Kendler 2013; Torvik 2011), and internalising disorders such as depression and anxiety disorder (Ohannessian 2012). Children whose parents use substances are significantly more likely to engage with early-onset substance use (Malone 2002; Malone 2010), harmful substance use (Jääskeläinen 2016), and street-involvement (defined as homelessness or young people who experience physical, psychological, or social risks of street-culture) (Baker 2014), than children whose parents do not use substances. Furthermore, parental substance use is significantly associated with the development of mental disorders and substance use disorders when children enter adulthood (Donaldson 2016; Yoon 2013).

Due to the potentially negative impact on the child, parental substance use is often identified as a risk factor in child welfare and child protection assessments. In England, 21% of all 'child-in-need' assessments identify drug use, and 18% identify alcohol misuse (Department for Education 2019); furthermore, 52% of child protection cases have parental substance use identified as a risk factor (Forrester 2000). In the USA, parental substance use has been associated with up to two-thirds of all child maltreatment cases (Traube 2012). A study conducted in Finland found that children whose mothers used both alcohol and drugs were nine times more likely to be placed in care than children of parents who did not use substances (Raitasalo 2015). There have been a number of trials of interventions for parents who use substances that sought to address this risk factor by reducing the need for protective services and promoting family reunification. However, at present there is no agreed-upon way to intervene. As such, there was a need to review the literature systematically, in order to identify effective psychosocial interventions to reduce parental substance use.

Description of the intervention

Psychosocial interventions that address substance use are non-pharmacological therapeutic interventions delivered to individuals or groups, which seek to tackle the psychological, social, personal, and relational problems associated with substance use. There are many different psychosocial interventions, with approaches and techniques that vary according to their theoretical underpinnings. We included a range of psychosocial interventions in this review, such as motivational interviewing, cognitive behavioural therapy, psychodynamic therapy, case management, residential rehabilitation, parent skill training, couples therapy, and family therapy. This broad range of psychosocial interventions may be delivered to an individual, family, or at a social level.

Motivational interviewing

Motivational interviewing is a person-centred, directive approach, which seeks to resolve the conflict inherent in behaviour change (Miller 1991). Unlike cognitive behavioural interventions, motivation to change is not assumed. Rather ambivalence to change is typical; motivation is viewed as malleable and formed within the context of the therapist-client relationship. The therapist employs specific strategies to develop motivation, seeking to mobilise the client's inner resources and intrinsic motivation and, in doing so, enable the client to initiate and achieve behaviour change. Motivational interviewing was first developed for use with people who misuse alcohol, before being extended to drug treatment services (Miller 1983; Miller 2003). A recent systematic review and meta-analysis of motivational interviewing delivered alongside or within medical care found the approach to have a statistically significant effect of modest size. That review found the

approach to be particularly promising for a range of behaviours including alcohol and tobacco use (Lundahl 2013).

Cognitive behavioural therapy

Cognitive behavioural therapy is an approach whereby it is believed that an individual's thoughts, emotions, and behaviour are connected (Meichenbaum 1977). Within the context of substance use, individuals are perceived to hold dysfunctional beliefs about themselves and the world around them (Marlatt 1985), and to exhibit behaviours based upon a range of automatic and non-automatic responses to urges (Tiffany 1990). Through the development of self-awareness, performing experiments, and development of coping strategies and skills, individuals can alter their thoughts and feelings and change their behaviour (Beck 1993).

Psychodynamic therapy

Psychodynamic therapy exists on a supportive-interpretive continuum, the essence of which is the exploration of the parts of the self that are not known and are therefore unconscious. The therapeutic approach involves a focus on the patient's emotion, active exploration of avoidance, identification of recurring themes, discussion of past events, interpersonal relationships (including that with the therapist), and exploration of the patient's fears and desires (Shedler 2010).

Community Reinforcement Approach

The Community Reinforcement Approach (CRA) is an approach to treating alcohol and drug use through removing positive reinforcement for substance use and enhancing positive reinforcement for abstinence. Key components of the approach are: building client motivation, initiating abstinence, analysing alcohol and/or drug use patterns, increasing positive reinforcement, developing new methods for coping including integrating social interventions and involving significant others (Miller 1999).

Case management

Case management is the organisation and co-ordination of intensive treatment programmes and social interventions within the community. This outpatient approach emerged as an alternative to hospital and residential units for the treatment of disorders including substance use and mental health disorders (McLellan 1999).

Residential rehabilitation

Residential rehabilitation is an inpatient treatment programme typically consisting of an intensive programme of individual and group psychosocial interventions. There are a wide range of residential rehabilitation models, including those based on the 12-step programme, Alcoholics Anonymous 2002, and therapeutic community model (De Leon 2000). The residential setting itself provides a social-level intervention wherein residents are provided with a safe and supportive living environment, as well as social structure to the daily routine. The treatment goal of residential rehabilitation units is predominately abstinence.

Parent skill training

The introduction of parent skill training in the late 1960s marked a move towards parents, as well as professionals, being viewed as having the potential to address children's problematic behaviours (Kaminski 2008). Alongside the appreciation that parents could contribute to children's desirable behaviours, there was an increasing appreciation of the potential for parents to contribute to the formation of undesirable behaviours (Bandura 1969). Whilst parenting programmes initially focused on teaching parents skills to manage and address children's behaviour, they have proliferated to include programmes designed to address poor parenting practices (Barth 2005).

Couples therapy

Couples therapy for drug and alcohol problems involves both the person who uses substances and his/her partner attending therapy. The approach is informed by research that showed a high prevalence of discord within relationships where substance use is present (O'Farrell 1993), in which a direct relationship exists between substance problems and relationship difficulties (Raistrick 2006). The approach assumes that resolving issues within a relationship, and promoting relational support, will facilitate a positive change in substance use (Klostermann 2011).

Family therapy

Family therapy is an approach that seeks to address problems within the system of relationships, rather than treating individuals outside their central context. There are many forms of family therapy, including multidimensional and systemic therapy. In a similar way to couples therapy, family therapy seeks to mobilise the strengths and support within relationships, and address issues systemically including wider family members who may present risk or protective factors (Stratton 2011).

How the intervention might work

Individual-level interventions, whilst possibly varying in their theoretical stance and the determinants upon which they focus, share the assumption that change must be located within the person experiencing a health problem, and that they have the internal and external resources to change behaviour and improve their health. Motivational interviewing highlights the partnership between the therapist and the patient, wherein the patient's autonomy is respected within strengths-based model for promoting change (Miller 2013). Cognitive behavioural approaches assume that relapses upon substance use can be prevented by addressing skill deficits and enabling people to cope with high-risk situations (Monti 1989). Family-level interventions, which may include couples and families, assume these contexts to be a potential source of both stress and support, and therefore seek to affect relational and system change (Stratton 2011). Environmental and ecological interventions delivered on a social level, such as housing and employment training, assume that change must occur within the wider social context of the individual and his/her ecological system (Slesnick 2013).

There is evidence that the longer an individual is retained in treatment, the better the outcome will be (Simpson 2008). As such, many interventions focus on engaging and supporting retention of the individual in a treatment programme, rather than focusing on the characteristics of the therapy itself. Interventions such as case management (Dobkin 2002), and those that utilise peer mentors (Pallaveshi 2014), focus on providing support to deal with life stresses and promote treatment engagement and retention. The therapeutic effect of shared experience and understanding is emphasised within peer mentoring (Gates 2007).

Interventions designed for parents who use substances are likely to operate within a context of, or with the specific aim of, child welfare. Given the well-documented association between individual and family risk from parental substance use, an intervention that reduces parental substance use is likely to benefit both the parent and the child (Kaner 2016). The reverse hypothesis is also evident within intervention logic models. Systemic therapy, that is therapy based upon attachment theory, and parenting skills training may seek to enhance effective and acceptable parenting, with the belief that improvement in parental understanding and abilities is likely to bring about changes in substance use, and that through this parents become aware of the incompatibility that exists between their substance use and positive parenting practices (Catalano 1999).

Why it is important to do this review

There are a number of other Cochrane Reviews published or planned that aim to investigate interventions for pregnant women who misuse alcohol, Lui 2008, or illicit drugs, (Terplan 2015), and lactating women who drink alcohol (Cassidy 2012), as well as for children of problem drinkers (McLaughlin 2014). However, no Cochrane Reviews have evaluated the effectiveness of interventions for parental substance use after the immediate birth of a child, that is beyond the perinatal period. Moreover, no reviews have investigated interventions for fathers who use substances. Pregnancy and the postpartum period are periods in women's lives that are often considered to be times of leverage and opportunity for change (Daley 1998; Davies 2013; McBride 2003). As such, the interventions offered and their effects are likely to differ from those during established parenthood.

Given the significant evidence that substance use is harmful to the individual, and that parental substance use is associated with a variety of problems for children, intervening with this population is both a public health and safeguarding priority. Despite this, the majority of parents who use substances are untreated (Forrester 2006). By reviewing the evidence of the effectiveness of psychosocial interventions, this review will inform commissioners' decisions about the type of interventions to invest in, and also inform practitioners working with parents who use substances and their children.

OBJECTIVES

Primary objective

To assess the effectiveness of psychosocial interventions in reducing the substance use (alcohol and/or illicit drugs, excluding tobacco) of parents with children of dependent age (from birth up to 21 years). Intervention impact is examined separately for different substances.

Secondary objectives

To examine whether interventions can increase drug and/or alcohol treatment engagement, retention, and completion and affect the welfare of the child, and whether intervention effects differ by intervention type and duration or according to who receives them.

METHODS

Criteria for considering studies for this review

Types of studies

We included randomised controlled trials (RCTs) with individually and cluster-randomised designs, factorial design, stepped wedge, and trials which have a quasi-randomised design (trials where the intervention has been introduced as part of a research study and is not naturally occurring). We only included studies with a minimum follow-up period of six months from the start of the intervention. This enabled identification of both shorter-term (6 to 11 months) and longer-term impacts (12 months and over).

Types of participants

Participants were parents who use substances; this included mothers and fathers of children (sons and daughters) under the age of 21 years, regardless of custodial or residency status of the children. Same-sex parents and foster parents were eligible for inclusion. Substance use includes the misuse of alcohol or use of illicit drugs (including cannabis and prescription drugs which are used other than in accordance with medical or legal guidance), or both. Studies that considered interventions delivered to populations including both parents and non-parents were excluded. Studies of parental interventions where the child is the only user of substances were excluded. We included studies if the substance use was identified as risky and/or above the recommended levels (in the case of licit substances) by a reliable, valid, formal assessment (validated screening tool, assessment by a health or child welfare practitioner) or diagnostic tool (*Diagnostic and Statistical Manual of Mental Disorders* (DSM-III, DSM-IIIR, DSM-IV), International Classification of Diseases (ICD-8, ICD-9, ICD-10)), or both. The administration of agonist or detoxifying prescriptions was considered as a proxy measure of substance use in participants, therefore trials that included participants receiving them were eligible for inclusion, as were parents with comorbid health conditions. Studies of primary prevention interventions, where adult participants are not identified as substance users, were excluded. Intervention studies for pregnant substance users only, where the intervention phase was restricted to the prenatal period, were excluded.

Types of interventions

We included complex psychosocial interventions that target substance use in parents directly or indirectly. We placed no limit on duration, frequency, or intensity of intervention. Interventions targeting multiple risk-behaviours were included if the impact of the intervention upon parental substance use was assessed. Studies of pharmacological interventions only were excluded. Studies combining a pharmacological component with psychosocial interventions were eligible providing the comparison group met our inclusion criteria.

Interventions delivered to an individual parent (directly or via digital technologies), couples, or the wider family unit were eligible. We anticipated that the following approaches which seek to engage with individual parents would be included, although were not limited to: motivational interview, cognitive behavioural therapy, psychodynamic therapy, parental skill training, case management, and residential rehabilitation. Interventions aimed at couples included marital and relational therapy, where one or both parents

used substances. Family-level interventions included: home visits, supported housing, family therapy, and residential rehabilitation (parent and child facilities). Social-level interventions included support housing interventions or those which aimed to promote employment.

The intervention may have been delivered by a variety of professionals as well as non-professionals. Professional groups included social workers, drug and alcohol treatment specialists, nurses, psychiatrists, psychotherapists, and nurses. Non-professionals included peer interventionists, advocates, mentors, and parents with previous personal experience of substance use or the child welfare system, or both. Interventions may have been delivered with an individual, couples, or in a group context, including a family.

Eligible control or comparison groups included: no intervention, waiting-list/delayed-treatment control arms, attention control, alternative active intervention, and treatment as usual.

Types of outcome measures

Primary outcomes

Parental substance use

The primary outcome of this review was a reduction in the frequency of parental substance use. Parental substance use was considered to have been reduced if there was a reduction in the number of episodes of heavy drinking (defined as five units or more at a time) or in the frequency of illicit drug use from baseline to the follow-up assessment (minimum period of six months). This may have been reported in a number of ways: percentage of days per month of use during follow-up period; percentage of days of abstinence during follow-up period; or percentage of days of use/abstinence by specified substance during follow-up period. We planned to convert measures to number of heavy episodic drinking/illicit drug use in the past 30 days to enable comparison between them.

Secondary outcomes

The secondary outcomes of interest were a change with regard to parental substance use and child welfare from baseline to the follow-up assessment.

Parental substance misuse

- Amount of substance use, measured as quantity of use per using occasion.
- Sustained abstinence during assessment period, measured as the number of participants with continuous abstinence during the treatment.
- Dependence/disorder symptomology measured by a reliable, valid, formal assessment tool (such as the addiction severity index) or diagnostic tool (DSM-III, DSM-IIIR, DSM-IV, ICD-8, ICD-9, ICD-10), or both.
- Number of participants engaged in structured treatment, measured as the number of participants engaging with structured treatment outside of the experimental intervention (defined as attending at least one session of structured treatment), e.g. where the experimental intervention is case co-ordination, and participants are supported to engage in existing community treatment.
- Retention in treatment, measured as the number of participants completing treatment outside of the experimental intervention, e.g. where the experimental intervention is case co-ordination, and participants are supported to engage in existing community treatment. Whilst it is more common within Cochrane Reviews to apply a definition of the number of days retained within the intervention, this definition is typically used when measuring retention within the experimental intervention. We anticipated that number of days retained in an existing treatment provided outside of the study would not be reported in the published papers.

Child welfare outcomes

- Child substance use (delayed onset, reduction in levels of use).
- Change in legal status (measured as a reduction in the number of children taken into care; reduction in the time for which children are in care; increased rates of family reunification following temporary care orders).
- Reduction in recorded child welfare incidents (including incidents of maltreatment, abuse, or neglect).

Search methods for identification of studies

We aimed to identify all relevant RCTs regardless of language or publication status (published, unpublished, in press, or in progress).

Electronic searches

We searched the following databases from inception to 8 July 2020:

- the Cochrane Drugs and Alcohol Group Specialised Register via the Cochrane Register of Studies (CRS-Web);
- the Cochrane Central Register of Controlled Trials (CENTRAL) in the Cochrane Library (issue 7, 2020);
- MEDLINE (Ovid) (1966 to 8 July 2020);
- Embase (Ovid) (1974 to 8 July 2020);
- PsycINFO (Ovid) (1806 to 8 July 2020);
- CINAHL (Cumulative Index to Nursing and Allied Health Literature) (1982 to 8 July 2020);
- Applied Social Science (ASSIA) (1987 to 8 July 2020);
- Sociological Abstracts (1963 to 8 July 2020);
- Social Science Citation Index (SSCI) (1956 to 8 July 2020);
- Scopus (1960 to 8 July 2020).

The subject strategies for databases were modelled on the search strategy designed for MEDLINE in Appendix 1; Appendix 2; Appendix 3; Appendix 4; Appendix 5; Appendix 6; Appendix 7; Appendix 8; Appendix 9; Appendix 10; Appendix 11. Where appropriate, these were combined with subject strategy adaptations of the Highly Sensitive Search Strategy designed by Cochrane for identifying RCTs and controlled clinical trials, as described in the *Cochrane Handbook for Systematic Reviews of Interventions* (Lefebvre 2011). We supplemented the database searches with the searching of key journals and reference lists and contacting authors publishing in the field.

We searched the following trials registries on 8 July 2020:

- World Health Organization International Clinical Trials Registry Platform (WHO ICTRP) (www.who.int/trialsearch);

- US National Institutes of Health Ongoing Trials Register ClinicalTrials.gov (www.clinicaltrials.gov);
- TRoPHI (Trials Register of Promoting Health Interventions) (eppi.ioe.ac.uk/webdatabases/Search.aspx).

Searching other resources

We hand searched the reference lists of relevant studies to identify any further relevant studies and contacted authors publishing in the field to identify ongoing trials and unpublished work. We also searched the reference lists of relevant Cochrane Reviews.

Data collection and analysis

Selection of studies

We imported all references obtained from databases and other resources into EndNote X8 (The Endnote Team 2013) and removed duplicates. The use of a reference management software promoted consistency of reference screening. Two review authors independently screened all titles and abstracts according to the specified inclusion and exclusion criteria, retrieving full-text papers for potentially eligible studies, which were then evaluated for inclusion in the review. Any discrepancies were resolved at each stage by discussion or by consulting a third review author if consensus could not be reached. We did not apply any language restrictions.

Data extraction and management

Two review authors independently extracted the data from the included studies using a standardised data extraction form. Two review authors piloted the data extraction form to ensure that it effectively captured the data relevant to this review. Any disagreements were resolved by discussion or by consulting a third review author when consensus could not be reached. We extracted the following data.

- Author details, title, unique identifier, and date
- Eligibility verification and exclusion criteria
- Key features of the study: aim, design, setting
- Participant details: inclusion/exclusion criteria, baseline characteristics, number entering trial, number randomised to intervention groups
- Intervention and comparator details: duration, frequency, intensity, professional delivering intervention, intervention type, theoretical underpinning
- Outcome measures: pre- and postintervention, units of measurement
- Duration of follow-up(s) and attrition
- Measures for primary and secondary outcomes of interest at each time point
- Method of analysis

Where we included multiple papers relating to one trial, we identified an index paper and extracted data from the index and linked papers on one data extraction form.

Assessment of risk of bias in included studies

Two review authors independently assessed each study for risk of bias. Any disagreements were resolved by discussion; where necessary a third researcher independently assessed the study to enable agreement to be reached. We conducted 'Risk of bias' assessment for RCTs using the criteria recommended in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011; Appendix 12). This two-part, domain-based tool addresses seven domains: random sequence generation and allocation concealment (selection bias); blinding of participants and providers (performance bias); blinding of outcome assessor (detection bias); incomplete outcome data (attrition bias); selective outcome reporting (reporting bias); and other sources of bias. The first part of the tool describes what was reported to have happened in the study, whilst the second part assigns a judgement relating to the risk of bias for that entry in terms of low, high, or unclear risk. To make these judgements we used the criteria indicated by the *Cochrane Handbook for Systematic Reviews of Interventions* adapted to the addiction field (see Appendix 12 for details).

We addressed the domains of sequence generation and allocation concealment (avoidance of selection bias) in the tool by a single entry for each study. We considered incomplete outcome data (avoidance of attrition bias) for all outcomes except for dropout from the treatment, which is very often the primary outcome measure in trials on addiction. We used 'Risk of bias' assessments to carry out sensitivity analyses (see Sensitivity analysis).

Measures of treatment effect

We analysed dichotomous outcome data by calculating the risk ratio (RR) for each trial, with the uncertainty in each result expressed as 95% confidence interval (CI). We analysed continuous outcome by calculating mean differences (MDs) if all studies used the same measurement scale; if studies used different measurement scales to measure the same outcome, we used standardised mean differences (SMD), each with 95% CIs.

Unit of analysis issues

In the instance that two interventions were compared against a control group, data from both intervention arms were included in the main comparison, and the number of participants in the control group was halved for each comparison, in accordance with Cochrane recommendations (Higgins 2011). We considered cluster-randomised trials as eligible for inclusion in the review, as randomisation may occur by recruitment setting. We anticipated that the investigators would have controlled for the susceptibility of cluster designs to unit of analysis error and artificially small P values (Higgins 2011). Where this was not the case, we would contact authors and request participant data to enable the calculation of the intracluster correlation coefficient (ICC).

Dealing with missing data

We contacted authors to attempt to obtain missing data. We used data from intention-to-treat analyses in preference to completer-only data. Where insufficient data were provided to permit intention-to-treat analysis, we contacted the study authors to request these data. If we were unable to obtain this information, we excluded the study. In the case that a study fulfilled our inclusion criteria but did not provide useful data on outcomes to be extracted or included in the meta-analyses, we reported this in the 'Characteristic of included studies' table and in the main text.

Assessment of heterogeneity

We assessed the magnitude of heterogeneity using the I^2 statistic, and the statistical significance of the heterogeneity using P values

derived from Chi^2 tests (Deeks 2001). We considered a P value less than 0.1 to be significant, and I^2 values higher than 50% to be indicative of substantial heterogeneity, although we interpreted the percentage within the context of the size and direction of effects (Higgins 2011; Ryan 2014). We conducted subgroup analysis to investigate heterogeneous results.

Assessment of reporting biases

We planned to investigate publication bias using funnel plots, plotting the study effect size against the sample size, providing a minimum of 10 studies were included in the meta-analysis. We made every effort to minimise publication bias by searching a wide range of databases and sources of grey literature and not restricting our searches by language or publication status.

Data synthesis

We pooled the data for our primary outcome using a random-effects model due to the expected heterogeneity of the populations and interventions reported in the trials. We planned to separate meta-analyses for the following types of substance use: opioids, cocaine, alcohol, cannabis, and poly substance. We performed meta-analysis using Review Manager 5 (Review Manager 2014).

Subgroup analysis and investigation of heterogeneity

We planned to investigate the causes of heterogeneity between studies by the following subgroup analyses.

- Types of psychological or social interventions (e.g individual substance use-focused psychosocial intervention, family-focused psychosocial intervention).
- Recipients of intervention (individual, couple, family, mothers, fathers).
- Duration of intervention (short intervention of one session, medium intervention of up to six sessions, extended intervention of more than six sessions).
- Length of follow-up (6 and 12 months).
- Family composition (number of children, parents within household).

Sensitivity analysis

We planned to conduct a sensitivity analysis by repeating all previous analyses with the exclusion of study data that were:

- at high risk of selection bias (random sequence generation or allocation concealment);
- converted for the purposes of data entry (e.g. where standard deviations were estimated from the standard error of the mean, 95% CIs);
- completer-only rather than intention-to-treat;
- mean change scores rather that post intervention scores.

Summary of findings and assessment of the certainty of the evidence

We assessed the overall quality of the evidence for the primary outcome using the GRADE system. The GRADE Working Group developed a system for grading the quality of evidence which takes into account issues not only related to internal validity, but also to external validity, such as directness of results (Guyatt 2008; Guyatt 2011; Oxman 2004). We have presented the main findings of the review in a transparent and simple tabular format in a 'Summary of findings' table, which provides key information concerning the quality of evidence, the magnitude of effect of the interventions examined, and the sum of the available data for the main outcomes.

The GRADE system assigns four levels of evidence that should be interpreted as follows.

- High: We are very confident that the true effect lies close to that of the estimate of the effect.
- Moderate: We are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
- Low: Our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
- Very low: We have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

Data from RCTs start at the high level of evidence and are then lowered by one or two levels for the following reasons.

- Serious (reduced by one level) or very serious (reduced by two levels) study limitation for risk of bias.
- Serious (reduced by one level) or very serious (reduced by two levels) inconsistency between study results.
- Some (reduced by one level) or major (reduced by two levels) uncertainty about directness (the correspondence between the population, the intervention, or the outcomes measured in the studies actually found, and those under consideration in our review).
- Serious (reduced by one level) or very serious (reduced by two levels) imprecision of the pooled estimate.
- Strong suspicion of publication bias (reduced by one level).

RESULTS

Description of studies

Results of the search

We identified 5141 potentially relevant records after the exclusion of duplicates. We excluded 5054 of these records on the basis of title and abstract. A further four records related to ongoing studies which are yet to report on outcomes (ISRCTN60291091; NCT02774525; Whittaker ongoing (Behavioural Couples Therapy); ISRCTN43209618). We conducted full-text review of 83 articles, of which 55 were excluded. We included 22 studies, reported in 28 papers. All included studies were parallel RCTs. See study flow diagram in Figure 1.

Figure 1. Study flow diagram

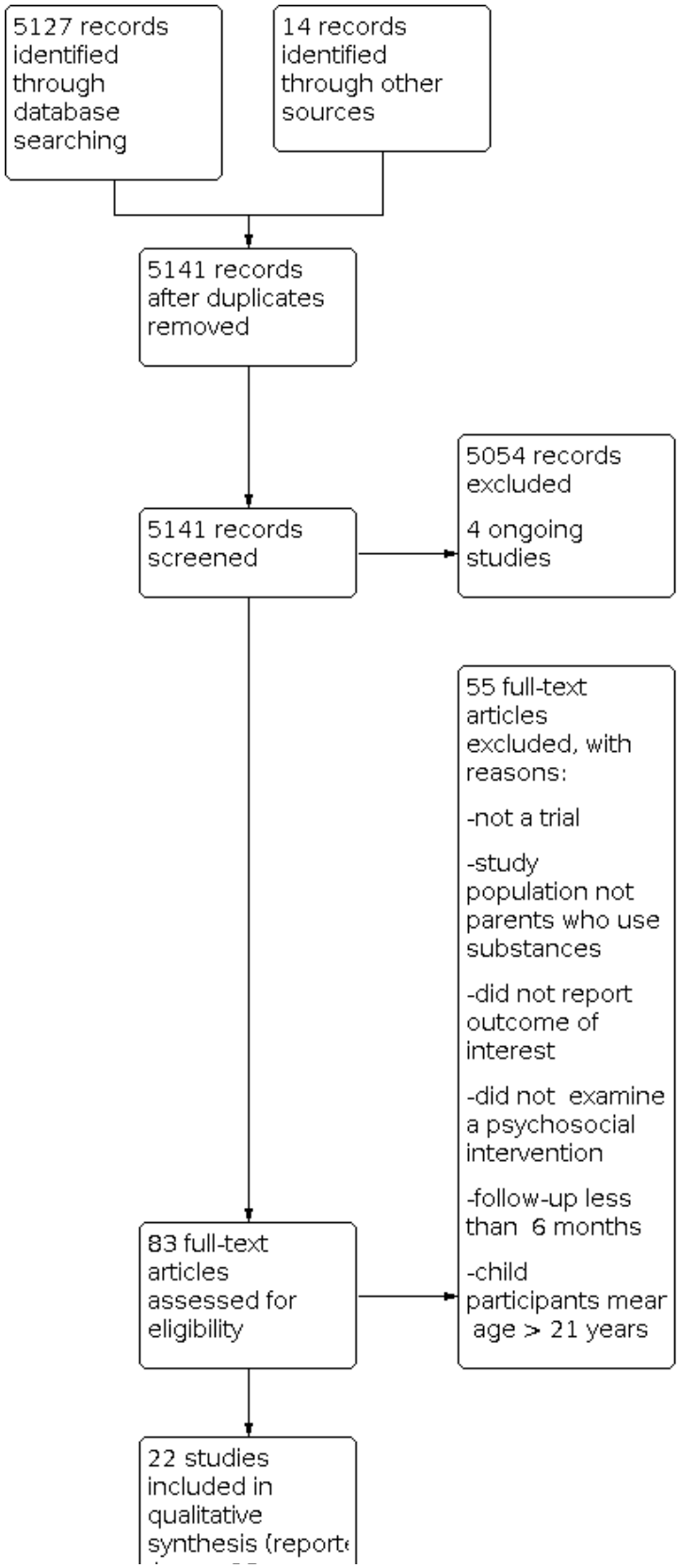
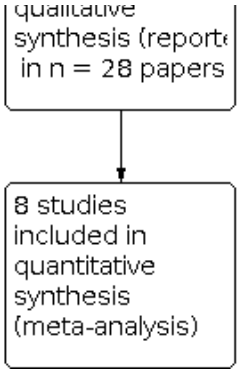


Figure 1. (Continued)



Included studies

Population

The 22 unique studies meeting our inclusion criteria included a total of 2274 adult participants. The majority (N = 16; 73%) of studies intervened with mothers only (Bartu 2006; Black 1994; Dakof 2010; Donohue 2014; Ernst 1999; Gwadz 2008; Luthar 2000; Luthar 2007; Morgenstern 2006; Saldana 2015; Schottenfeld 2011; Schuler 2000; Slesnick 2013; Slesnick 2016; Suchman 2017; Volpicelli 2000); three studies intervened with fathers only (Kelley 2002 (Intervention 1); Kelley 2002 (Intervention 2); Lam 2009 (Intervention 1); Lam 2009 (Intervention 2); Smith Stover 2019); and a further three studies intervened with parents irrespective of gender (Barlow 2019; Catalano 1999), although the majority of parents in these studies were mothers. The mean number of children per participating parent was 2.43, and their mean age (using data from n = 15 studies which reported this information) was 7.46 years. A further four studies only included parents of infants (< 1 year). The overall range of mean ages of the parents in the included studies was 26.3 to 40.9 years. Most studies (n = 18) reported ethnicity; the largest proportion was African-American/black (42%). In most cases, the studies targeted parents who met the diagnostic criteria for substance abuse/dependence. Studies which recruited women who used substances during pregnancy included women referred for specialist antenatal care due to substance use, those women or their babies who tested positive for substances, and women who binge drank alcohol during pregnancy (five units or more in a single occasion). The majority of participants were heroin or cocaine users. Eight studies explicitly recruited heroin, Black 1994; Catalano 1999; Dawe 2007; Luthar 2000; Luthar 2007; Schuler 2000, or cocaine users (Black 1994; Schottenfeld 2011; Schuler 2000; Volpicelli 2000). Of those studies which recruited participants who were alcohol and/or drug users (N = 8) (Barlow 2019; Bartu 2006; Ernst 1999; Kelley 2002 (Intervention 1); Kelley 2002 (Intervention 2); Morgenstern 2006; Slesnick 2016; Smith Stover 2019; Suchman 2017), all but four studies reported that heroin and/or cocaine were most frequently the primary drugs used. The four studies instead reported problematic poly drug use (Dakof 2010); hard drug use (all illicit other than marijuana) (Donohue 2014); methamphetamine (Saldana 2015); or alcohol and unspecified drug type (Kelley 2002 (Intervention 1); Kelley 2002 (Intervention 2)).

Setting

The majority (N = 18) of the studies were conducted in the USA (Black 1994; Catalano 1999; Dakof 2010; Donohue 2014; Ernst 1999; Gwadz 2008; Kelley 2002 (Intervention 1); Kelley 2002 (Intervention 2); Lam 2009 (Intervention 1); Lam 2009 (Intervention 2); Luthar 2000; Luthar 2007; Morgenstern 2006; Saldana 2015; Schottenfeld 2011; Schuler 2000; Slesnick 2013; Slesnick 2016; Smith Stover 2019; Suchman 2017; Volpicelli 2000). Two studies took place in Australia (Bartu 2006; Dawe 2007), and one in the UK (Barlow 2019). Participants were recruited from a range of settings. The most common (N = 9) recruitment setting was drug and alcohol treatment services (Barlow 2019; Catalano 1999; Dawe 2007; Kelley 2002 (Intervention 1); Kelley 2002 (Intervention 2); Lam 2009 (Intervention 1); Lam 2009 (Intervention 2); Luthar 2000; Luthar 2007; Slesnick 2016; Smith Stover 2019; Suchman 2017). Four studies recruited from social services and child welfare departments (Dakof 2010; Donohue 2014; Morgenstern 2006; Saldana 2015), including family drug court (Dakof 2010). Three studies recruited from antenatal clinics and maternity hospitals (Bartu 2006; Black 1994; Schuler 2000), and one study recruited participants living in a homeless shelter (Slesnick 2013). The remaining studies recruited from a combination of these services, as well as through advertising or word of mouth (Ernst 1999; Gwadz 2008; Schottenfeld 2011; Volpicelli 2000). One study examined an intervention delivered as part of a residential rehabilitation programme (Smith Stover 2019). All other studies examined interventions that were delivered in an outpatient/community setting.

Interventions

Broadly three types of interventions were examined in the included studies: interventions targeting parenting only; interventions targeting alcohol and drug use only; and interventions targeting parenting and alcohol and drug use within an integrated intervention. Further details of the interventions provided in each study are provided in Characteristics of included studies. The majority of studies (N = 13; 59%) examined parenting interventions only, all of which focused on developing the substance-using parent's skills and family relationships (Barlow 2019; Bartu 2006; Black 1994; Catalano 1999; Dakof 2010; Dawe 2007; Donohue 2014; Luthar 2000; Luthar 2007; Slesnick 2016; Smith Stover 2019; Suchman 2017). Five studies examined an intervention targeting drug and alcohol use only including cognitive behavioural therapy (Kelley 2002 (Intervention 1)); Community Reinforcement Approach (CRA) (Schottenfeld 2011; Slesnick 2013); intensive enhanced psychosocial therapy (Volpicelli 2000); and intensive case management of services using motivational counselling strategies (Morgenstern 2006). The interventions were typically modified to make them more accessible to parents, including through the provision of on-site enhanced services, availability

of childcare, or intensive outreach and case management. Five studies examined six different integrated parenting interventions (Ernst 1999; Gwadz 2008; Kelley 2002 (Intervention 2); Lam 2009 (Intervention 1); Lam 2009 (Intervention 2); Saldana 2015). These integrated parenting and substance use interventions typically provided cognitive behavioural intervention which sought to address parents' substance use. Two of these studies were three-armed trials. One study examined an intervention which combined couple's therapy for both parents (the parent who uses substances and non-using parent) with individual drug and alcohol treatment (Lam 2009 (Intervention 1)), as well as an intervention which combined couple's therapy, individual drug and alcohol treatment, and parent skills training (Lam 2009 (Intervention 2)). The other study examined an intervention targeting drug and alcohol use, Kelley 2002 (Intervention 1), and a couple's therapy intervention for both parents (Kelley 2002 (Intervention 2)). All of the included studies provided an extended intervention of more than 6 sessions, varying between 7 sessions, Bartu 2006, and 39 sessions (Black 1994). Studies of case management services did not specify the number of sessions offered or received, instead reporting on typical patterns of contact (Ernst 1999; Morgenstern 2006; Saldana 2015; Volpicelli 2000). These studies typically described an intensive, sometimes daily contact phase during the initial stage of the intervention or during times of crisis, followed by less frequent, often biweekly contact. Studies of case management interventions offered the most intensive interventions with the highest level of contact.

Comparison conditions varied across studies. Over half of the studies (N = 11; 50%) compared the experimental intervention to usual treatment or care (Barlow 2019; Black 1994; Catalano 1999; Dakof 2010; Dawe 2007; Donohue 2014; Luthar 2000; Morgenstern 2006; Saldana 2015; Schottenfeld 2011; Slesnick 2013; Volpicelli 2000). Other studies compared the experimental intervention with a no-intervention control group (Ernst 1999); minimal intervention (Bartu 2006; Gwadz 2008; Schuler 2000; Suchman 2017); attention control, Slesnick 2016, or an alternative intervention of parenting education (Kelley 2002 (Intervention 1); Kelley 2002 (Intervention 2); Smith Stover 2019); recovery training (Luthar 2007); or individual behavioural therapy (Lam 2009 (Intervention 1); Lam 2009 (Intervention 2)).

Outcomes

Eight of the included studies reported on a number of different measures of the primary outcome at 6- or 12-month follow-up, or both, and were included in the primary meta-analyses for alcohol and/or drugs. The outcomes included percentage of days of use (Slesnick 2013; Slesnick 2016); number of days of use (Catalano 1999; Dakof 2010; Donohue 2014; Saldana 2015); and percentage of days abstinent (Kelley 2002 (Intervention 1); Kelley 2002 (Intervention 2); Lam 2009 (Intervention 1); Lam 2009 (Intervention 2)). A further three studies reporting on days of use could not be included in the meta-analyses: for one study there was an absence of standard deviation data (Volpicelli 2000); another study which recruited from a residential rehabilitation setting only recorded follow-up substance use frequency but did not collect this at baseline (Smith Stover 2019); and a third study was excluded from the meta-analysis as specified in our protocol because it used a per-protocol analysis (Gwadz 2008). A further 10 studies reported on outcomes of substance use, which were: percentage of any use (Bartu 2006; Black 1994; Gwadz 2008; Schuler 2000; Suchman 2017); percentage of sustained abstinence (Ernst 1999; Schottenfeld 2011); methadone dose (Dawe 2007); levels of alcohol consumption (Dawe 2007; Gwadz 2008); and urine toxicology results (Luthar 2000; Luthar 2007). Four studies measured engagement with other services (Ernst 1999; Morgenstern 2006; Saldana 2015; Volpicelli 2000). No studies measured our prespecified criteria for retention in treatment. Eleven trials reported on child outcomes: measures included the Child Abuse Potential Inventory (CAPI) (Black 1994; Dawe 2007; Donohue 2014; Schuler 2000); brief CAPI (Barlow 2019; Dakof 2010; Saldana 2015); the Parent Acceptance/Rejection Questionnaire (PARQ) (Luthar 2000; Luthar 2007); the number of active involvements with child protection services (Lam 2009 (Intervention 1); Lam 2009 (Intervention 2)); and one trial reported on the child's own substance use (Catalano 1999).

Sources of funding

Most studies reported source of funding, all of which were from governmental and not-for-profit organisations (n = 21; 96%). The National Institute on Drug Abuse (NIDA) funded over half of all studies (12 studies) (Catalano 1999; Dakof 2010; Donohue 2014; Kelley 2002 (Intervention 1); Kelley 2002 (Intervention 2); Lam 2009 (Intervention 1); Lam 2009 (Intervention 2); Saldana 2015; Schottenfeld 2011; Schuler 2000; Slesnick 2013; Smith Stover 2019; Suchman 2017; Volpicelli 2000). A further study was joint funded by NIDA and governmental departments (Morgenstern 2006). Two further studies were funded by research funders with a focus on alcohol and/or drugs (National Institute on Alcohol Abuse and Alcoholism, Gwadz 2008, and the Center for Substance Abuse Prevention, Ernst 1999). Two studies were funded by organisations with a focus on safeguarding children (National Society for the Prevention of Cruelty to Children, Black 1994, and the National Center on Child Abuse and Neglect, Barlow 2019). Three studies received support from funding from sources with a focus on health (Healthway, Bartu 2006, and National Institutes of Health; Slesnick 2016), one of which also received match funding from two sources (William T Grant Foundation and Spencer Foundation, Luthar 2007). The remaining study was funded by a Research Scientists Development Award (Luthar 2000).

Excluded studies

We excluded 55 papers. The most common reason for exclusion was that the paper reported on a study which did not use an appropriate trial design (n = 17); typically these were naturalistic observational studies. Other reasons for exclusion were: follow-up was less than six months (n = 14); the study population was not parents or had not been identified as a substance user by a valid method (n = 11); the study did not report on one of our prespecified outcomes of interest (n = 9); the intervention did not meet our prespecified inclusion criteria (n = 3); or the study participants were adult children (n = 1).

Risk of bias in included studies

The main risk of bias in the included studies were performance (subjective) bias. This was primarily due to the inability to blind participants and providers to interventions which are interactional-based. Whilst unclear reporting was common, very few trials were at high risk of bias for other 'Risk of bias' domains other than performance bias. Risk of bias and support for judgements are presented in the Characteristics of included studies and graphic summaries in Figure 2 and Figure 3.

Figure 2. Risk of bias graph: review authors' judgements about each risk of bias item presented as percentages across all included studies.

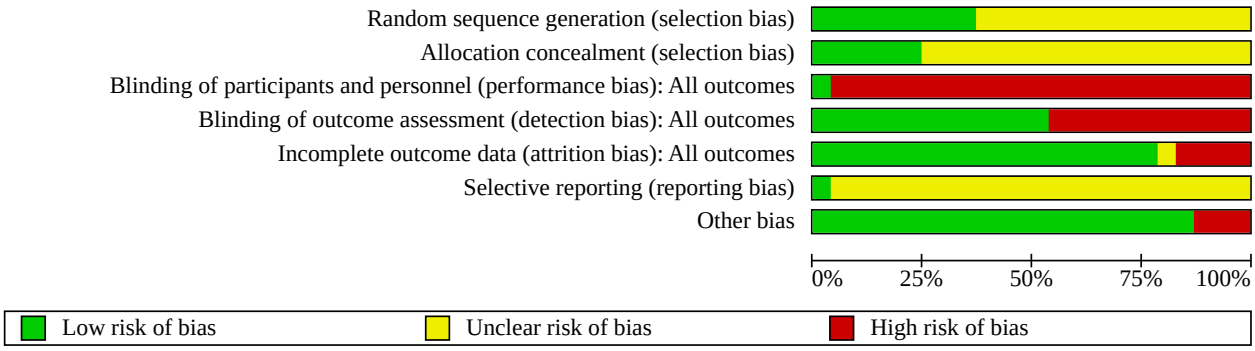


Figure 3. Risk of bias summary: review authors' judgements about each risk of bias item for each included study.

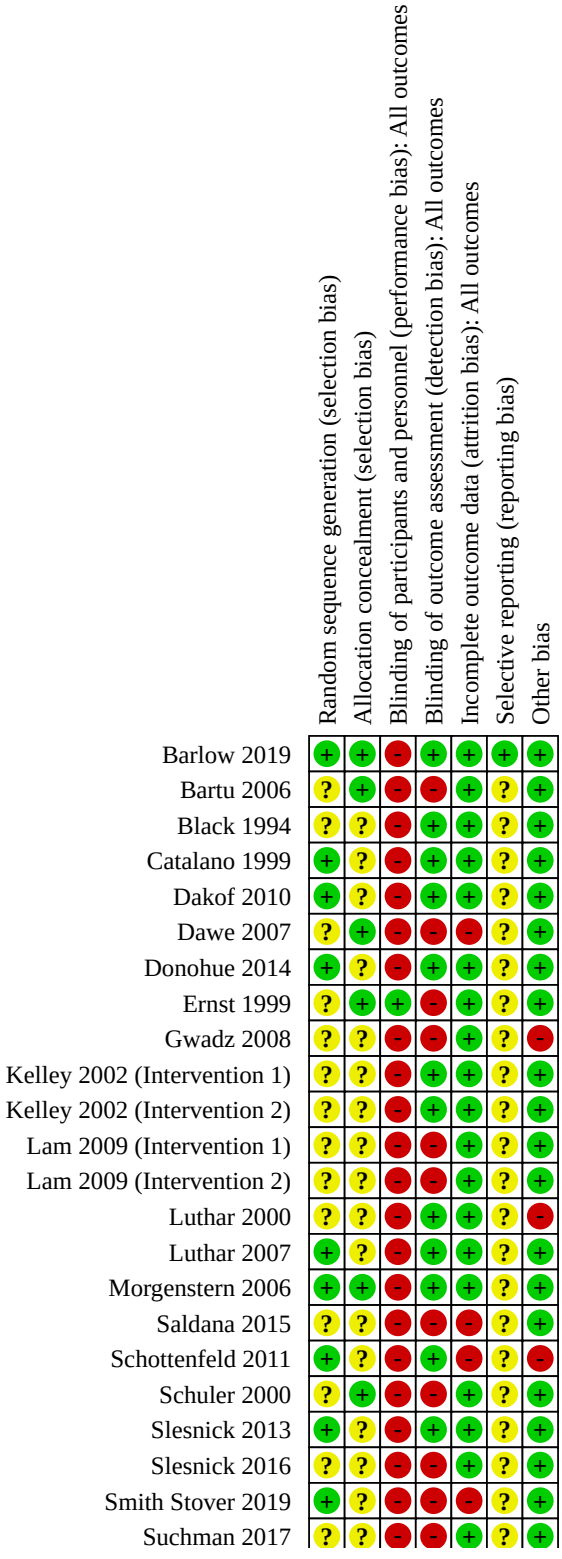
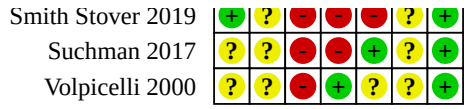


Figure 3. (Continued)



Allocation

All 22 included studies randomly allocated individual participants to intervention groups; however, many studies (n = 13; 59%) did not report how random allocation was generated, resulting in an assessment of unclear risk of bias for this domain (Bartu 2006; Black 1994; Dawe 2007; Ernst 1999; Gwadz 2008; Kelley 2002 (Intervention 1); Kelley 2002 (Intervention 2); Lam 2009 (Intervention 1); Lam 2009 (Intervention 2); Luthar 2000; Saldana 2015; Schuler 2000; Slesnick 2016; Suchman 2017; Volpicelli 2000). Those studies that did report random sequence generation reported urn or permutated block randomisation to ensure equivalence of key characteristics such as age, ethnicity, number, and residence of children as well as treatment site. We assessed risk of bias relating to allocation concealment as low in six studies, which reported that concealment was achieved by participants selecting a sealed envelope which detailed the allocated treatment (Bartu 2006; Morgenstern 2006), or being notified of allocation by a blinded researcher who had not been involved in the collection of baseline data (Barlow 2019; Dawe 2007; Ernst 1999; Schuler 2000). All other studies did not provide sufficient details to enable assessment and were therefore considered to be at unclear risk of bias.

Blinding

Due to the inherent nature of psychosocial interventions, it is not possible to blind participants or treatment personnel to the intervention. As such, almost all of the included studies were considered to be at high risk of performance bias. One study made an effort to blind participants in the control group to the true purpose of the trial, advising that it was concerned with a more general "healthy pregnancy" and did not provide any information relating to the experimental intervention to the control group (Ernst 1999). This study was therefore assessed as at low risk of performance bias. Half of the studies (n = 11; 50%) used self-report measures completed by participants who were not blinded to the intervention; as such, these studies were deemed as at high risk of detection bias. The remaining studies used other measures including urine toxicology screens (Catalano 1999; Dakof 2010; Donohue 2014; Kelley 2002 (Intervention 1); Kelley 2002 (Intervention 2); Luthar 2000; Luthar 2007; Morgenstern 2006; Schottenfeld 2011; Slesnick 2013; Volpicelli 2000); alcohol breath tests (Kelley 2002 (Intervention 1); Kelley 2002 (Intervention 2)); hair samples (Barlow 2019); child welfare outcomes extracted from court records (Dakof 2010); or took adequate steps to manage detection bias within the analysis (Black 1994).

Incomplete outcome data

The majority of studies (n = 17; 77%) were at low risk of attrition bias, reporting follow-up rates of 70% or above without significant differences between treatment groups. We assessed four studies as at high risk of attrition bias (Dawe 2007; Saldana 2015; Schottenfeld 2011; Smith Stover 2019). One study did not report attrition of follow-up (Volpicelli 2000).

Selective reporting

One study had published their protocol prior to commencing the trial (Barlow 2019). This study was assessed as at low risk of reporting bias, as all planned measures were reported as outcomes. We assessed the remaining studies as at unclear risk of reporting bias, as the protocols for these studies were not available.

Other potential sources of bias

We assessed the majority of studies (n = 19; 86%) as at low risk of other bias. However, we assessed three studies as at high risk of other bias: one study achieved 71% of all possible urine samples and assumed abstinence when urine samples were not available; usual clinical practice would assume that drugs had been consumed on these occasions (Schottenfeld 2011), and two studies reported per-protocol analysis only (Gwadz 2008; Luthar 2000).

Effects of interventions

See: **Summary of findings 1** Any psychosocial interventions compared with control intervention for substance-using parents; **Summary of findings 2** Drug and alcohol use only-focused psychosocial interventions compared with control intervention for substance-using parents; **Summary of findings 3** Parenting-focused psychosocial interventions WITHOUT substance use-focused component compared with treatment as usual and attention control for substance-using parents; **Summary of findings 4** Integrated parenting and substance use-focused component psychosocial interventions compared with treatment as usual and attention control for substance-using parents; **Summary of findings 5** Psychosocial interventions WITH child involvement compared with control for substance-using parents; **Summary of findings 6** Psychosocial interventions WITHOUT child involvement compared with control for substance-using parents; **Summary of findings 7** Psychosocial interventions compared with control for mothers who use substances; **Summary of findings 8** Psychosocial interventions compared with control for fathers who use substances

Primary outcome

Frequency of alcohol misuse

The mean age of the participants was 32.3 years; average percentages of ethnicity across studies showed similar proportions of white (non-Hispanic)/Caucasian (understood to be white) (40%) and African-American/black (40.3%). The majority of participants were female (6 months: n = 377, 70%; 12 months: n = 245, 60%). The frequency at which participants receiving a psychosocial intervention for substance use consumed alcohol was reduced with a small effect significantly more than the comparison interventions at six months (standardised mean difference (SMD) −0.32, 95% confidence interval (CI) −0.51 to −0.13), 6 studies; 475 participants, see Analysis 1.1 and Figure 4, and at 12 months (SMD −0.25, 95% CI −0.47 to −0.03), 4 studies; 366 participants, see Analysis 1.2; Figure 5; and Summary of findings 1.

Figure 4. Forest plot of comparison: 1 Frequency of alcohol misuse - all psychosocial interventions, outcome: 1.1 Short-term follow-up (6 months).

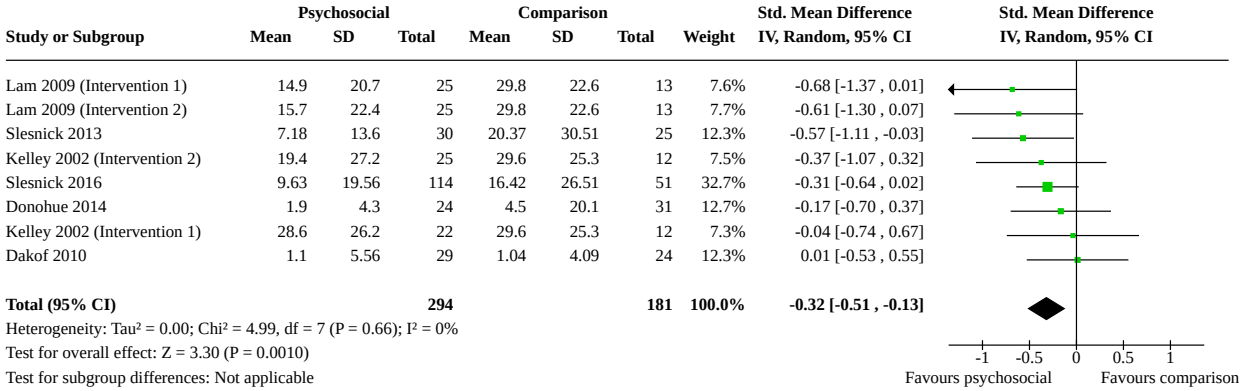
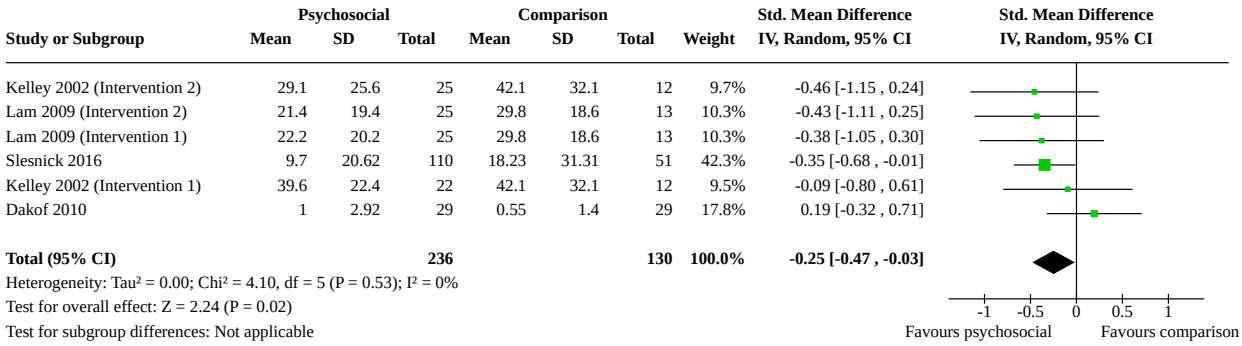


Figure 5. Forest plot of comparison: 1 Frequency of alcohol misuse - all psychosocial interventions, outcome: 1.2 Long-term follow-up (12 months).



Impact of intervention type

We examined the effect of the intervention on frequency of alcohol misuse by type of psychosocial intervention, analysing separately those interventions which sought to target the substance use behaviour; those that targeted parenting skill and/or parent-child relationship; and those that integrated parenting and drug and alcohol interventions. Our results showed that psychosocial interventions targeting the individual parent's substance use did not significantly reduce frequency of parental alcohol misuse at 6 months (SMD −0.35, 95% CI −0.86 to 0.16), 2 studies; 89 participants, or 12 months (SMD −0.09, 95% CI −0.09 to 0.61), 1 study; 34 participants, see Analysis 2.1; supplementary and Summary of findings 2. Similarly, psychosocial interventions targeting parenting skill and family relationships alone did not significantly reduce the frequency of parental alcohol misuse 6 months (SMD −0.21, 95% CI −0.46 to 0.04), 3 studies; 273 participants, or 12 months (SMD −0.11, 95% CI −0.64 to 0.41), 2 studies; 219 participants, see Analysis 2.2;; and Summary of findings 3. However, parenting interventions with an integrated substance use component significantly reduced frequency of parental alcohol misuse, with a medium effect at 6 months (SMD −0.56, 95% CI −0.96 to −0.16), 2 studies; 113 participants, and a small effect at 12 months (SMD −0.42, 95% CI −0.82 to −0.03), 2 studies; 113 participants, see Analysis 2.3; and Summary of findings 4.

We examined the effect of involving children in the psychosocial interventions, and found that interventions which involved children in one or more sessions did not reduce parental alcohol misuse at 6 months (SMD −0.21, 95% CI −0.46 to 0.04), 3 studies; 273 participants, or 12 months (SMD −0.11, 95% CI −0.64 to 0.41), 2 studies; 219 participants, see Analysis 3.1; and Summary of findings 5. Conversely, psychosocial interventions which did not directly involve the child in sessions were found to reduce frequency of parental alcohol misuse with a small effect significantly more than controls at 6 months (SMD −0.47, 95% CI −0.76 to −0.18), 3 studies; 202 participants, and 12 months (SMD −0.34, 95% CI −0.69 to 0.00), 2 studies; 147 participants, see Analysis 3.2; and Summary of findings 6.

Impact of family member role

We investigated intervention effect by the parental role of the targeted recipient. Our results showed that at six-month follow-up, both interventions which targeted mothers (SMD −0.27, 95% CI −0.50 to −0.04, 4 studies; 328 participants) and those which targeted fathers (SMD −0.43, 95% CI −0.78 to −0.09, 2 studies; 147 participants) significantly reduced the frequency of parental alcohol misuse with a small effect size. At 12-month follow-up, only the effect for interventions targeting fathers remained significant (SMD −0.34, 95% CI −0.69 to 0.00), 2 studies; 147 participants, see

Analysis 4.1; Summary of findings 7; Analysis 4.2; and Summary of findings 8.

Frequency of drug use

The majority of participants in the included studies who used drugs were heroin and/or cocaine users, with heroin typically being reported as the most frequently used drug. As such, were studies reported data for multiple substances separately, we prioritised data relating to heroin use, and meta-analysed this information with data relating to poly drug use where individual substances used were not specified.

The mean age of the participants was 32 years; average percentages of ethnicity across studies showed a higher proportion of white (non-Hispanic)/Caucasian (understood to be white) (53.1%) than the next-largest ethnicity group (African-American/black 33.7%). The majority of participants were female (6 months: n = 484; 77%; 12 months: n = 373; 73%). Participants receiving the experimental psychosocial intervention for substance-using parents did not reduce the frequency at which they used drugs more than participants in the control interventions at 6 months (SMD −0.02 days, 95% CI −0.18 to 0.15), 8 studies; 625 participants, see Analysis 5.1 and Figure 6; however, a significant reduction was found at 12 months (SMD −0.21, 95% CI −0.41 to −0.01), 6 studies; 514 participants, see Analysis 5.2; Figure 7; and Summary of findings 1.

Figure 6. Forest plot of comparison: 5 Frequency of drug use - all psychosocial interventions, outcome: 5.1 Short-term follow-up (6 months).

Study or Subgroup	Psychosocial Mean	SD	Total	Comparison Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Kelley 2002 (Intervention 2)	22.4	25.8	22	38.5	26.8	11	4.9%	-0.60 [-1.34 , 0.14]
Saldana 2015	0.42	1.16	13	1.3	2.83	9	3.6%	-0.42 [-1.28 , 0.44]
Lam 2009 (Intervention 1)	14.9	20.7	25	21.8	22.6	13	5.9%	-0.32 [-0.99 , 0.36]
Lam 2009 (Intervention 2)	15.7	22.4	25	21.8	22.6	13	5.9%	-0.27 [-0.94 , 0.41]
Donohue 2014	6.4	20	24	10	20.3	31	9.3%	-0.18 [-0.71 , 0.36]
Kelley 2002 (Intervention 1)	36.4	24.3	21	38.5	26.8	11	5.0%	-0.08 [-0.81 , 0.65]
Dakof 2010	0	0.01	29	0	0.01	23	8.9%	0.00 [-0.55 , 0.55]
Slesnick 2013	30.5	40.1	30	28.35	37.18	25	9.5%	0.05 [-0.48 , 0.59]
Catalano 1999	9.08	25.78	78	6.78	19.69	57	22.8%	0.10 [-0.24 , 0.44]
Slesnick 2016	16.1	33.88	114	8.83	24.18	51	24.3%	0.23 [-0.10 , 0.56]
Total (95% CI)			**381**			**244**	**100.0%**	**-0.02 [-0.18 , 0.15]**

Heterogeneity: Tau² = 0.00; Chi² = 7.57, df = 9 (P = 0.58); I² = 0%
Test for overall effect: Z = 0.18 (P = 0.85)
Test for subgroup differences: Not applicable

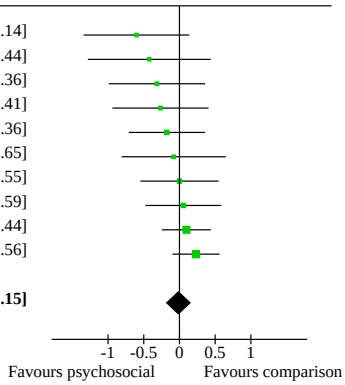
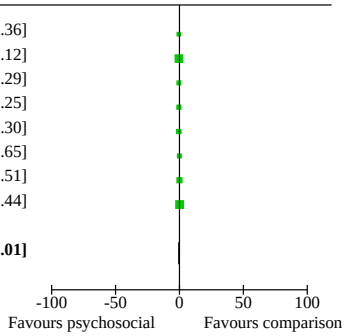


Figure 7. Forest plot of comparison: 5 Frequency of drug use - all psychosocial interventions, outcome: 5.2 Long-term follow-up (12 months).

Study or Subgroup	Psychosocial Mean	SD	Total	Comparison Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Saldana 2015	0	0.1	13	3.33	10	9	5.1%	-0.51 [-1.37 , 0.36]
Catalano 1999	6.89	15.81	74	19.68	36.82	58	24.9%	-0.47 [-0.82 , -0.12]
Kelley 2002 (Intervention 2)	33.1	35.6	22	48.8	32.2	11	7.0%	-0.44 [-1.18 , 0.29]
Lam 2009 (Intervention 2)	21.4	19.4	25	29.8	18.6	13	8.0%	-0.43 [-1.11 , 0.25]
Lam 2009 (Intervention 1)	22.2	20.2	25	29.8	18.6	13	8.1%	-0.38 [-1.05 , 0.30]
Kelley 2002 (Intervention 1)	46.6	24.8	21	48.8	32.2	11	7.0%	-0.08 [-0.81 , 0.65]
Dakof 2010	0	0.01	29	0	0.01	29	13.2%	0.00 [-0.51 , 0.51]
Slesnick 2016	12.31	28.96	110	9.2	25.18	51	26.8%	0.11 [-0.22 , 0.44]
Total (95% CI)			**319**			**195**	**100.0%**	**-0.21 [-0.41 , -0.01]**

Heterogeneity: Tau² = 0.01; Chi² = 7.96, df = 7 (P = 0.34); I² = 12%
Test for overall effect: Z = 2.10 (P = 0.04)
Test for subgroup differences: Not applicable



Impact of intervention type

We examined the effect of the intervention on frequency of drug use by type of psychosocial intervention. Our results showed that psychosocial interventions targeting the individual parent's drug and alcohol use did not significantly reduce the frequency of parental drug use at 6 months (SMD 0.01, 95% CI −0.42 to 0.44), 2 studies; 87 participants, or 12 months (SMD −0.08, 95% CI −0.81 to 0.65), 1 study; 32 participants, see Analysis 6.1; and Summary of findings 2. Similarly, psychosocial interventions that targeted parenting skills only did not significantly reduce the frequency at which parents used drugs at 6 months (SMD 0.10, 95% CI −0.11 to 0.30), 4 studies; 407 participants, or at 12 months (SMD −0.13, 95% CI −0.52 to 0.26), 3 studies; 351 participants, see Analysis 6.2; and Summary of findings 3; however, integrated parenting interventions which combined a parenting component with an adjunctive substance use component significantly reduced the

frequency of parental drug use with a small effect at 6 months (SMD −0.39, 95% CI −0.75 to −0.03), 2 studies; 131 participants, and 12 months (SMD −0.43, 95% CI −0.80 to −0.07), 2 studies; 131 participants, see Analysis 6.3; and Summary of findings 4.

We examined the effect of interventions in which children were present at one or more of the sessions. Our results showed that neither interventions which involved children nor those that did not significantly reduced the frequency of parental drug use at six months. At 12 months, only those interventions that did not involve children resulted in significant reductions in the frequency of parental drug use, with a small effect (SMD −0.34, 95% CI −0.69 to 0.01), 2 studies; 141 participants, see Analysis 7.1; Analysis 7.2; Summary of findings 5; and Summary of findings 6.

Impact of family role

We investigated the effect of intervention based on the parental role of the targeted recipient. Our results showed that interventions targeting fathers significantly reduced the frequency of their drug use with a small effect at 6-month (SMD −0.31, 95% CI −0.66 to 0.04) and 12-month follow-up (SMD −0.34, 95% CI −0.69 to 0.01), 2 studies; 141 participants, see Analysis 8.2; and Summary of findings 8, whilst neither time point showed reductions for mothers (see Analysis 8.1; and Summary of findings 7).

Three further studies which reported on frequency of drug use could not be included in the meta-analysis, one of which examined the effectiveness of psychosocially enhanced drug and alcohol treatment (Volpicelli 2000), and a further two which examined a parenting intervention (Gwadz 2008; Smith Stover 2019). One study reported less frequent drug use in the experimental parenting intervention, although this group was using substances significantly less at the beginning of treatment (Smith Stover 2019). Neither of the remaining studies found between-group differences in frequency of drug use.

Secondary outcomes

Meta-analysis was not possible for data relating to our secondary outcomes due to variations in choice of outcome measure and timing of follow-up in the included studies. As such, we conducted a narrative synthesis, using appropriate headings to illuminate the findings of the included studies. Specifically, we grouped trials according to outcome, type of intervention, and targeted substance.

Levels of use (quantity per occasion)

There was a lack of evidence of the impact of psychosocial interventions on levels of parental substance use, with only two studies reporting this outcome (Dawe 2007; Gwadz 2008). Both of these studies examined the effectiveness of parenting interventions. One study found that parents who received the experimental intervention significantly reduced their methadone dose, whilst those in the control group did not (Dawe 2007). Neither study reported between-group differences in levels of alcohol use.

Sustained abstinence/any use

Ten studies reported outcomes relating to sustained abstinence of alcohol and/or drugs. These included abstinence rates (Bartu 2006; Ernst 1999; Morgenstern 2006; Schottenfeld 2011) any drug use (Black 1994; Catalano 1999; Schuler 2000); urine toxicology (Luthar 2000; Luthar 2007); or relapse rates (Suchman 2017). The studies did not show that the experimental interventions resulted in significantly better outcomes: five studies reported effects that favoured the intervention (Black 1994; Catalano 1999; Ernst 1999; Morgenstern 2006; Suchman 2017), whilst the remaining five studies did not. The studies which did not find a direction of effect favouring the intervention reported the following results: no difference (Schottenfeld 2011; Schuler 2000); inconsistent effect (Luthar 2000); or effects favouring the control group (Bartu 2006; Luthar 2007 (see Table 1).

Dependence/disorder symptomology

No studies reported on outcomes relating to dependence/disorder symptomology.

Engagement with structured treatment

Four studies examined the effects of the experimental intervention on treatment engagement outcomes, and showed mixed results. Both Ernst 1999 and Morgenstern 2006 reported that the experimental psychosocial intervention for parents who used substances resulted in more treatment engagement than the control conditions. However, Slesnick 2013 and Volpicelli 2000 found no significant difference between groups.

Retention in structured treatment

No studies reported outcomes which met our prespecified definition of retention where this was measured as an outcome of the experimental intervention.

Child substance use

No studies meeting our inclusion criteria which examined the impact of interventions for parents who use substances on substance use by children.

Child welfare outcomes

We identified 11 studies which examined child maltreatment including child abuse potential, recorded incidents of child protection service involvement, and placement in state care. Seven of the studies reported significant improvements in the intervention group on their chosen measure (Barlow 2019; Dakof 2010; Dawe 2007; Donohue 2014; Lam 2009 (Intervention 1); Lam 2009 (Intervention 2); Luthar 2000; Saldana 2015), providing some support that parenting interventions may be effective at reducing child maltreatment in parents who use substances. However, a further four studies found no significant difference in effects between intervention and control groups on child maltreatment outcomes (Black 1994; Luthar 2007; Morgenstern 2006; Schuler 2000) (see Table 2).

DISCUSSION

Summary of main results

We found moderate-quality evidence that some psychosocial interventions tailored for a parent population may be superior to treatment as usual or other comparison conditions at reducing the frequency of parental alcohol misuse and longer-term drug use. Almost all of our analyses showed that psychosocial interventions resulted in greater reductions in the frequency of alcohol misuse than drug use. When investigating the type of psychosocial intervention, we found that those interventions which combined both a parenting focus with an adjunctive substance use

component were effective at reducing the frequency of parental alcohol and drug use, whereas interventions that targeted alcohol and drug use or parenting alone were not. In particular, fathers' substance use seemed to benefit from the intervention, whilst only short-term reductions in the frequency of alcohol misuse were found in mothers. However, it should be noted that the intervention typically received by mothers focused on their parenting skills, without an integrated substance use component. The two studies examining interventions in fathers contributed four intervention groups to our analysis. All of these interventions included content focused on the individual substance use needs of the father, whilst two intervention group also included integrated content directed at parenting and family issues. The interventions provided to fathers were also more intensive, with a mean of 28 sessions, compared to a mean of 18 sessions provided to mothers. We also found that involving the child in sessions, for example to practice newly learned parental skills within a supervised context or to explore the parent-child relationship, was not associated with a reduction in the frequency of parental drinking or drug use. Indeed, only those interventions which did not involve the child directly in sessions were found to be effective at reducing parental alcohol and drug use, suggesting that the involvement of children may somehow lessen the intervention effect.

Our findings give support to the view that strategies that target the family may benefit recovery (White 2008). Notably, we found that interventions which seek to address parenting explicitly within the context of alcohol and drug use may offer a mechanism for change. However, it is unclear what the specific factors are that influence the success and failure of the interventions. Our results show that psychosocial interventions, including those that seek to support the development of parenting skill, result in significant reductions in the frequency of substance use in fathers, but not in mothers. Within a society wherein mothers are typically viewed as the primary caregiver, this finding might seem at odds with a theory based upon the potential of parenting to initiate or sustain a reduction in substance use. However, environmental factors such as the family can both augment and nullify the influence of the intervention (Moos 2003).

Recovery capital (Cloud 2001; Granfield 1999), whilst philosophically associated with natural recovery (White 2008), provides a useful theoretical framework through which to view our results. Recovery capital is the sum of the internal and external resources that are available for a substance user to draw upon within their efforts to initiate and sustain recovery. It broadly consists of three components: personal recovery capital, which includes physical capital (health, finance, values and attributes); family and social recovery (relationships and connections to conventional institutions); and community recovery capital (treatment and other organised support). Individuals with greater recovery capital have greater capacity to achieve change. Conversely, individuals may accrue negative recovery capital (Cloud 2008), that is characteristics or events which lessen the individual's ability to recover. Previous research has shown that drug users typically experience a greater number of negative events than alcohol misusers (Best 2012; Blomqvist 1999). Whilst the studies included in our review did not provide sufficient information to reliably assess this, in the absence of a clear difference between the intervention type or intensity between these two groups of parents, it may provide some explanation as to why we found that the frequency of alcohol misuse was reduced more than the frequency of drug use in almost all of our analyses. When considering the evidence of effectiveness by parent gender, fathers in the included studies often possessed components of recovery capital. They were more often employed, and all were in a relationship with a female who did not use substances and as such benefited from a supportive and structured social context (Moos 2007), and retained their children in their care. These partners received couples' therapy alongside the substance-using male partner, an intervention that has been found to be effective at reducing substance use in general adult populations not specific to parents (Powers 2008). Conversely, the mothers often possessed little recovery capital: they were typically single or in a relationship with a male drug user (Ernst 1999; Slesnick 2013; Slesnick 2016), and they had low levels of education, employment, and income (Dakof 2010; Donohue 2014; Ernst 1999; Saldana 2015; Slesnick 2013; Slesnick 2016). Moreover, the mothers within our review had often accrued negative recovery capital (Cloud 2008), such as previous periods of incarceration (Catalano 1999); were currently homelessness (Ernst 1999; Slesnick 2013); had mental health problems (Dakof 2010; Gwadz 2008); or had experienced trauma such as childhood physical or sexual abuse, Dakof 2010; Ernst 1999; Slesnick 2016, or being removed from the care of their parents and placed in out-of home care placements as children (Ernst 1999). Parents who use substances are highly stigmatised (Chandler 2013), with these stigmatised views being experienced most acutely by mothers, for whom substance use is framed to be incompatible with an identity as a 'good mother' (Radcliffe 2011; Reid 2008). This stigma compounds the negative recovery capital possessed by female substance users, who experience more guilt and shame than their male counterparts, as such presenting a greater barrier to change (Cloud 2008). Many of the female participants of the included studies had been recruited following alcohol or drug use in pregnancy (Ernst 1999), or as a result of their involvement in children protection services, wherein their ability to provide adequate care for their children had been questioned (Dakof 2010; Donohue 2014; Saldana 2015). Moreover, many of the mothers had previously lost custody of a one or more children (Dakof 2010; Ernst 1999; Saldana 2015; Slesnick 2016), increasing their vulnerability and likelihood of reoccurring care proceedings (Broadhurst 2017). The combined effect being that the mothers who used substances in the studies included in our review did not have equal capacity (recovery capital) and resource (intervention content and intensity) to reduce their substance use.

Our review was unable to demonstrate that psychosocial interventions are effective at improving rates of sustained abstinence or treatment engagement and retention. There was some evidence that intervening with a parent who uses substances could bring about downstream benefits for children with regard to reduced likelihood of child maltreatment. These interventions typically sought to assist substance-using parents of younger children to build an attachment with their child and to learn techniques which help them manage the conflict between their parenting responsibilities and their substance use needs. Many of the studies that found a significant impact on child maltreatment were also trials that had reported significant reductions in the frequency of alcohol and drug use; however, we were unable to conduct meta-analysis to investigate this outcome further. Whilst the individual studies were often well-conducted, they were impacted by risk of performance and detection bias and typically had small sample sizes, which resulted in the evidence being of very low quality.

Overall completeness and applicability of evidence

The interventions examined were typically 'extended interventions' ranging from seven sessions to regular intervention over a three-year duration. There was a lack of research examining interventions for parents below the threshold for dependency, such as those who may be hazardous of harmful alcohol users or frequent drug users, and as such, our findings are not applicable to these populations. Parents whose substance use is below the diagnostic threshold for dependency are likely to have lower needs and may benefit from brief or shorter, time-limited intervention. The majority of the participants in the included studies were mothers, with only two studies included in our primary meta-analysis targeting fathers. The baseline characteristics reported in these studies did not include evidence of additional vulnerability over and above the participant's substance use. Moreover, male participants were excluded if they were in a relationship with a female partner who met the diagnostic criteria for a substance use disorder, or if they or their partner had a mental health disorder. As such, the findings of this review may not be applicable to fathers who experience other psychological or social risks. Whilst the findings of this review suggest that mothers did not reduce the frequency of their drug use or sustain short-term reductions from alcohol misuse, the mothers included in the trials were often vulnerable and impacted by multiple other risk factors. Mothers who do not have additional vulnerability, or those with supportive relationships with a partner who does not use substances, may benefit from an intervention. The majority of the studies were conducted in the USA, where important family law, healthcare, and cultural differences exist. No studies were conducted in middle and low income countries. As such, generalisability to other countries cannot be assumed.

Quality of the evidence

The quality of the evidence in the review ranged from moderate to very low. Almost all of the studies included in this review were at high risk of performance bias, and half were at high risk of detection bias. Small sample sizes often resulted in a reduced certainty of outcome from across the body of evidence. Whilst it is acknowledged that the vulnerability of the population and the sensitive nature of parental substance use presents a challenge to conducting large randomised trials, regardless the low power and precision of the evidence does impact upon its quality. Whilst we were able to meta-analyse results relating to the primary outcome and in doing so increased the strength of evidence, this was not possible for our secondary outcomes. The results of the studies reporting on our secondary outcomes were typically mixed and provided little evidence of effect. There was some suggestion that interventions which reduce the frequency of parental substance use may also benefit child welfare outcomes; however, the quality of this evidence is very low and relies upon a vote-counting approach.

Potential biases in the review process

Studies which report positive results are more likely to achieve publication, resulting in a potential bias in the review. We made every effort to minimise this potential by implementing our search strategy within a range of bibliographic databases alongside sources of unpublished studies and by contacting authors with published work within the field. In a further attempt to consider publication bias, we searched for published protocols from the included trials to inspect for differences between intended and reported outcomes. However, only one study had published a protocol (Barlow 2019). We intended to analyse a funnel plot to investigate publication bias; however, as there were fewer than 10 trials in our primary meta-analysis, the minimum number of trials required to enable a funnel plot was not met (Sterne 2011).

Agreements and disagreements with other studies or reviews

The findings of our review provide support for the findings of other reviews reporting the benefit of integrating parenting interventions with substance use treatment programmes (Milligan 2010; Moreland 2018; Niccols 2012). A meta-analysis of trials, quasi-experimental studies, and cohort studies found that integrated programmes for pregnant women and mothers resulted in significantly greater improvements in maternal substance use outcomes when compared to no treatment. However, significant results were not found when compared to non-integrated treatment programmes (Milligan 2010). A linked review examining the effectiveness of integrated treatment programmes at improving child welfare outcomes concluded that integrated programmes resulted in reduced child abuse potential (Niccols 2012). It should be noted, however, that these findings were based upon narrative synthesis of only three trials. A further narrative synthesis of parenting interventions for both mothers and fathers reported that parents receiving integrated parenting and substance use interventions were more likely to reduce their substance use and child abuse potential than those who received usual treatment (Moreland 2018).

A number of studies and reviews have highlighted the challenges of intervening with female substance users, who have been found to have different needs to their male counterparts including elevated histories of childhood trauma and abuse, physical and mental health difficulties, and socioeconomic problems (Grella 2005; Lemon Osterling 2008; Messina 2000; Sacks 2008). Our findings support those of other reviews of psychosocial interventions with female substance users, which have found that psychosocial interventions do not significantly reduce substance use in female offenders, Perry 2019, or pregnant drug users (Terplan 2015), whilst other reviews have found insufficient evidence to conclude effectiveness of psychosocial interventions for pregnant alcohol misusers (Lui 2008). The findings of our review present a challenge to a previous narrative review which concluded that the involvement of children in women-centred substance use treatment may be beneficial (Lemon Osterling 2008). Our meta-analysis suggests that parents may be better able to reduce the frequency of their alcohol and drug use if the intervention they receive does not include direct involvement of children. However, it should be acknowledged that the Lemon Osterling 2008 review examined the wider benefit of children residing with their mothers within residential treatment programmes (and not necessarily being involved in the therapeutic sessions provided to the mother), whilst all studies included in our meta-analysis examined community interventions, where the child was directly involved in one or more of the therapeutic sessions.

AUTHORS' CONCLUSIONS

Implications for practice

There is moderate-quality evidence that psychosocial interventions which have been tailored for a parent population are important in maintaining reduced substance use in the longer term. However, for mothers who use substances, this may not be enough to overcome their multiple vulnerabilities and lower levels of recovery capital. Whilst involving other family members in the intervention may be helpful in bringing about change in the parental substance use, it is suggested that in interventions which primarily seek to reduce the frequency of parental alcohol or drug use, the presence of the child during the intervention sessions is not beneficial. Whilst many studies provided parent skills training which the parents where encouraged to practice at home with their children, having the children present within the sessions was found to be associated with non-significant results. Whilst all interventions met our definition of 'extended intervention' (over 6 sessions), the number of sessions ranged from 7 to 39 in trials reporting this information, with a mean of 22.4 sessions in the trials included in the primary meta-analysis (mean 21.3 sessions in all included studies), suggesting that a longer-term intervention may be required. Our meta-analysis found that fathers receiving psychosocial family interventions were more likely to reduce their substance use than mothers. However, this finding may be due to differences in intervention content and delivery, as well as the vulnerability of the female participants in the included studies.

Implications for research

Although psychosocial interventions appear to be effective at reducing parental substance use, almost all of the research has been conducted in the USA. Important family law, cultural, and healthcare differences are likely to affect the relevance of interventions to populations from other countries, and as such, further, international research in needed. The literature is largely a maternal literature, with many studies exclusively involving mothers, or large proportions of their samples being mothers. As such, the evidence for interventions for fathers is limited. Nevertheless, the findings of beneficial effects seem more clear. The research involving mothers tends to examine interventions which focus upon their parenting role but do not seek to address their individual substance use needs. As such, it is currently unclear whether the influential factors affecting intervention success is the parenting role or the integration of parenting- and substance use-focused intervention content. More research is required in general with fathers, and more research examining integrated parenting interventions is specifically required for mothers. All of the included studies examined the effectiveness of interventions delivered to parents using substances at dependent levels. Given the extensive harms to both the parent and child from substance use below the diagnostic thresholds (McGovern 2018b), this is an important area for future research. One ongoing study not yet included in this review is conducting a trial of brief alcohol interventions for risky-drinking parents. However, as this study is a pilot feasibility randomised controlled trial, it will not be powered to detect treatment effects.

We were not able to meta-analyse studies examining the impact of psychosocial interventions for parents who use substances on levels of parental substance use, sustained abstinence, treatment engagement and retention, and child maltreatment. Further research examining these outcomes is required to determine the effectiveness of these interventions. Additionally, analysis of outcomes beyond the scope of this review such as parental skill, family functioning, and child psychosocial adjustment would improve knowledge of intervention effectiveness. To advance intervention research, studies should include comparable measures and follow-up time points to existing research in the field. In particular, there is a pressing need to determine the effectiveness of interventions for parents who use substances to reduce child maltreatment. Integrated psychosocial interventions which combine parenting skills interventions with a substance use component may show the most promise in reducing the frequency of parental alcohol and drug use. Such an intervention would require input from both drug and alcohol treatment providers and family support and child protection services. Clear and unambiguous evidence of the effectiveness and cost-effectiveness aligned to the priorities of child protection services would likely be necessary to support implementation of an integrated intervention (Flottorp 2013; Greenhalgh 2004).

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* Indicates the major publication for the study

CHARACTERISTICS OF STUDIES

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

Barlow 2019

Study characteristics	
Methods	Randomised controlled trial: Parents Under Pressure (PuP) versus treatment as usual (TAU) ITT: yes
Participants	Setting: UK, drug and alcohol treatment (opiate substitution therapy, relapse prevention, substance dependency counselling) Number randomised: 100; 96% mothers with a mean age of 30.8 years; at least 1 child under to age of 2.5 years (mean age 9.2 months); 82% currently have child protection services involved; 86% white British; 38% married/cohabiting, 50% married, 2% separated, 10% other
Interventions	PuP is underpinned by the Integrated Theoretical Framework, which is a dynamic model of assessment and treatment planning drawing upon attachment theory, behavioural parenting skills, and adult psychopathology. The programme consists of 12 modules, all focusing upon the quality of caregiving and parental emotional regulation. There is emphasis on the parent learning their baby's language and 'mindful play' in which the parent is taught to use mindful constructs to observe, describe, and participate during play and at special times. The mean number of sessions received was 11.1 (SD 8.19) over

Barlow 2019 *(Continued)*

	a mean of 122 days of engagement. 68% of participants received 6 or more sessions. Sessions were delivered within the family home. No effort was made to standardise treatment as usual, allowing for real-world comparison. The referral agencies had a range of services available including family support, family counselling, and parenting programmes provided in a group format. N = 52 participants were randomised to PuP and N = 48 to TAU.
Outcomes	Child abuse potential was measured at 6- and 12-month follow-up using the brief version of the Child Abuse Potential Inventory (BCAPI).
Notes	The study was funded by the National Society for the Prevention of Cruelty of Children (NSPCC, UK). 2 of the authors declared a conflict of interest based on their role as developers of the intervention.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	1:1 computer-generated randomised sequence, stratified by treatment site
Allocation concealment (selection bias)	Low risk	Parents who were already engaged in treatment were randomly assigned to 1 of the 2 intervention groups by an independent researcher.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Baseline data were provided by participants before randomisation. Outcomes data were collected and analysed by researchers who were blinded to treatment arm allocation. Concordance between TLFB and head hair (sample length 3 cm) was obtained from a random sample of 10 (10%) participants.
Incomplete outcome data (attrition bias) All outcomes	Low risk	75% follow-up at 12 months
Selective reporting (reporting bias)	Low risk	Published protocol available. Review of the protocol verified that all outcomes listed in protocol were reported in the final publication.
Other bias	Low risk	2 of the authors reported a conflict of interest as the developers of the experimental intervention; however, neither was involved in the data collection or analysis. Contamination not described and is unlikely. No further risk of bias identified.

Bartu 2006

Study characteristics

Methods	Randomised controlled trial: home visitation versus telephone contact at 2 months and a home visit at 6 months postpartum ITT: yes
Participants	Setting: Australia, Antenatal Chemical Dependency Clinic

Bartu 2006 *(Continued)*

	Mothers of infants recruited by midwives during pregnancy (approximately 35 to 40 weeks' gestation) who were illicit drug users and English speaking Number randomised = 152; main drug use when not pregnant: 45% heroin, 29% amphetamine, 11% cannabis, 3% benzodiazepines, 13% other; 89% Caucasian (understood to be white), 11% other; 40% married/de facto; 67% were in an intimate relationship with an illicit drug user; 14% completed high school or other higher education; 46% unemployed
Interventions	N = 76 women received home-visiting intervention. A research midwife conducted visits at weeks 1, 2, and 4 then monthly until 6 months' postpartum; total of 8 visits, each visit lasted 1 to 2 hours. The semi-structured education and support intervention allowed the midwife flexibility to address any areas of concern that arose. N = 76 women received the comparison intervention, which consisted of a telephone contact at 2 months and a home visit at 6 months' postpartum.
Outcomes	Maternal drug use was estimated by the Opiate Treatment Index (OTI) and scores reported on as 0 = abstinence, 0.01 to 0.013 = once a week or less, 0.14 to 0.99 = more than once a week, 1.00 to 1.99 = daily, 2 or more = more than once a day. Assessed at 2 and 6 months.
Notes	At last contact, mothers in both groups received AUD 20 for their time for each home visit. At recruitment mothers were unaware that they would be paid for this, hence it was not an inducement for involvement in the study. At 2 months' follow-up, 93% of both groups completed assessment; at 6 months, 93% of experimental condition and 86% of comparison group competed assessment. The study was funded by Healthways. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Sequence generation not described.
Allocation concealment (selection bias)	Low risk	"Randomisation was conducted using opaque sealed envelopes in blocks of 12. The women chose one envelope from a group of at least six opaque sealed envelopes with allocation to either the HVG or the CG. When fewer than six envelopes remained in the block, another block was added so choice was always available."
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	High risk	Comparison group follow-up interview conducted by telephone, experimental group followed up face-to-face.
Incomplete outcome data (attrition bias) All outcomes	Low risk	76 women per study group were recruited. At 6-month follow-up, there were 71 (93%) women in the experimental group and 65 (86%) women in the comparison group. Whilst a higher percentage of women were retained in the experimental group, both groups reported less than 30% attrition.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.

Bartu 2006 *(Continued)*

Other bias	Low risk	Contamination not described and is unlikely. No further risk of bias identified.

Black 1994

Study characteristics	
Methods	Randomised controlled trial: home visitation versus treatment as usual ITT: yes
Participants	Setting: USA, prenatal clinic Pregnant women were eligible if they reported prenatal cocaine or heroin use on questionnaire. Number randomised: 60 women and their babies; 87% used heroin, 84% used cocaine, 47% used alcohol, 97% smoked cigarettes; 89% African-American; 97% single; mean 2.3 children; mean age 27.2 years; 41% HIV-positive; 62% had a history of incarceration; 18% had been victims of violence; 16% had been raised in foster homes; mean 11 years of education
Interventions	All infants received their primary health care in a multidisciplinary clinic dedicated to the treatment of infants born to women who used substances. The experimental group (N = 31) received hour-long home visits from a community health nurse, with 2 visits scheduled before birth and continuing bi-weekly visits until child reached 18 months old. The home-visiting programme was based on an ecological model with 4 objectives: 1) forming a therapeutic alliance with the mother; 2) supporting the mother with attention to her personal, family, and environmental needs; 3) providing opportunities to model and promote healthy parent-child interaction and development; and 4) providing information about child care, child development, safety, community resources, and advocacy. Women were given handouts describing normal child development and activities to promote their child's development. In addition to the formal child development curriculum, the home-visiting nurses directed their attention to the issues raised by the women. Common concerns included maladaptive relationships with extended family members (including abuse), affordable housing, and financial problems. By providing support and serving as both a catalyst and a respondent, the nurses encouraged the women to become advocates for themselves and their children. After each contact, the nurses completed a personal contact record that documented the time spent with the family, the content and quality of the visit, and goals and objectives for subsequent visits. The control condition consisted of usual primary care encouraging attendance. Women in the control group (N = 29) received no home visits.
Outcomes	Ongoing drug abuse was evaluated by asking women about their drug behaviour during the 6-, 12-, and 18-month evaluations. Child maltreatment was measured with the Child Abuse Potential Inventory (CAPI).
Notes	72% of mothers completed 18-month follow-up assessments. The study was funded by the National Center on Child Abuse and Neglect. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Sequence generation not described.
Allocation concealment (selection bias)	Unclear risk	No details reported.

Black 1994 *(Continued)*

Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"The CAPI also includes three validity scales (lie, random response, and inconsistency scales). Milner recommends that if any of the three scales is elevated, the response distortion indices (faking-good, faking-bad, random-response) should be calculated. All three indices were calculated on the sample. No respondents met the criteria for the faking-bad or random-response index. During prenatal administration of the CAPI 19% of the intervention group mothers and 10% of the comparison group mothers met the criteria for faking-good index. During 18-month evaluation the percentages were 35% for the intervention group and 17% for the comparison group. The faking-good index was used as a covariate for analyses involving self-report measures".
Incomplete outcome data (attrition bias) All outcomes	Low risk	72% of mothers completed 18-month follow-up, with no difference found between women who completed the study and those that did not by intervention status.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination not described and is unlikely. No further risk of bias identified.

Catalano 1999

Study characteristics	
Methods	Randomised controlled trial: Focus on Families (FOF) project versus TAU ITT: yes
Participants	Setting: USA, 2 methadone clinics Randomised: N = 144 methadone-treated parents (representing N = 130 families) and their children (N = 178) ranging in age from 3 to 14 years. To be eligible to participate in the study, it was necessary for parents: (a) to have been in methadone treatment at 1 of the 2 participating clinics for a minimum of 90 days prior to participation; (b) to have 1 or more children between the ages of 3 and 14 years who lived with them at least 50% of the time; and (c) to reside not more than 25 miles from their methadone clinic. 75% female; mean age 35.6 years; mean age at first use of opiates 19.1 years; drug use in month prior to baseline: 54% any use, 24% cannabis, 38% opiates, 23% cocaine, 14% other illegal drugs; 77% white, 18% African-American, 5% other; 20% married, 60% living with spouse; 78% graduated from high school, 4% graduated from college; 66% unemployed for 3 months prior to enrolling in methadone treatment; 68% prior incarceration; mean age of children 10.4 years
Interventions	The experimental condition supplemented methadone treatment with 33 sessions of FOF, which combined parent skills training with home-based case management services. The programme addressed risk factors for relapse amongst opiate addicts and risk and protective factors for drug abuse amongst their children. The project was based on the social development model. The skills training component consisted of 53 hours of training in small groups of 6 to 10 families. This included an initial 5-hour family retreat and 32 x 90-minute meetings twice weekly. Children attended 12 of the sessions in order to provide families with the opportunity to practice new skills in a controlled environment. Parent trainers with master's level training in social work led sessions using a structured cognitive affective behavioural skills training curriculum developed for the project. Skills training for parents was provided in the following areas: relapse prevention and coping, anger management, child development and communication skills, holding family meetings, setting clear expectations of children and use of appropri-

Catalano 1999 *(Continued)*

	ate rewards and disciplinary consequences. Parents were also instructed in how to teach their children refusal and problem-solving skills and strategies for succeeding in school. The home-based case management component of the intervention helped parents and children generalise and maintain the skills learned in the group training sessions. The FOF intervention used several incentives to address anticipated problems with recruitment and retention including financial incentives for session attendance (USD 3.00 per session) and completion of homework assignments (USD 2.00 per assignment). The control group did not receive any supplementary services to usual methadone treatment. N = 75 families received FOF, and N = 55 families received control intervention.
Outcomes	Self-reported parental drug use and random sample of participants asked to provide urine samples. Long-term follow-up of children to examine child substance use 12 to 14 years postrecruitment
Notes	Of the 144 parents enrolled in the project, 94% (N = 135; 78 experimental, 57 control) were interviewed 6 months after completing the group portion of the intervention, and 92% (N = 132; 74 experimental, 58 control) completed a 12-month follow-up interview. The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Random assignment with blocking completed based on race, parent's age at first drug use, ages of children.
Allocation concealment (selection bias)	Unclear risk	No details reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	25% of participants were randomly selected at each follow-up data collection point to provide urine specimen and answer a set of questions, with time periods corresponding to the ability to detect the particular drug in the toxicology screen. Overall, few false negatives were found across substances (4.5% to 6.1% depending upon substance), and no statistical differences were found in false negatives across the experimental and control groups.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Of the 144 parents who enrolled in the project, 94% (N = 135; 78 experimental, 57 control) were interviewed 6 months after completing the group portion of the intervention, and 92% (N = 132; 74 experimental, 58 control) completed a 12-month follow-up interview.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination not described and is unlikely. No further risk of bias identified.

Dakof 2010

Study characteristics

Dakof 2010 *(Continued)*

Methods	Randomised controlled trial: Engaging Moms Program (EMP) versus Intensive Case Management Services (ICMS) ITT: yes
Participants	Setting: USA, family drug court Randomised: N = 62 mothers. All mothers accepted into the family drug court (Dependency Drug Court (DDC)) were eligible to participate in the study. DDC eligibility criteria were that parents had to be: (a) 18 years or older; (b) with at least 1 child adjudicated dependent; (c) have a diagnosis of substance abuse or dependence; (d) have a potential for family reunification (parents with severe cognitive, emotional, or physical disorders, or who have had their parental right terminated previously were considered ineligible for reunification); and (e) after consultation with their attorney, voluntarily enrolment in drug court. Drug of choice: 48% alcohol and poly drug use, 19% poly drug use no alcohol, 16% cocaine, 10% cannabis, 5% alcohol, 2% other sedatives; 68% suffered serious depression, 55% serious anxiety, 13% hallucinations, 19% suicidal ideation; 55% of the women had themselves been victim of child physical abuse and 36% of child sexual abuse; participants' mean age: 30.2 years; 42% black, 35% Hispanic, 23% white non-Hispanic; mean of 2.5 children; 66% never married, 24% divorced/separated, 10% married; 57% did not graduate from high school, 37% graduated high school, 6% some college education; 71% unemployed
Interventions	EMP is based on the theory and method of Multidimensional Family Therapy and was adapted for use in family drug court. EMP was designed to help mothers succeed in drug court by complying with all court orders such as attending and benefiting from substance abuse and other intervention programmes (e.g. domestic violence counselling, parenting classes), attending court sessions, remaining drug-free, and demonstrating capacity to parent her children. EMP counsellors conducted individual and conjoint sessions with the mother and her family, focusing on 6 core areas of change: (1) mother's motivation and commitment to succeed in drug court and to change her life; (2) the emotional attachment between the mother and her children; (3) relationships between the mother and her family of origin; (4) parenting skills; (5) mother's romantic relationships; and (6) emotional regulation, problem solving, and communication skills. This was compared with ICMS, which is closely aligned with the drug court case management services recommended by the National Drug Court Institute. The ICMS model provided 5 key case management functions: assessment, planning, linkage, monitoring, and advocacy, within the context of a strong case manager-client therapeutic alliance. The overall objective was to assess needs, engage in collaborative intervention planning, provide referral to suitable drug abuse treatment and other services, co-ordinate the system of care providing services to the mother, closely supervise and monitor compliance with court orders, advocate for the mother with service providers, and provide emotional support. N = 31 mothers received EMP, and N = 31 mothers received ICMS.
Outcomes	Addiction Severity Index was used to assess substance use at 3, 6, 9, 12, and 18 months. Unpublished data were provided by the authors to enable the extraction of data relating to frequency of substance use.
Notes	The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Urn randomisation to ensure equivalence on 4 key variables: age, ethnicity, number of children, years using drugs
Allocation concealment (selection bias)	Unclear risk	No details reported.

Dakof 2010 *(Continued)*

Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Researchers were blinded to study hypothesis and intervention assignment. In addition to self-report measures, child welfare status was extracted from court records at 18-month follow-up, and urine analysis was collected at all research assessment points.
Incomplete outcome data (attrition bias) All outcomes	Low risk	There was 6% attrition at 3 months, 6% at 6 months, 12% at 9 months, 8% at 18 months. There was no difference in attrition between treatment groups.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination not described and is unlikely. No further risk of bias identified.

Dawe 2007

Study characteristics	
Methods	Randomised controlled trial: Parents Under Pressure (PUP) versus brief parent education versus standard care (SC) Intention to treat analysis: yes
Participants	Setting: Australia, community methadone clinics Randomised: N = 64 parents; 84.4% female; mean duration of methadone treatment 38.80 months, mean dose 62.5 mL; mean age of target child 45.9 months; 10.9% target child subject to court order; 23% in paid employment
Interventions	The PUP programme is a parent skills training intervention which comprises 10 modules conducted weekly over 10 to 12 weeks. Sessions are conducted in the home and last between 1 and 2 hours. Additional case management can occur outside of treatment session, determined by individual family needs (e.g. housing, legal advice, school intervention). Each module is a theme that may continue throughout treatment: challenging the notion of an ideal parent; how to parent under pressure; increasing mindful awareness; connecting with your child and encouraging good behaviour; coping with lapse and relapse; extending social networks; life skills; and relationships. The programme can be used with either a single parent, or both parents when possible. If both parents participate, one is asked to nominate as primary carer, and their data are used. Participants in the brief parent education group received a 2-session intervention based on traditional parent training skills. These sessions were provided in the clinic by the same pool of therapists who provided the PUP programme. Parents were provided with specially designed workbooks that covered the basic parent training skills. Participants in the standard care group received routine care provided by the methadone clinic staff. This involved an appointment with a prescribing doctor every 3 months and access to a case worker who could assist in housing, employment, and benefits. N = 22 parents received PUP, N = 23 brief parent education, N = 19 SC.
Outcomes	Methadone dose and AUDIT (10-item) was used to assess parental substance use, and the Child Abuse Potential Inventory (CAPI) was used to measure child abuse potential. Assessed post-treatment (3 months after randomisation) and 6 months later (9 months post randomisation)

Dawe 2007 *(Continued)*

Notes	Participants were recruited through posters displayed in clinics. The extent to which families made clinically significant change was assessed according to change in child abuse potential risk category and a calculation of a "Reliable Change Index". The final publication did not include details of the funding body. A conflicts of interest statement was not included in the final publication, although other publications on PUP highlight the lead author of this paper as the developer of the intervention.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Sequence generation not described.
Allocation concealment (selection bias)	Low risk	Participants were allocated to 1 of 3 treatment conditions on the basis of a previously determined randomisation once eligibility had been confirmed.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	High risk	All measures were self-report, with the exception of methadone dose.
Incomplete outcome data (attrition bias) All outcomes	High risk	"Of the 64 participants who were assessed, 20 of the 22 participants (90%) allocated to the PUP program were assessed at 6 months posttreatment; 20 of the 23 brief intervention participants (87%) were also assessed at 6 months. Attrition was greater in the standard care group with only 13 of the original 19 families (68%) followed up at 6 months. There were no differences between those who were followed up and those who were not on any of the intake variables (i.e., age, child's age, parent's methadone dose, abuse potential, rigidity, level of hazardous drinking, or child gender)."
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	The lead author is also the developer of experimental intervention; however, all data collection conducted by an independent researcher.

Donohue 2014

Study characteristics

Methods	Randomised controlled trial: Family Behavior Therapy (FBT) versus treatment as usual (TAU) ITT: yes
Participants	Setting USA, Department of Family Services (DFS) N = 72 mothers referred for treatment of substance abuse and child neglect by the County's DFS. Study inclusion criteria were: (a) mother reported to DFS for child neglect; (b) mother living with the child victim responsible for neglect referral (or it was the intention of the Court to return the child to the mother's home upon treatment assignment); (c) identified as using illicit drugs during the 4 months prior to

Donohue 2014 *(Continued)*

	referral; (d) displaying symptoms consistent with illicit drug abuse or dependence at the time of referral according to the results of the Structured Clinical Interview for the *Diagnostic and Statistical Manual of Mental Health Disorders*; (f) primary reason for referral not due to sexual abuse perpetration or domestic violence. Mean age of mother 29.04 years, mean age of child 3.92; 47% Caucasian (understood to be white), 25% black/African-American, 11% Hispanic/Latino, 4% American Indian, 3% American Asian, 3% Pacific Islander; 46% single, 19% married, 35% cohabiting; 88% unemployed; 50% educated less than high school, 44% high school/equivalent education, 6% university graduate
Interventions	FBT was adapted to accommodate the unique needs of families referred to treatment for substance use by child protective services. Mothers and their families were seen in their homes rather than the offices of service providers; treatment sessions were increased from 60 minutes to 75 minutes; the duration of treatment was extended from 4 months to 6 months; the target number of treatment sessions was extended from 15 sessions to 20 sessions; and several intervention components were incorporated. These intervention components included: (1) teaching family members to identify home hazards and generate their own strategies to making their homes safer and more stimulating for children during tours of the home; (2) improving financial management skills; (3) teaching mothers to differentially reinforce their children for desired behaviours while ignoring undesired behaviours; (4) teaching mothers to react to emergent conditions that affect their families (e.g. lack of food) with the aforementioned self-control method; and (5) HIV and STD prevention utilising the aforementioned stimulus control procedures to teach mothers to recognise and effectively manage antecedents to sexually transmitted diseases (e.g. unprotected sex, intravenous drug use, promiscuity, prostitution), self-control and communication skills training to encourage assertion in requesting safe sexual activity or refusal of substance use that involves needles. TAU reflected a variety of services that vary according to provider qualifications, duration, intensity, and type of services offered, thus reflecting “best available options” during the designated 6-month treatment dose. TAU services were consistent with referrals made by Child Protective Service agencies, including child placement (e.g. shelters), crisis intervention services, family services (e.g. family therapy, housing, legal services), caregiver services (e.g. individual counselling, marital counselling, inpatient and outpatient substance abuse counselling), child services (e.g. individual and group therapy), and other “miscellaneous” services. N = 35 received FBT, N = 37 TAU.
Outcomes	Frequency of alcohol intoxication was measured using Timeline Followback, Child Abuse Potential Inventory to measure child welfare.
Notes	During the early stages of the study, there were changes to the law in the state. This resulted in children who were exposed to drugs often being removed from the homes of their mothers, making it difficult for these mothers to practice parenting with their infants as intended in the FBT intervention. Ad hoc analysis conducted by child maltreatment type in an attempt to examine the effect of intervention when child remains in care of mother. The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Urn randomisation to assist in treatment group equivalence in demographic and primary outcome measures
Allocation concealment (selection bias)	Unclear risk	No details reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias)	Low risk	Urine analysis testing to validate self-report measures

Donohue 2014 *(Continued)*
All outcomes

Incomplete outcome data (attrition bias) All outcomes	Low risk	76.4% were followed up at 6 months, and 80.5% at 10 months. The proportions of participants completing follow-up assessment did not differ significantly between treatment groups at either time point.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Experimental intervention fidelity assessed. Results indicated that 95% of protocol instructions were implemented. Contamination between groups not described and is unlikely. No further risk of bias identified.

Ernst 1999

Study characteristics	
Methods	Randomised controlled trial: Seattle model of paraprofessional advocacy versus control ITT: yes
Participants	Setting: USA, maternity hospitals or community referral of high-risk substance-abusing women 1-month pre- or postpartum Randomised: N = 96 postpartum women recruited with singleton birth, little or no effective involvement with social or health services during pregnancy (including inadequate prenatal care), and heavy use of alcohol or illicit drugs during the target pregnancy. “Heavy use” was defined to include drinking in a binge pattern (5 or more drinks per occasion) once a month or more and/or use of any illicit substance an average of once a week or more during pregnancy. Mean age of participants 27.6 years; mean number of children 2.95; mean number of children living with mother 0.65; 42% African-American, 36% white, 16% Native American, 7% other; 74% single/separated/divorced; 41% did not graduate high school or equivalent; childhood history of participants: 78% one/both parents abused alcohol or drugs; 61% reported sexual or physical abuse, 49% lived in foster home at some time
Interventions	Seattle model paraprofessional advocates are women with life experiences of adversity similar to participants. They worked with women from the birth of their child until 3 years of age. The model-specific programme goals include: 1) assist mothers in obtaining treatment, maintaining recovery, and resolving the myriad problems associated with their substance use; 2) guarantee that the children are in a safe environment and receiving appropriate health care; 3) effectively link families with community resources; 4) demonstrate successful strategies for working with this population in order to prevent the risk of future drug- and alcohol-affected children. Advocates work within the context of the close interpersonal relationships they develop with clients in order to guide them in examining their problems, developing their goals, and defining and taking steps necessary to achieve them. Participants are not required to access drug or alcohol treatment. Children are included in the intervention. Women in the control group were contacted every 6 months by telephone or letter for follow-up but received no advocacy intervention. N = 65 received paraprofessional advocacy, N = 31 control.
Outcomes	Abstinence from alcohol or drugs was defined as no use for a period of 6 months. Treatment entry was also assessed for inpatient and outpatient services. Follow-up assessments completed at 4, 12, 24, and 36 months, with all results presented within 36 months of follow-up.
Notes	The study was funded by the Center for Substance Abuse Prevention. A conflicts of interest statement was not included in the final publication.
Risk of bias	

Ernst 1999 *(Continued)*

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of random sequence not described.
Allocation concealment (selection bias)	Low risk	After completion of a screening questionnaire, women who met eligibility criteria were assigned at random to either client or control group. After assignment and agreement to participate, the research assistant administered a more detailed postpartum interview.
Blinding of participants and personnel (performance bias) All outcomes	Low risk	"Women enrolled as controls were informed that the purpose of the study was to determine factors related to healthy pregnancy and child development, and that they would be interviewed again in 3 years. Women enrolled as clients were told about the Birth to 3 intervention program and assigned to an advocate who contacted them within the week."
Blinding of outcome assessment (detection bias) All outcomes	High risk	All measures were self-report.
Incomplete outcome data (attrition bias) All outcomes	Low risk	The maternal follow-up rate at 36 months was 92% for clients and 83% for living controls.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Gwadz 2008

Study characteristics	
Methods	Randomised controlled trial: Family First (FF) versus Brief Video Intervention (BVI) ITT: yes
Participants	Setting: USA, community organisations, hospital clinics and snowball sampling Randomised: N = 118 problem-drinking mothers identified by a score of 6 or more on AUDIT, at least 1 biological/adopted/other adolescent child aged 11 to 18 years living with them at least half of the time over past month, absence of injecting drug use over past 3 months; mean age of mothers was 40.9 years; 57% African-American/black, 28% Latino/Hispanic, 6% white, 9% mixed ethnicity; 55% were HIV-positive; 85% from 2 lowest strata of socioeconomic status; 91% had used drugs in addition to alcohol
Interventions	FF intervention curriculum was based on 2 evidence-based programmes: the cognitive-behavioural coping skills training and the Family Management Curriculum of the Adolescent Transitions Program. The 7 sessions in Part I are concerned with reducing alcohol and drug use and/or associated harms by (a) building motivation for changing alcohol and drug use; (b) developing a realistic behavioural risk reduction goal; (c) identifying members of the mother's social networks who can assist her in her goal; (d) learning strategies for enrolling members of social networks effectively; and (e) learning strategies to cope with triggers for substance use and attendant feelings. Part II focuses primarily on increasing positive parenting skills with adolescent children. Its 7 sessions are designed to (a) build motivation for addressing parenting behaviours; (b) develop a realistic parenting behaviour goal or set of goals; (c) identify members of mothers' social networks who can assist in their goal(s); (d) learn strategies for involving members of social networks effectively; (e) develop behavioural management skills to achieve pos-

Gwadz 2008 *(Continued)*

	itive child outcomes, including better parental monitoring, improved communication, and setting up a family management system in the form of a behavioural contract.
Outcomes	Quantity of alcohol use is measured using items from the National Alcohol Survey, for 5 quantities of alcohol ranging from 1 to 2 to 13 or more drinks in 1 day and the frequency at which they drank. Total drinks for a 90-day period were calculated. Frequency of drug use was measured using Likert-type items from the Risk Behaviour Assessment for 8 different substances (marijuana, cocaine, crack, heroin, street methadone, Oxycontin, amphetamine, and prescription drugs). Frequency of drug use is the proportion for the substance used most frequently by the participant. Outcomes were assessed at 3-, 6-, 12-, and 18-month follow-up.
Notes	FF sessions lasted 1.5 hours, and participants received a stipend of USD 20 for each session. The BVI was 2 hours in duration, and participants received an incentive of USD 25. The first module of the FF intervention (substance use) was completed before the T2 (3-month) follow-up assessment, and the second module (parenting) prior to the T3 (6-month) follow-up; the BVI was completed before the T2 follow-up interview. All but 1 participant assigned to the FF intervention attended at least 1 session (98%; 56/57); 86% (49/57) completed the substance use module (7 sessions), and 79% (45/57) completed both modules. The mean number of FF intervention sessions attended was 12 (SD 4.26, range 0 to 14 sessions). Almost all (97%; 59/61) participants assigned to the BVI arm attended the single session. The study was funded by the National Institute on Alcohol Abuse and Alcoholism. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of random sequence not reported.
Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	High risk	All outcomes were self-report.
Incomplete outcome data (attrition bias) All outcomes	Low risk	"Interview retention rates were excellent: Mothers completed 93% of the T2 (scheduled for 3-months post baseline), 97% of the T3 (6-months post baseline), 94% of the T4 (12-months post baseline), and 97% of the T5 (18-months post baseline) follow-up interviews."
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	High risk	Completer-only analysis

Kelley 2002 (Intervention 1)

Study characteristics

Kelley 2002 (Intervention 1) *(Continued)*

Methods	Randomised controlled trial: comparing behavioural couples therapy (BCT) versus individual behavioural therapy (IBT) versus couples psycho-educational attention control (PACT) ITT: yes
Participants	Setting: USA, outpatient treatment for alcohol or drug abuse Randomised: N = 135, married or cohabiting men and their partners. Male partners had to (a) be between 20 and 60 years old; (b) be married for at least 1 year or living with a significant other for at least 2 years; (c) meet abuse or dependence criteria for a psychoactive substance use disorder according to the *Diagnostic and Statistical Manual of Mental Disorders*; (d) have medical clearance to engage in abstinence-oriented treatment; (e) agree to refrain from the use of alcohol or illicit drugs for the duration of treatment; and (f) refrain from seeking additional substance use treatment except for self-help meetings, unless recommended by his primary individual therapist. Couples also had to have at least 1 child between the ages of 6 and 16 living in their households for whom 1 or both adults were the legal guardians. Participants were 65% Caucasian (understood to be white), 40% African-American, 5% Hispanic; mean age 37.1 years, mean of 2.7 children aged 10.4 years.
Interventions	All interventions consisted of 32 sessions. Within the IBT condition, the non-substance-abusing parent did not participate after the baseline assessment. Substance-abusing parents attended all 32 sessions by themselves, and the treatment was carried out as an individual cognitive– behavioural therapy for substance abuse. In the PACT condition, men received the same 20 individual-based sessions as those attended by parents in the IBT condition. In the remaining 12 sessions, both parents attended. However, the non-substance-misusing parent did not receive an active couples-based intervention. They were passive participants in 12 lectures about substance abuse.
Outcomes	Timeline Followback was used to measure substance use and was reported as percentage of days abstinent at 6 and 12 months' follow-up.
Notes	The authors separated participants into alcohol-using and drug-using groups and reported findings for these groups separately. Couples were excluded if (a) the female partner met DSM-III-R criteria for a psychoactive substance use disorder in the last 6 months; (b) either partner met DSM-III-R criteria for an organic mental disorder, schizophrenia, delusional (paranoid) disorder, or other psychotic disorder; or (c) either partner was in a methadone maintenance programme. The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of random sequence not reported.
Allocation concealment (selection bias)	Unclear risk	Deatils not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Urine and breath alcohol test in addition to self-report measures
Incomplete outcome data (attrition bias)	Low risk	18% attrition over 12-month follow-up period

Kelley 2002 (Intervention 1) *(Continued)*
All outcomes

Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Kelley 2002 (Intervention 2)

Study characteristics	
Methods	Randomised controlled trial: comparing behavioural couples therapy (BCT) versus individual behavioural therapy (IBT) versus couples psycho-educational attention control (PACT) ITT: yes
Participants	Setting: USA, outpatient treatment for alcohol or drug abuse Randomised: N = 135, married or cohabiting men and their partners. Male partners had to (a) be between 20 and 60 years old; (b) be married for at least 1 year or living with a significant other for at least 2 years; (c) meet abuse or dependence criteria for a psychoactive substance use disorder according to the *Diagnostic and Statistical Manual of Mental Disorders*; (d) have medical clearance to engage in abstinence-oriented treatment; (e) agree to refrain from the use of alcohol or illicit drugs for the duration of treatment; and (f) refrain from seeking additional substance use treatment except for self-help meetings, unless recommended by his primary individual therapist. Couples also had to have at least 1 child between the ages of 6 and 16 living in their households for whom 1 or both adults were the legal guardians. Participants were 65% Caucasian (understood to be white), 40% African-American, 5% Hispanic; mean age 37.1 years, mean of 2.7 children aged 10.4 years.
Interventions	All interventions consisted of 32 sessions. In BCT, both parents attended the 12 BCT treatment sessions and 20 individual-based substance abuse-focused sessions. The BCT sessions were used to (a) help male parents remain abstinent from drugs and alcohol by reviewing and reinforcing compliance with a verbal contract that served to support the male parents' sobriety on a daily basis; (b) teach more effective communication skills; (c) increase positive behavioural exchanges between the parents by encouraging them to acknowledge pleasing behaviours and engage in shared recreational activities; and (d) eliminate verbal and physical aggression between parents. In the remaining 20 sessions, substance-abusing parents participated in individual cognitive–behavioural therapy sessions for substance abuse; non-substance-abusing parents did not attend these sessions. In the PACT condition, fathers received the same 20 individual-based sessions as those attended by parents in the IBT condition. In the remaining 12 sessions, both parents attended. However, the non-substance-misusing parent did not receive an active couples-based intervention; they were passive participants in 12 lectures about substance abuse.
Outcomes	Timeline Followback was used to measure substance use and was reported as percentage of days abstinent at 6 and 12 months' follow-up.
Notes	The authors separated participants into alcohol-using and drug-using groups and reported findings for these groups separately. Couples were excluded if (a) the female partner met DSM-III-R criteria for a psychoactive substance use disorder in the last 6 months; (b) either partner met DSM-III-R criteria for an organic mental disorder, schizophrenia, delusional (paranoid) disorder, or other psychotic disorder; or (c) either partner was in a methadone maintenance programme. The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Kelley 2002 (Intervention 2) *(Continued)*

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of random sequence not reported.
Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Urine and breath alcohol test in addition to self-report measures
Incomplete outcome data (attrition bias) All outcomes	Low risk	18% attrition over 12-month follow-up period
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Lam 2009 (Intervention 1)

Study characteristics	
Methods	Randomised controlled trial: comparing parent skills and behaviour couples therapy (PSBCT) versus behavioural couples therapy (BCT) to individual behaviour therapy (IBT) ITT: yes
Participants	Setting: USA, outpatient treatment for alcohol or drug use disorder Randomised: N = 30 fathers. Men were eligible if they (a) were at least 18 years of age; (b) met *Diagnostic and Statistical Manual of Mental Disorders* criteria for alcohol abuse or dependence; (c) were married (≥ 1 year) or cohabitation (≥ 2 years) with an intimate female partner at the time of admission; (d) the female partner did not meet DSM-IV criteria for substance abuse or dependence; and (e) had legal guardianship of at least 1 child between 8 and 12 years of age, inclusive, who was living in the home. Mean age 34.1 years; 2.3 children; child mean age 8.9 years; mean 12.9 years in education; 63% white, 23% African-American, 7% Hispanic, 7% other
Interventions	The treatment conditions BCT and IBT each consisted of 24 sessions, with 2, 60-minute sessions per week for 12 weeks, a study therapy session, and a standard individual cognitive-behavioural therapy treatment session. In BCT, both partners attended 12 manualised BCT sessions, which included collecting urine screens, reviewing the previous week's homework, improving communication and problem-solving skills, and reinforcing sobriety. In IBT, only male participants took part in the 12 individual-based coping skills sessions of cognitive-behavioural treatment for alcoholism. N = 10 fathers were randomised to each intervention group.

Lam 2009 (Intervention 1) *(Continued)*

Outcomes	Timeline Followback was used to calculate the percentage of days abstinent, and parent reports of active involvement with child protection services was used as an indicator of child maltreatment. Follow-up interviews were completed at 6 and 12 months.
Notes	The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of random sequence not reported.
Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	High risk	All outcome measures were self-report.
Incomplete outcome data (attrition bias) All outcomes	Low risk	83% of men completed all assessment interviews.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Lam 2009 (Intervention 2)

Study characteristics

Methods	Randomised controlled trial: comparing parent skills and behaviour couples therapy (PSBCT) versus behavioural couples therapy (BCT) to individual behaviour therapy (IBT) ITT: yes
Participants	Setting: USA, outpatient treatment for alcohol or drug use disorder Randomised: N = 30 fathers. Men were eligible for the study if they (a) were at least 18 years of age; (b) met *Diagnostic and Statistical Manual of Mental Disorders* criteria for alcohol abuse or dependence; (c) were married (≥ 1 year) or cohabitation (≥ 2 years) with an intimate female partner at the time of admission; (d) the female partner did not meet DSM-IV criteria for substance abuse or dependence; and (e) had legal guardianship of at least 1 child between 8 and 12 years of age, inclusive, who was living in the home. Mean age 34.1 years; 2.3 children; child mean age 8.9 years; mean 12.9 years in education; 63% white, 23% African-American, 7% Hispanic, 7% other

Lam 2009 (Intervention 2) *(Continued)*

Interventions	The treatment conditions PSBCT and IBT each consisted of 24 sessions, with 2, 60-minute sessions per week for 12 weeks, a study therapy session, and a standard individual cognitive-behavioural therapy treatment session. In PSBCT, both partners attended 12 treatment sessions, which included 6 core BCT sessions and 6 parent-skills training sessions. In BCT, both partners attended 12 manualised BCT sessions, which included collecting urine screens, reviewing the previous week's homework, improving communication and problem-solving skills, and reinforcing sobriety. In IBT, only male participants took part in the 12 individual-based coping skills sessions of cognitive-behavioural treatment for alcoholism. N = 10 fathers were randomised to each intervention group.
Outcomes	Timeline Followback was used to calculate the percentage of days abstinent, and parent reports of active involvement with child protection services was used as an indicator of child maltreatment. Follow-up interviews were completed at 6 and 12 months.
Notes	The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of random sequence not reported.
Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	High risk	All outcome measures were self-report.
Incomplete outcome data (attrition bias) All outcomes	Low risk	83% of men completed all assessment interviews.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Luthar 2000

Study characteristics

Methods	Randomised controlled trial: comparing Relational Psychotherapy Mothers' Group (RPMG) versus standard care ITT: no
Participants	Setting: USA, methadone clinics

Luthar 2000 *(Continued)*

	Randomised: N = 61 heroin-using mothers with children aged up to 16 years. Mothers were aged 34.5 years; 67% single; mean age of child was 9.6 years; women's ethnicity: 72% white, 20% African-American, 9% Hispanic.
Interventions	RPMG received 24 weekly sessions, 12 of which were focused on parenting issues in addition to standard treatment. Treatment is delivered within groups, with a focus on interpersonal, relational support. Parents are not "instructed" on parenting skills. Rather, RPMG takes an approach of insight-orientated parenting skill-facilitation. Women are encouraged to explore their strengths and limitations of their own strategies to guide them towards developing optimal approaches. Standard care consisted of methadone plus 1-hour counselling groups (standard treatment used in drug clinics) and periodic meetings with case manager. N = 37 mothers received RPMG, and N = 24 standard care.
Outcomes	Child maltreatment was measured using the Parental Acceptance/Rejection Questionnaire (PARQ), and urine toxicology results were used to assess substance use. Follow-up interviews were conducted 6 months' post-treatment (which was 12 months' postbaseline).
Notes	The study was funded by Research Scientist Development Award. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of random sequence not reported.
Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Computerised records at women's methadone clinics were examined to obtain urine toxicology screens.
Incomplete outcome data (attrition bias) All outcomes	Low risk	77% of follow-up interview complete.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	High risk	Only treatment completers followed up.

Luthar 2007

Study characteristics

Methods	Randomised controlled trial: comparing Relational Psychotherapy Mothers' Group (RPMG) versus Recovery Training (RT) ITT: yes

Luthar 2007 *(Continued)*

Participants	Setting: USA, methadone clinics Randomised: N = 127 heroin-using mothers with children aged up to 16 years. Mothers had a mean of 13.2 years of opiate use, were aged 36.1 years; 53% never married, 15% married, 30% separated/divorced; mean age of child was 9.6 years; women's ethnicity: 40% white, 43% African-American, 16% Hispanic. 2% were college educated, 39% high school/GED, 36% less than high school; mean of 1.6 minor children, mean age 9.5 years (range 1 to 16 years)
Interventions	RPMG received 24 weekly sessions, 12 of which were focused on parenting issues in addition to standard treatment. Treatment was delivered within groups, with a focus on interpersonal, relational support. Parents are not "instructed" on parenting skills. Rather, RPMG takes an approach of insight-orientated parenting skill-facilitation. Women are encouraged to explore their strengths and limitations of their own strategies to guide them towards developing optimal approaches. RT consisted of methadone plus 1-hour counselling groups. RT sessions focused on the processes of addiction and recovery and reinforcing the skills of relapse prevention. N = 60 mothers received RPMG, and N = 67 received RT.
Outcomes	Child maltreatment was measured using the Parental Acceptance/Rejection Questionnaire (PARQ), and urine toxicology results were used to assess cocaine and opiate use. Follow-up interviews were conducted 6 months' post-treatment (which was 12 months' postbaseline). Urine toxicology results were collected for 12-month period.
Notes	Preparation of manuscript was funded in part by grants from the National Institutes of Health, the William T. Grant Foundation, and the Spencer Foundation. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Urn randomisation to balance groups for maternal characteristics including age, ethnicity, socioeconomic status, IQ, years of drug use, recent drug use, level of motivation for change, and sensation seeking and for child age and gender.
Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Urine toxicology screens indicating the presence or absence of opiates and cocaine
Incomplete outcome data (attrition bias) All outcomes	Low risk	85% retention throughout study
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Morgenstern 2006

Study characteristics	
Methods	Randomised controlled trial: comparing Intensive Case Management (ICM) versus usual care (UC) ITT: yes
Participants	Setting: USA, welfare departments Randomised: N = 302 substance-using mothers who were in receipt of temporary assistance for needy families (TANF). Women had a mean of 3.2 children whose mean age was 9.4 years; women were 95.7% black, 2.93% Hispanic, 1.4% other; 3.46% were married, 18.85% separated, 77.49% never married; median income USD 5000 to 9999 and had been on welfare for an average of 12.09 years; 48.03% had graduated from high school; primary substance diagnosis was: alcohol 22.53%, cocaine 34.92%, heroin 36.14%, marijuana 6.42%.
Interventions	ICM has 5 phases: 1) outreach and assessment; 2) planning, motivational enhancement, and treatment engagement; 3) treatment co-ordination, monitoring, and advocacy; 4) aftercare follow-up, peer support, and relapse monitoring; 5) crisis management and termination. In phase 1, tangible barriers to treatment entry, including childcare, transportation, and housing services, were identified, and services provided in response. Extensive outreach was used to engage women if needed. Women received vouchers as incentives for attending treatment. UC was a screen-and-referral model. Mothers in this study arm met with a clinical care co-ordinator who assessed their needs and recommended care. Initial appointments were then scheduled within a treatment facility. If mothers failed to attend the first appointment, outreach was restricted to a small number of letters and phone calls.
Outcomes	Monthly rates of absolute abstinence were calculated using data collected by the Timeline Followback. Also measured were: treatment initiation (defined as an inpatient admission within the first 30 days or an outpatient service and any additional services within 14 days); treatment engagement (defined as 2 additional days of treatment within 30 days after initiating treatment); and treatment retention (defined as having successfully engaged in treatment and having attended at least 2 sessions of treatment during the third month after initiation of care). Outcomes were assessed at 9 and 15 months' follow-up.
Notes	The study was funded by the National Institute on Drug Abuse, the Administration for Children and Families, and the New Jersey Department of Human Services. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Randomisation was determined on the basis of random number generation.
Allocation concealment (selection bias)	Low risk	Randomly allocated intervention groupings were placed in sealed envelopes, meaning the researcher was blind to assignment during baseline assessment.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Self-reported alcohol and drug use were confirmed using 2 methods: a collateral interview and urine screens. Collaterals and clients were compared and classified as having agreed when 1) both reported that the client had used; 2) both reported the client had not used; 3) the client reported they had used but the collateral did not.

Morgenstern 2006 *(Continued)*

Incomplete outcome data (attrition bias) All outcomes	Low risk	97.4% of sample provided follow-up data.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Saldana 2015

Study characteristics	
Methods	Randomised controlled trial: comparing Families Actively Improving Relationships (FAIR) versus treatment as usual (TAU) ITT: yes
Participants	Setting: USA, child welfare services Randomised: N = 31 mothers referred to child welfare services for child neglect and severe substance use other than alcohol and marijuana. 94% were methamphetamine users, 6% opiate users, 100% poly substance users, 45% IV users, and 6% HIV-positive. 87.1% were Caucasian (understood to be white), 6.5% African-American, 3.2% Native American, and 3.2% Pacific Islander. 77% of mothers reported that their children were removed at the time of their participation; 51.6% reported previous removal; and 22.6% reported 2 previous removals. The women's mean age was 30.48 years; mean 1.77 children. 61.5% were unemployed.
Interventions	FAIR includes component of drug treatment from the Reinforcement Base Treatment Approach. The programme simultaneously targets parenting and substance use, addressing the relationship between the two. Parent skills training and hands-on in vivo parenting coaching are provided. Parents are awarded 'FAIR Bucks' which can be swapped for donated items of high (e.g. voucher for free summer camp, membership to local museum, snow boots) to low value (e.g. toothpaste, calendars, story books, nail clippers) to provide incentives and value reinforcers to encourage progress towards goals. TAU services included traditional substance use services and 12-step programmes, group parenting classes, and individual and/or family mental health counselling.
Outcomes	The Addiction Severity Index (ASI) was used to report quantity and frequency of drug use in the last 30 days. The Brief Child Abuse Potential Inventory (BCAP) was used to measure neglectful parenting, and the Service Utilization Survey (SUS) was used to measure participation in substance use, mental health, and child welfare services. Outcomes were measured at 6 and 12 months' follow-up. In addition, monthly telephone calls surveyed service utilisation.
Notes	The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Risk of bias		
Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Generation of sequence not reported.

Saldana 2015 *(Continued)*

Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	High risk	All outcomes were self-report.
Incomplete outcome data (attrition bias) All outcomes	High risk	72% of FAIR and 69% of TAU were followed up, with a number of baseline differences between those that completed follow-up assessments unlikely to be related to outcome of interest.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Schottenfeld 2011

Study characteristics	
Methods	2 x 2 design randomised study: comparing Community Reinforcement Approach (CRA) versus Twelve Step Facilitation (TSF) with contingency management (CM) or voucher control (VC) ITT: yes
Participants	Setting: USA, prenatal clinics, maternity wards, drug treatment agencies, social services, and word of mouth Randomised: N = 145 women meeting the DSM-IV criteria for cocaine dependence who were either pregnant (n = 64) or had custody of a young child (n = 81). In addition to cocaine dependence, 48% were dependent upon alcohol. Women had a mean of 2.75 children. Women's mean age was 31.1 years; 77% were black; 8.25% were employed; 80.5% had never married.
Interventions	CRA was provided twice weekly for 12 weeks and weekly for a further 12 weeks. CRA focused on 2 major goals; abstinence and the development of alternative reinforcers to drug use. Functional behavioural analysis is used to help achieve goals along with goal setting, monitoring, rehearsing, modelling, and skills training. TSF was also provided twice weekly for 12 weeks and weekly for a further 12 weeks. The goal of TSF is to facilitate active involvement in 12-step recovery through supporting and educating the individual about the disease concept of dependence and encourage them to seek support from a higher power, participate in 12-step meetings, and find a sponsor. CM awarded cocaine-negative urine with vouchers redeemable for goods or services selected by the individual. The first negative urine was rewarded with USD 5.00, and each subsequent negative urine was increased by USD 2.50. A USD 10.00 bonus was earned for each third consecutive urine. Failure to submit a negative urine reset the value of the voucher to USD 5.00. Women who remained abstinent throughout treatment would receive the maximum value of USD 935. VC participants received vouchers of similar value regardless of urine toxicology results to control for effects of urine tests and economic benefits.
Outcomes	Maximum consecutive weeks of documented cocaine abstinence, the proportion of cocaine-negative urine tests, and the percentage of days using cocaine were measured at 6, 9, and 12 months' postrandomisation.

Schottenfeld 2011 *(Continued)*

Notes	The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement reported no conflicts to declare.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Random allocation using computer-generated urn randomisation balanced on the basis of meeting symptom criteria for current major depression or lifetime alcohol dependence.
Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Substance use measured with urine samples.
Incomplete outcome data (attrition bias) All outcomes	High risk	48% provided follow-up data at 12-month follow-up.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	High risk	71% of possible urine samples were collected. Abstinence was assumed when urine samples were not available.

Schuler 2000

Study characteristics

Methods	Randomised controlled trial: comparing home intervention versus a control of brief home visiting ITT: yes
Participants	Setting: USA, university hospital serving large African-American population Randomised: N = 171 mothers and their children recruited 2 weeks' postnatal. All women had a history of cocaine or heroin use, or both, and were eligible for the study if their infants had a positive urine toxicology at birth, or if a history of recent drug use was recorded in their medical charts. Mean age of women was 27.5 years; 95.85% were African-American; 98.85% were unemployed; 94.05% were single; mean age at first pregnancy was 18.45 years; the women had a mean of 10.9 years education.
Interventions	Home intervention had both parent and infant components. The goal of the parent component was to empower women by enhancing their ability to manage self-identified problems by using services and family and social supports. Topics covered included housing, public assistance programmes, partner abuse, and the effects of drug use and drug treatment. The goal of the infant component was to promote infant development by using a programme of games and activities based upon the HELP (Hawaii Early Learning Profile) curriculum, which contains 650 developmental skills for children from birth to 36 months. Mothers were taught appropriate ways to play with their infants to enhance communica-

Schuler 2000 *(Continued)*

	tion between mother and infant and help mothers provide developmentally stimulating play environments. The control group received brief monthly home tracking visits to reduce attrition.
Outcomes	Mothers were asked about their drug use at 6 and 18 months' follow-up. This was reported dichotomously as any cocaine or heroin use or no cocaine or heroin use.
Notes	The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of random sequence not reported.
Allocation concealment (selection bias)	Low risk	Mothers randomly assigned to intervention group after baseline interview with a blinded research assistant.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	High risk	All outcomes were self-report.
Incomplete outcome data (attrition bias) All outcomes	Low risk	77% of the women were followed up at 18 months.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Slesnick 2013

Study characteristics

Methods	Randomised pilot trial: comparing integrated treatment versus treatment as usual (TAU) ITT: yes
Participants	Setting: USA, homeless family shelter Randomised: N = 60 homeless substance-using mothers with a child between the ages of 2 and 6 years. Mean age of the women was 26.3 years; 75% African-American, 11.6% white non-Hispanic, 1.7% Asian/Asian-American, 1.7% Hispanic, 10% mixed/other; 75% single/never married, 10% separated but still married, 6.7% married, 3.3% cohabiting, 3.3% divorced, 1.7% widowed; 76.7% unemployed, 15% homemaker, 6.7% working less than 40 hours, 1.7% working more than 40 hours; mean personal monthly income USD 300.9; mean age at first homeless experience 22.2 years; 13.98% days homeless in past 3 months; 15% currently pregnant; mean number of children 2.82; average age of target children 3.68 years.

Slesnick 2013 *(Continued)*

Interventions	The treatment integrated independent housing, case management, and substance use counselling based upon the Community Reinforcement Approach (CRA). Women received rental and utility assistance for 3 months non-contingent upon mother's substance use or treatment attendance. Case management focused on assisting women to meet their basic needs, obtaining welfare benefits, and securing employment. CRA aimed to reinforce non-substance-using, adaptive behaviours through communications skills training, relapse prevention, and refusal skills training. Up to 26 case management sessions and 20 CRA sessions were provided over a 6-month period; the mean number of sessions received was 23.1. TAU included emergency shelter for women and children for up to 3 weeks and linkage to housing and support services in the community. The shelter partners with agencies who provide housing, and placed women in a variety of housing programmes including abstinence and non-abstinence based as well as treatment contingent and non-contingent. TAU participants did not receive supported housing or the accompanying support services of case management or CRA.
Outcomes	Quantity and frequency of substance use was measured using the Form 90 Interview.
Notes	The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Urn randomisation program balanced on age and race/ethnicity
Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"Urine screens obtained from mothers were compared to their self-reported substance use. Percentage of days of substance use in the past 90 days (Form 90) showed high agreement with urine screening at follow-ups with rates ranging from 90%-96.7%. These findings indicate high concurrent validity of substance use data in the current sample"
Incomplete outcome data (attrition bias) All outcomes	Low risk	100% of intervention group and 83.3% of the control group completed follow-up data at 6 and 9 months. Between-group differences explained by the provision of housing in the intervention group. No further differences were observed between those who were followed up and those who were lost.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Slesnick 2016

Study characteristics

Slesnick 2016 *(Continued)*

Methods	Randomised pilot trial: Ecologically Based Family Therapy (EBFT) versus Women's Health Education (WHE) ITT: yes
Participants	Setting: USA, community treatment centre Randomised: N = 183 substance-using mothers of children aged 8 to 16 years. Mothers had a mean age of 33.9 years; 53.6% were white non-Hispanic, 42.6% African-American; 32.8% single, 34.9% in a relationship, 10.9% were married, 8.2% separated but still married, 11.5% divorced, 1.6% widowed; 60% of families had an annual income USD 15,000 or below; 85% had a high school degree or less as highest educational attainment; mean number of children 3.21, and their mean age was 11.54 years.
Interventions	EBFT is a 12-session family systems therapy that targets dysfunctional interactions linked to the development of problem behaviours. The treatment sessions focused on guiding families to consider their current problems and solutions through techniques such a reframing and interpretations, communication and problem-solving skills training, and assisting families in obtaining services such as medical care, job training, or self-help programmes. EBFT aims to improve social interactions, emotional connectedness, and problem resolution skills amongst family members. WHE is a 12-session manualised educational intervention used as an attention control. WHE covers the woman's body, human sexual behaviour, pregnancy and childbirth, STDs, HIV and AIDS.
Outcomes	The quantity and frequency of the mother's substance use was measured using the Form-90 at 6, 12, 18 months' follow-up.
Notes	The study was funded by a National Institutes of Health grant. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of random sequence not reported.
Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	High risk	All outcomes were self-report.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Minimum of 88% follow-up assessments completed at all follow-up points.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Smith Stover 2019

Study characteristics	
Methods	Randomised pilot trial: Fathers for Change (F4C) versus Dads 'n' Kids (DNK) ITT: yes
Participants	Setting: USA, residential substance use treatment programmes Randomised: N = 62 fathers, most of whom had been referred to the residential programme by the criminal justice system in lieu of jail time. Fathers had a mean age of 35.85 years; child mean age 6.21 years; 74% Euro-American heritage; 25.81 were from an ethnic minority group; 63.3% were primary opioid users; 74% had been employed prior to their admission; 42% had been married; 18% currently married; 44% were living with their youngest child; 40.32% police call for family violence. A number of the fathers had experienced trauma as a child: 32.26% emotional neglect; 27.42% psychological abuse; 22.58% physical abuse; 9.68% sexual abuse.
Interventions	F4C is an individual therapy provided once per week over 12 weeks that is focused on substance use and violence. Phase 1 begins with motivational enhancement: the clinician and father discuss child development, the impact of substances and violence on parenting, and the father's own childhood experiences. The clinician then provides skills training to reduce hostile cognitions and increase reflective functioning and emotional regulation skills. In phase 2, there is a focus on improving parental communication and problem-solving. In phase 3, the focus is on restorative parenting to rebuild the father-child relationship. DNK is also an individual therapy delivered once per week over 12 weeks. The clinician provides assistance in solving problems related to families' basic needs (e.g. health care, housing, and education) and provides pamphlets on a choice of parenting topics including routines and rituals, ages and milestones, alternatives to spanking, nutrition and fitness. Although DNK provides psycho-education, it does not target affect dysregulation, which is the proposed mechanism for F4C. N = 29 randomised to F4C, and N = 33 to DNK.
Outcomes	Quantity and frequency of substance use is measured using the Timeline Followback monthly during intervention and at 24 weeks. Not administered at baseline (although all participants were within a residential facility which required abstinence).
Notes	The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Urn randomisation evenly distributed based upon: physical partner violence, current contact with co-parent, and current residence with target child.
Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	High risk	All outcomes were self-report.

Smith Stover 2019 *(Continued)*

Incomplete outcome data (attrition bias) All outcomes	High risk	82% of F4C participants and 64% of DNK participants were followed up. No significant difference between length of stay in residential unit; however, a greater proportion of men assigned to F4C were discharged from the residential programme for failure to adhere to treatment guidelines.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Suchman 2017

Study characteristics	
Methods	Randomised controlled trial: Mothering from Inside Out (MIO) versus Parent Education (PE) ITT: yes
Participants	Setting: USA, outpatient treatment centre Randomised: N = 87 mothers of children aged 11 to 60 months (average age 27.62 months). Mothers' average age was 29.68 years; 12.39 years of education; were caring for 1.67 children under 16 years; 77% Caucasian (understood to be white), 13.8% African-American, 3.4% Hispanic or Latino, 5.7% mixed race; 42.5% had never been married, 34.5% were cohabiting with a partner, 6.9% were divorced, 2.3% separated; 32.2% of the children were involved in child protection services. Most mothers (89%) had a primary diagnosis of heroin or other opioid dependence, 6.1% were alcohol dependent, 3.7% cocaine dependent, 1.2% cannabis dependence. Most (72.4%) were enrolled in methadone maintenance, and 12.6% were enrolled in suboxone treatment. Most had a significant family history of substance abuse (53.5% own mothers, 75.9% own fathers, and 76.7% of their child's father were substance users). On average, mothers reported clinically significant levels of psychiatric stress.
Interventions	MIO is a 12-session individual therapy developed to enhance a mother's capacity for mentalisation or reflective functioning in the parenting role, that is how to recognise and make sense of her own mental and emotional experiences as a parent and that which drives her child's behaviour. The short-term goals are 1) to provide a positive therapeutic relationship; 2) to help the mother to make sense of her own affective experiences. Long-term goals are: 1) to support the mother's developing capacity for emotional regulation; 2) restore the mother's capacity to engage in human attachment; 3) promote the mother's ability to engage with and enjoy her child and understand her child's emotional needs. PE is a 12-session structured intervention that provides psycho-educational guidance and parent strategies for challenges that are typically encountered by parents with young children (e.g. tantrums, bed wetting, sleep habits, limit setting, developmental milestones) and those that are typical to parents in substance abuse treatment (e.g. keeping children safe, self-care).
Outcomes	Maternal substance use was measured using the Timeline Followback at 12 months' follow-up.
Notes	The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.

Risk of bias		
Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Generation of random sequence not reported.

Suchman 2017 *(Continued)*

Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	High risk	All outcomes are self-report.
Incomplete outcome data (attrition bias) All outcomes	Low risk	81% of MIO and 75% of PE participants attended all research appointments, with no significant between-group differences.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

Volpicelli 2000

Study characteristics	
Methods	Randomised controlled trial: psychosocially enhanced treatment (PET) versus case management (CM) ITT: yes
Participants	Setting: USA, community agencies, hospitals, and advertisement Randomised: N = 84 mothers who use cocaine; mean age 32.3 years; 96.4% African-American, 2.4% Caucasian (understood to be white), 1.2% Hispanic; average of 3.7 children; 11.56 years of education; 68.2% single, 11.9% married, 19.9% separated
Interventions	Both PET and CM participants were provided with outpatient group therapy-based treatment and were expected to attend at least 2 group sessions per week. Sessions included modules on understanding addiction, denial, steps to recovery, self-esteem in recovery, codependence and women's work. PET participants were provided with an opportunity to access additional on-site psychosocial interventions including individual therapy, psychiatrist, parenting classes, and general educational classes. CM participants were provided with a case manager. The CM service was limited to 15-minute appointment per week to check up on women individually and to make outside referrals as needed. Referrals were made by giving the woman the name and number of the relevant agency. Written referrals were made when required.
Outcomes	Number of days of cocaine use (self-reported) and total number of cocaine-free urine screens at 12-month follow-up
Notes	The study was funded by the National Institute on Drug Abuse. A conflicts of interest statement was not included in the final publication.
Risk of bias	

Bias	**Authors' judgement**	**Support for judgement**

Volpicelli 2000 *(Continued)*

Random sequence generation (selection bias)	Unclear risk	Generation of random sequence not reported.
Allocation concealment (selection bias)	Unclear risk	Details not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	It is not possible to blind participants or personnel due to the nature of the intervention.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	2 measures of cocaine use were used in analyses: self-reported days of cocaine use, and total number of cocaine-free urine provided over the treatment period.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Attrition not reported.
Selective reporting (reporting bias)	Unclear risk	Protocol not available.
Other bias	Low risk	Contamination between groups not described and is unlikely. No further risk of bias identified.

see Appendix 13 for abbreviations

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

Study	Reason for exclusion
Atkan 1996	Observational study
Belt 2012	Observational study
Berlin 2014	Parental substance use outcomes not reported.
Brigham 2014	Not a parent population
Brook 2007	Parental substance use outcomes not reported.
Brook 2012	Parental substance use outcomes not reported.
Brown 2018	Follow-up < 6 months
Bruns 2012	Observational study
Catalano 1997	Follow up < 6 months
Choi 1997	Not a parent population
Choi 2015	Follow-up < 6 months
Copeland 1993	Not a parent population

Study	Reason for exclusion
Copello 2009	Not a parent population
Dakof 2003	Follow-up < 6 months
Dakof 2009	Observational study
Dalziel 2015	Parental substance use outcomes not reported.
Dembo 1999	Not a parent population
Egelko 1998	Observational study
Eldred 1974	Observational study
Evans 2013	Not a parent population
Garrido-Fernández 2017	Follow-up < 6 months
Grant 1996	Pre-post study
Grella 2006	Study does not examine intervention effectiveness.
Grigg 1995	Follow-up < 6 months
Haack 2005	Parental substance use outcomes not reported.
Haggerty 2008	Reports on adult children's substance use
Harwin 2011	Observational study
Horigian 2015	Includes parents who do not use substances
Huebner 2012	Observational study
Hughes 1995	Observational study
Jansson 2005	Follow-up < 6 months
Marsh 2000	Observational study
Olds 1997	Not a parent population
Olds 2010	Not a parent population
Olsen 1995	Observational study
Ondersma 2005	Follow-up < 6 months
Ondersma 2007	Follow-up < 6 months
Porter 2015	Parental substance use outcomes not reported.
Robbins 2009	Not a parent population
Rotheram-Borus 2015	Trial included all pregnant women irrespective of levels of substance use.

Study	Reason for exclusion
Ryan 2008	Observational study
Ryan 2016	Parental substance use outcomes not reported.
Ryan 2017	Intervention effectiveness not examined.
Sacks 2004	Observational study
Schaeffer 2013	Observational study
Slesnick 2012	Observational study
Smith 1992	Intervention effectiveness not examined.
Smith 1995	Observational study
Smith Stover 2011	Follow-up < 6 months
Smith Stover 2015	Follow-up < 6 months
Sowers 2002	Follow-up < 6 months
Suchman 2010	Follow-up < 6 months
Suchman 2011	Follow-up < 6 months
Suchman 2012	Parental substance use outcomes not reported.
Suchman 2016	Parental substance use outcomes not reported.

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

ISRCTN43209618

Study name	Improving outcomes for children and families affected by paternal substance misuse: a feasibility study of the Parents under Pressure (PuP) programme for fathers
Methods	Feasibility study
Participants	Drug dependent fathers
Interventions	Parents under Pressure (PuP) programme
Outcomes	Determine feasibility and acceptability
Starting date	April 2017
Contact information	anne.whittaker@stir.ac.uk
Notes	

ISRCTN60291091

Study name	Promoting Alcohol Reduction in Non-Treatment Seeking parents: PAReNTS study
Methods	Feasibility randomised controlled trial
Participants	Risky-drinking parents
Interventions	Brief alcohol intervention
Outcomes	Reduction in heavy episodic drinking
Starting date	October 2017
Contact information	r.mcgovern@ncl.ac.uk
Notes	

NCT02774525

Study name	Concurrent treatment of substance abuse and child maltreatment
Methods	Randomised controlled trial
Participants	Substance-abusing parents
Interventions	Contingency management and Pathways Triple P parenting intervention
Outcomes	Longest duration of negative urine and breath samples and child maltreatment recidivism
Starting date	2013
Contact information	prinz@mailbox.sc.edu
Notes	

Whittaker ongoing (Behavioural Couples Therapy)

Study name	Behavioural couples therapy as an adjunct to opioid substitution therapy for drug dependent parents: a feasibility study
Methods	Feasibility study
Participants	Drug dependent parents
Interventions	Behavioural couple therapy
Outcomes	Determine suitability for pilot randomised controlled trial
Starting date	January 2016
Contact information	anne.whittaker@stir.ac.uk
Notes	

DATA AND ANALYSES

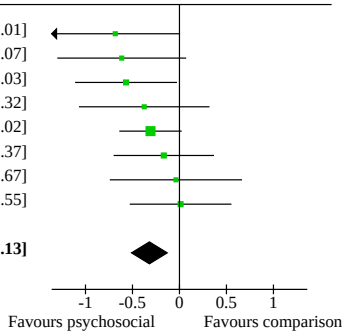
Comparison 1. Frequency of alcohol misuse - all psychosocial interventions

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1.1 Short-term follow up (6 months)	8	475	Std. Mean Difference (IV, Random, 95% CI)	-0.32 [-0.51, -0.13]
1.2 Long-term follow up (12 months)	6	366	Std. Mean Difference (IV, Random, 95% CI)	-0.25 [-0.47, -0.03]

Analysis 1.1. Comparison 1: Frequency of alcohol misuse - all psychosocial interventions, Outcome 1: Short-term follow up (6 months)

Study or Subgroup	Psychosocial Mean	Psychosocial SD	Psychosocial Total	Comparison Mean	Comparison SD	Comparison Total	Weight	Std. Mean Difference IV, Random, 95% CI
Lam 2009 (Intervention 1)	14.9	20.7	25	29.8	22.6	13	7.6%	-0.68 [-1.37 , 0.01]
Lam 2009 (Intervention 2)	15.7	22.4	25	29.8	22.6	13	7.7%	-0.61 [-1.30 , 0.07]
Slesnick 2013	7.18	13.6	30	20.37	30.51	25	12.3%	-0.57 [-1.11 , -0.03]
Kelley 2002 (Intervention 2)	19.4	27.2	25	29.6	25.3	12	7.5%	-0.37 [-1.07 , 0.32]
Slesnick 2016	9.63	19.56	114	16.42	26.51	51	32.7%	-0.31 [-0.64 , 0.02]
Donohue 2014	1.9	4.3	24	4.5	20.1	31	12.7%	-0.17 [-0.70 , 0.37]
Kelley 2002 (Intervention 1)	28.6	26.2	22	29.6	25.3	12	7.3%	-0.04 [-0.74 , 0.67]
Dakof 2010	1.1	5.56	29	1.04	4.09	24	12.3%	0.01 [-0.53 , 0.55]
Total (95% CI)			**294**			**181**	**100.0%**	**-0.32 [-0.51 , -0.13]**

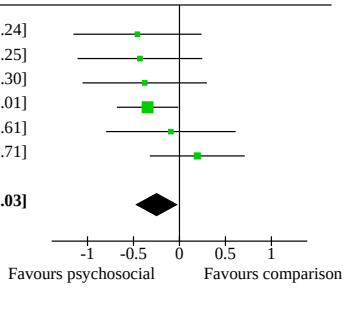
Heterogeneity: Tau² = 0.00; Chi² = 4.99, df = 7 (P = 0.66); I² = 0%
Test for overall effect: Z = 3.30 (P = 0.0010)
Test for subgroup differences: Not applicable



Analysis 1.2. Comparison 1: Frequency of alcohol misuse - all psychosocial interventions, Outcome 2: Long-term follow up (12 months)

Study or Subgroup	Psychosocial Mean	Psychosocial SD	Psychosocial Total	Comparison Mean	Comparison SD	Comparison Total	Weight	Std. Mean Difference IV, Random, 95% CI
Kelley 2002 (Intervention 2)	29.1	25.6	25	42.1	32.1	12	9.7%	-0.46 [-1.15 , 0.24]
Lam 2009 (Intervention 2)	21.4	19.4	25	29.8	18.6	13	10.3%	-0.43 [-1.11 , 0.25]
Lam 2009 (Intervention 1)	22.2	20.2	25	29.8	18.6	13	10.3%	-0.38 [-1.05 , 0.30]
Slesnick 2016	9.7	20.62	110	18.23	31.31	51	42.3%	-0.35 [-0.68 , -0.01]
Kelley 2002 (Intervention 1)	39.6	22.4	22	42.1	32.1	12	9.5%	-0.09 [-0.80 , 0.61]
Dakof 2010	1	2.92	29	0.55	1.4	29	17.8%	0.19 [-0.32 , 0.71]
Total (95% CI)			**236**			**130**	**100.0%**	**-0.25 [-0.47 , -0.03]**

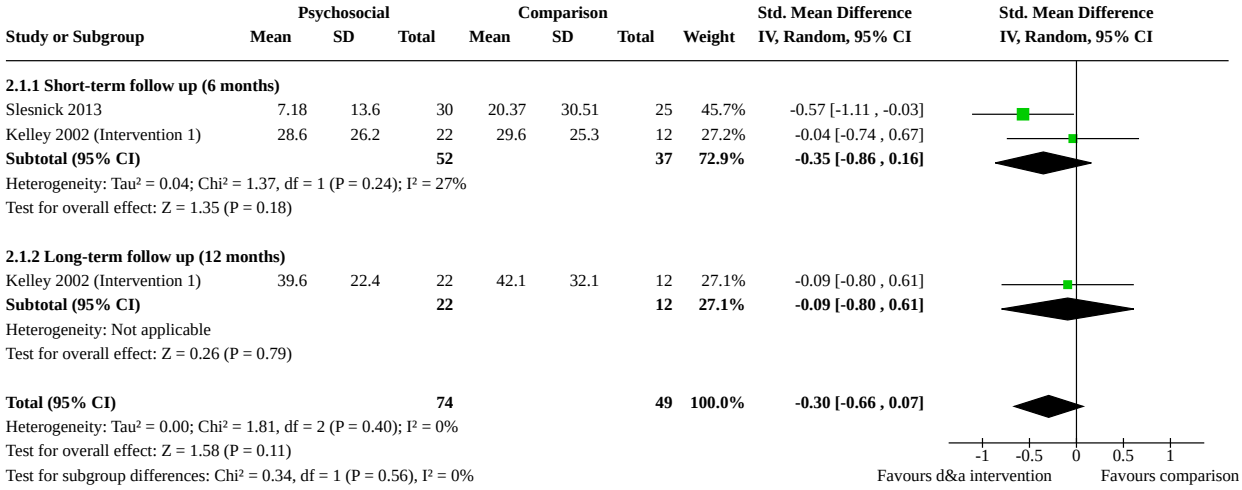
Heterogeneity: Tau² = 0.00; Chi² = 4.10, df = 5 (P = 0.53); I² = 0%
Test for overall effect: Z = 2.24 (P = 0.02)
Test for subgroup differences: Not applicable



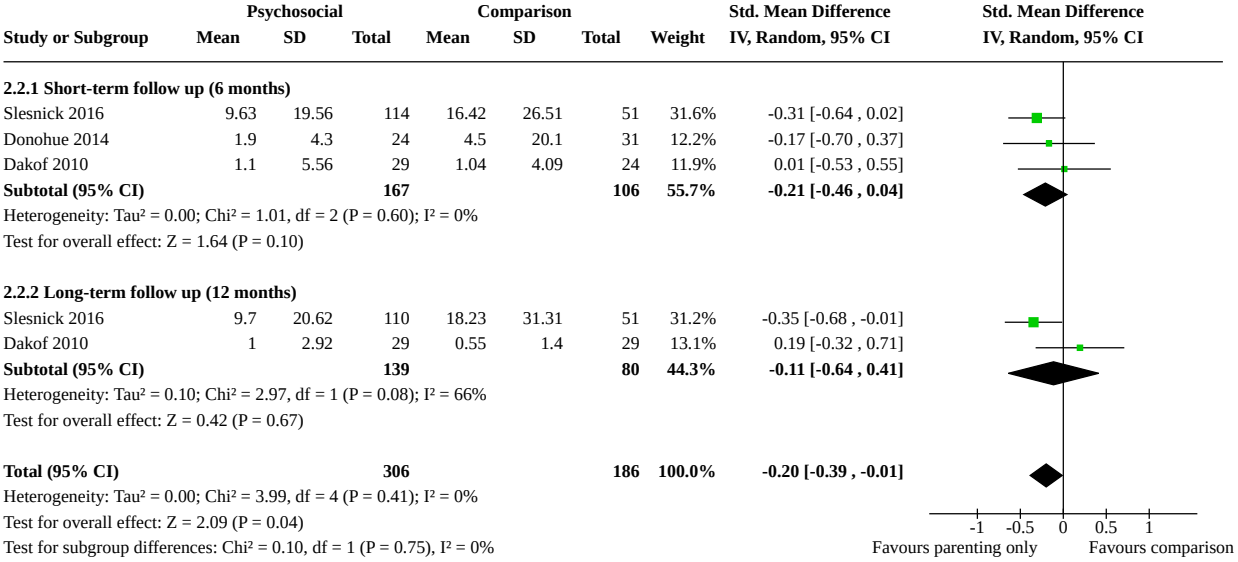
Comparison 2. Frequency of alcohol misuse - intervention type

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
2.1 Substance-focused interventions	2	123	Std. Mean Difference (IV, Random, 95% CI)	-0.30 [-0.66, 0.07]
2.1.1 Short-term follow up (6 months)	2	89	Std. Mean Difference (IV, Random, 95% CI)	-0.35 [-0.86, 0.16]
2.1.2 Long-term follow up (12 months)	1	34	Std. Mean Difference (IV, Random, 95% CI)	-0.09 [-0.80, 0.61]
2.2 Parenting-focused interventions	3	492	Std. Mean Difference (IV, Random, 95% CI)	-0.20 [-0.39, -0.01]
2.2.1 Short-term follow up (6 months)	3	273	Std. Mean Difference (IV, Random, 95% CI)	-0.21 [-0.46, 0.04]
2.2.2 Long-term follow up (12 months)	2	219	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.64, 0.41]
2.3 Integrated parenting interventions	3	226	Std. Mean Difference (IV, Random, 95% CI)	-0.49 [-0.77, -0.21]
2.3.1 Short-term follow up (6 months)	3	113	Std. Mean Difference (IV, Random, 95% CI)	-0.56 [-0.96, -0.16]
2.3.2 Long-term follow up (12 months)	3	113	Std. Mean Difference (IV, Random, 95% CI)	-0.42 [-0.82, -0.03]

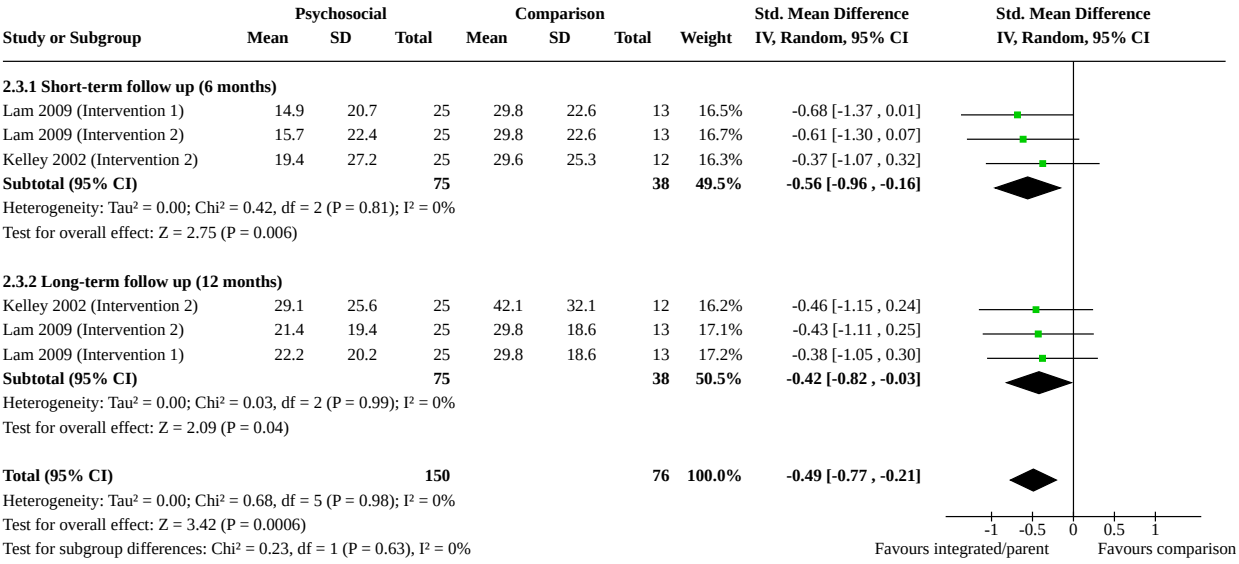
Analysis 2.1. Comparison 2: Frequency of alcohol misuse - intervention type, Outcome 1: Substance-focused interventions



Analysis 2.2. Comparison 2: Frequency of alcohol misuse - intervention type, Outcome 2: Parenting-focused interventions



Analysis 2.3. Comparison 2: Frequency of alcohol misuse - intervention type, Outcome 3: Integrated parenting interventions



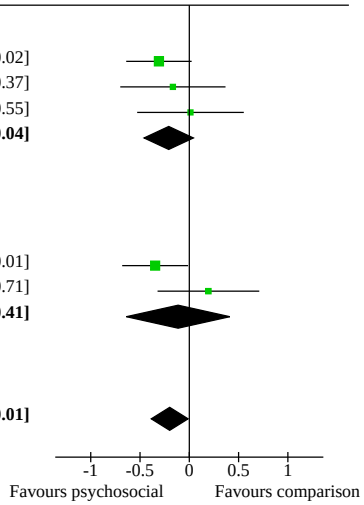
Comparison 3. Frequency of alcohol misuse - child involvement

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
3.1 Child present	3	492	Std. Mean Difference (IV, Random, 95% CI)	-0.20 [-0.39, -0.01]
3.1.1 Short-term follow up (6 months)	3	273	Std. Mean Difference (IV, Random, 95% CI)	-0.21 [-0.46, 0.04]

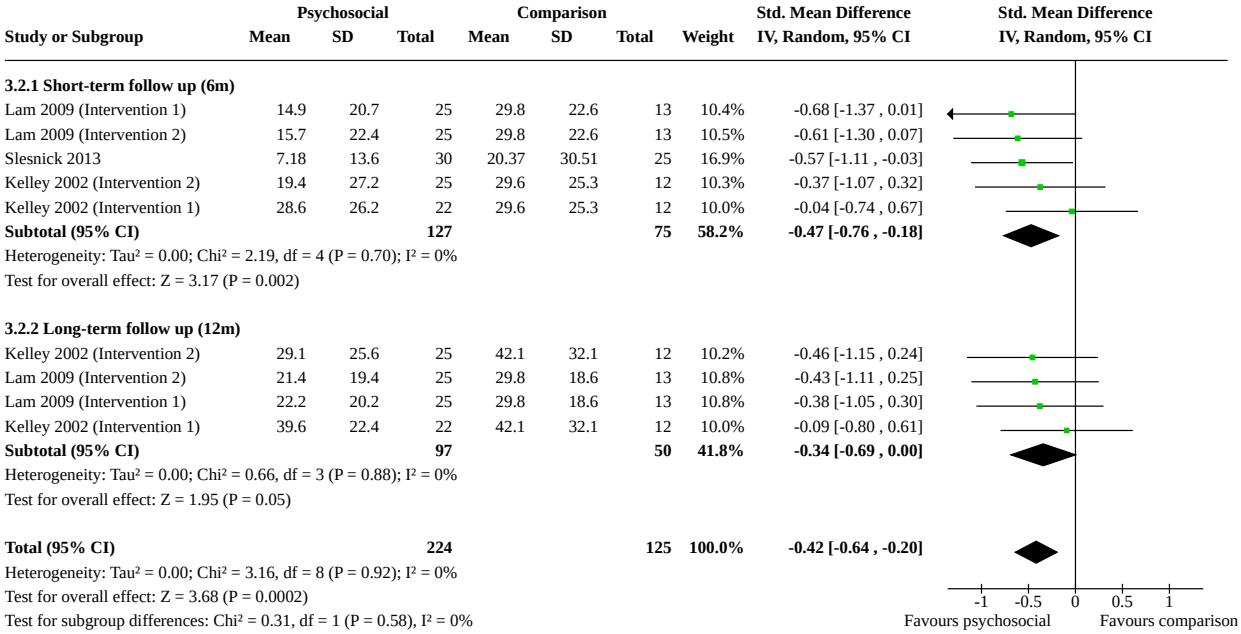
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
3.1.2 Long-term follow up (12 months)	2	219	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.64, 0.41]
3.2 Without child	5	349	Std. Mean Difference (IV, Random, 95% CI)	-0.42 [-0.64, -0.20]
3.2.1 Short-term follow up (6m)	5	202	Std. Mean Difference (IV, Random, 95% CI)	-0.47 [-0.76, -0.18]
3.2.2 Long-term follow up (12m)	4	147	Std. Mean Difference (IV, Random, 95% CI)	-0.34 [-0.69, 0.00]

Analysis 3.1. Comparison 3: Frequency of alcohol misuse - child involvement, Outcome 1: Child present

Study or Subgroup	Psychosocial Mean	SD	Total	Comparison Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
3.1.1 Short-term follow up (6 months)								
Slesnick 2016	9.63	19.56	114	16.42	26.51	51	31.6%	-0.31 [-0.64 , 0.02]
Donohue 2014	1.9	4.3	24	4.5	20.1	31	12.2%	-0.17 [-0.70 , 0.37]
Dakof 2010	1.1	5.56	29	1.04	4.09	24	11.9%	0.01 [-0.53 , 0.55]
Subtotal (95% CI)			**167**			**106**	**55.7%**	**-0.21 [-0.46 , 0.04]**
Heterogeneity: Tau² = 0.00; Chi² = 1.01, df = 2 (P = 0.60); I² = 0%								
Test for overall effect: Z = 1.64 (P = 0.10)								
3.1.2 Long-term follow up (12 months)								
Slesnick 2016	9.7	20.62	110	18.23	31.31	51	31.2%	-0.35 [-0.68 , -0.01]
Dakof 2010	1	2.92	29	0.55	1.4	29	13.1%	0.19 [-0.32 , 0.71]
Subtotal (95% CI)			**139**			**80**	**44.3%**	**-0.11 [-0.64 , 0.41]**
Heterogeneity: Tau² = 0.10; Chi² = 2.97, df = 1 (P = 0.08); I² = 66%								
Test for overall effect: Z = 0.42 (P = 0.67)								
Total (95% CI)			**306**			**186**	**100.0%**	**-0.20 [-0.39 , -0.01]**
Heterogeneity: Tau² = 0.00; Chi² = 3.99, df = 4 (P = 0.41); I² = 0%								
Test for overall effect: Z = 2.09 (P = 0.04)								
Test for subgroup differences: Chi² = 0.10, df = 1 (P = 0.75), I² = 0%								



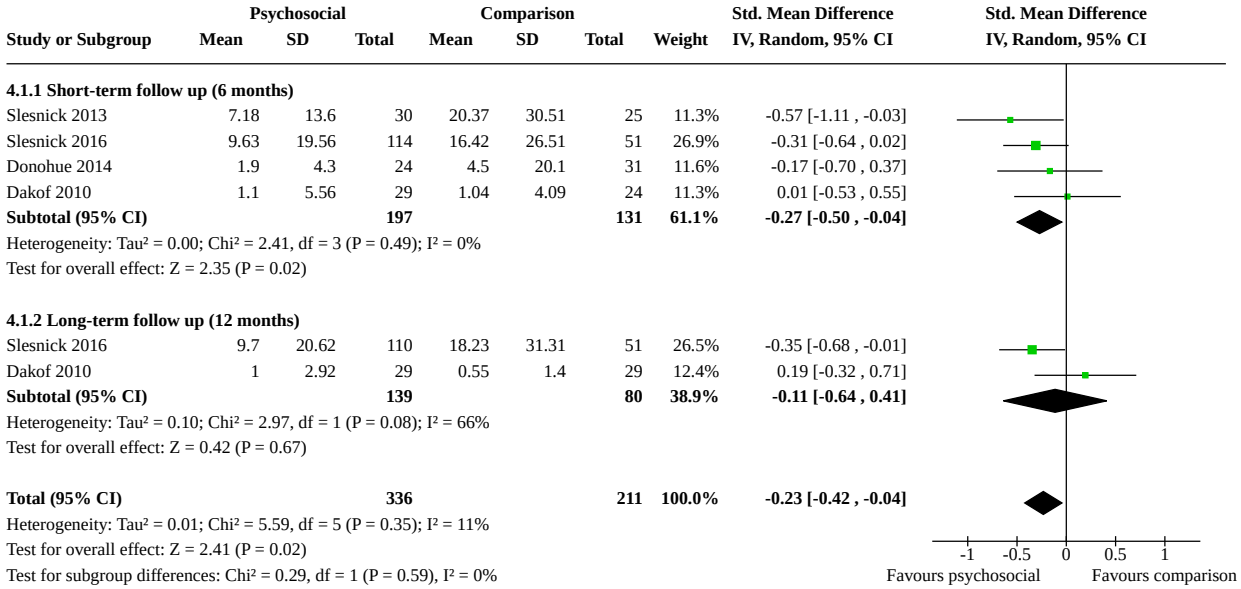
Analysis 3.2. Comparison 3: Frequency of alcohol misuse - child involvement, Outcome 2: Without child



Comparison 4. Frequency of alcohol misuse - recipient parent

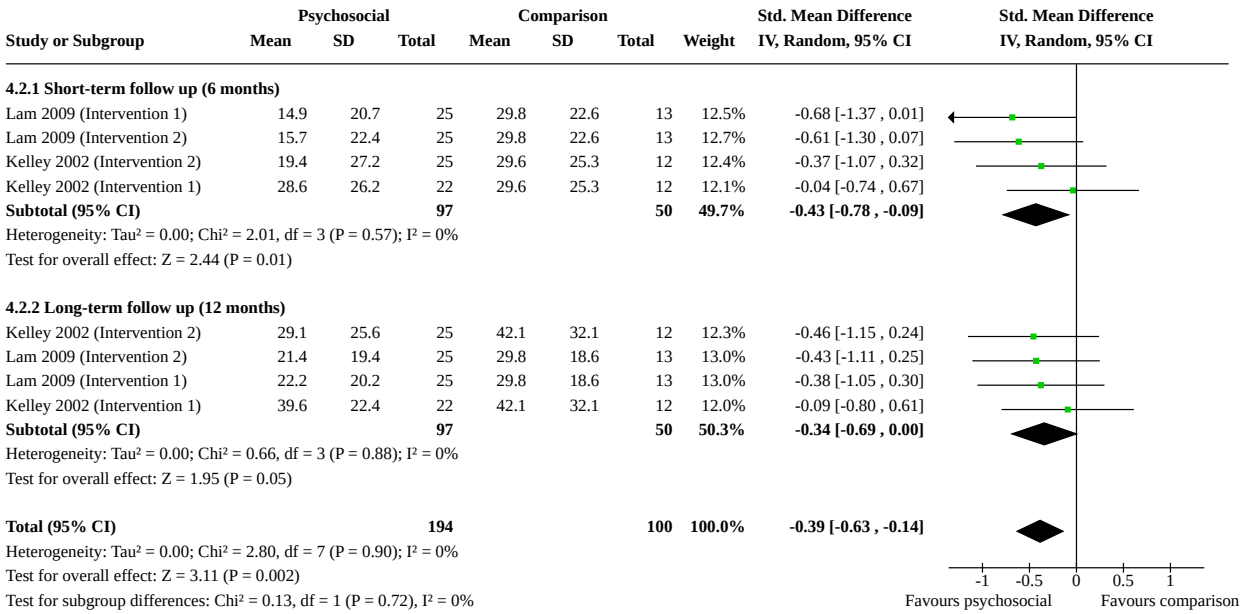
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
4.1 Mother	4	547	Std. Mean Difference (IV, Random, 95% CI)	-0.23 [-0.42, -0.04]
4.1.1 Short-term follow up (6 months)	4	328	Std. Mean Difference (IV, Random, 95% CI)	-0.27 [-0.50, -0.04]
4.1.2 Long-term follow up (12 months)	2	219	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.64, 0.41]
4.2 Father	4	294	Std. Mean Difference (IV, Random, 95% CI)	-0.39 [-0.63, -0.14]
4.2.1 Short-term follow up (6 months)	4	147	Std. Mean Difference (IV, Random, 95% CI)	-0.43 [-0.78, -0.09]
4.2.2 Long-term follow up (12 months)	4	147	Std. Mean Difference (IV, Random, 95% CI)	-0.34 [-0.69, 0.00]

Analysis 4.1. Comparison 4: Frequency of alcohol misuse - recipient parent, Outcome 1: Mother



Study or Subgroup	Psychosocial Mean	SD	Total	Comparison Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
4.1.1 Short-term follow up (6 months)								
Slesnick 2013	7.18	13.6	30	20.37	30.51	25	11.3%	-0.57 [-1.11 , -0.03]
Slesnick 2016	9.63	19.56	114	16.42	26.51	51	26.9%	-0.31 [-0.64 , 0.02]
Donohue 2014	1.9	4.3	24	4.5	20.1	31	11.6%	-0.17 [-0.70 , 0.37]
Dakof 2010	1.1	5.56	29	1.04	4.09	24	11.3%	0.01 [-0.53 , 0.55]
Subtotal (95% CI)			**197**			**131**	**61.1%**	**-0.27 [-0.50 , -0.04]**
Heterogeneity: Tau² = 0.00; Chi² = 2.41, df = 3 (P = 0.49); I² = 0%								
Test for overall effect: Z = 2.35 (P = 0.02)								
4.1.2 Long-term follow up (12 months)								
Slesnick 2016	9.7	20.62	110	18.23	31.31	51	26.5%	-0.35 [-0.68 , -0.01]
Dakof 2010	1	2.92	29	0.55	1.4	29	12.4%	0.19 [-0.32 , 0.71]
Subtotal (95% CI)			**139**			**80**	**38.9%**	**-0.11 [-0.64 , 0.41]**
Heterogeneity: Tau² = 0.10; Chi² = 2.97, df = 1 (P = 0.08); I² = 66%								
Test for overall effect: Z = 0.42 (P = 0.67)								
Total (95% CI)			**336**			**211**	**100.0%**	**-0.23 [-0.42 , -0.04]**
Heterogeneity: Tau² = 0.01; Chi² = 5.59, df = 5 (P = 0.35); I² = 11%								
Test for overall effect: Z = 2.41 (P = 0.02)								
Test for subgroup differences: Chi² = 0.29, df = 1 (P = 0.59), I² = 0%								

Analysis 4.2. Comparison 4: Frequency of alcohol misuse - recipient parent, Outcome 2: Father



Study or Subgroup	Psychosocial Mean	SD	Total	Comparison Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
4.2.1 Short-term follow up (6 months)								
Lam 2009 (Intervention 1)	14.9	20.7	25	29.8	22.6	13	12.5%	-0.68 [-1.37 , 0.01]
Lam 2009 (Intervention 2)	15.7	22.4	25	29.8	22.6	13	12.7%	-0.61 [-1.30 , 0.07]
Kelley 2002 (Intervention 2)	19.4	27.2	25	29.6	25.3	12	12.4%	-0.37 [-1.07 , 0.32]
Kelley 2002 (Intervention 1)	28.6	26.2	22	29.6	25.3	12	12.1%	-0.04 [-0.74 , 0.67]
Subtotal (95% CI)			**97**			**50**	**49.7%**	**-0.43 [-0.78 , -0.09]**
Heterogeneity: Tau² = 0.00; Chi² = 2.01, df = 3 (P = 0.57); I² = 0%								
Test for overall effect: Z = 2.44 (P = 0.01)								
4.2.2 Long-term follow up (12 months)								
Kelley 2002 (Intervention 2)	29.1	25.6	25	42.1	32.1	12	12.3%	-0.46 [-1.15 , 0.24]
Lam 2009 (Intervention 2)	21.4	19.4	25	29.8	18.6	13	13.0%	-0.43 [-1.11 , 0.25]
Lam 2009 (Intervention 1)	22.2	20.2	25	29.8	18.6	13	13.0%	-0.38 [-1.05 , 0.30]
Kelley 2002 (Intervention 1)	39.6	22.4	22	42.1	32.1	12	12.0%	-0.09 [-0.80 , 0.61]
Subtotal (95% CI)			**97**			**50**	**50.3%**	**-0.34 [-0.69 , 0.00]**
Heterogeneity: Tau² = 0.00; Chi² = 0.66, df = 3 (P = 0.88); I² = 0%								
Test for overall effect: Z = 1.95 (P = 0.05)								
Total (95% CI)			**194**			**100**	**100.0%**	**-0.39 [-0.63 , -0.14]**
Heterogeneity: Tau² = 0.00; Chi² = 2.80, df = 7 (P = 0.90); I² = 0%								
Test for overall effect: Z = 3.11 (P = 0.002)								
Test for subgroup differences: Chi² = 0.13, df = 1 (P = 0.72), I² = 0%								

Comparison 5. Frequency of drug use - all psychosocial interventions

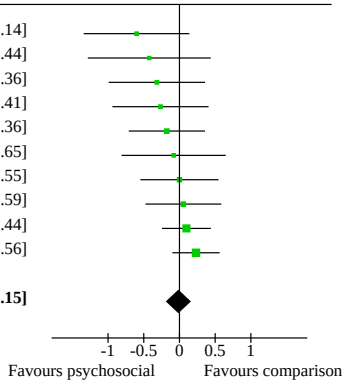
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
5.1 Short-term follow up (6 months)	10	625	Std. Mean Difference (IV, Random, 95% CI)	-0.02 [-0.18, 0.15]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
5.2 Long term follow up (12 months)	8	514	Std. Mean Difference (IV, Random, 95% CI)	-0.21 [-0.41, -0.01]

Analysis 5.1. Comparison 5: Frequency of drug use - all psychosocial interventions, Outcome 1: Short-term follow up (6 months)

Study or Subgroup	Psychosocial Mean	SD	Total	Comparison Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Kelley 2002 (Intervention 2)	22.4	25.8	22	38.5	26.8	11	4.9%	-0.60 [-1.34 , 0.14]
Saldana 2015	0.42	1.16	13	1.3	2.83	9	3.6%	-0.42 [-1.28 , 0.44]
Lam 2009 (Intervention 1)	14.9	20.7	25	21.8	22.6	13	5.9%	-0.32 [-0.99 , 0.36]
Lam 2009 (Intervention 2)	15.7	22.4	25	21.8	22.6	13	5.9%	-0.27 [-0.94 , 0.41]
Donohue 2014	6.4	20	24	10	20.3	31	9.3%	-0.18 [-0.71 , 0.36]
Kelley 2002 (Intervention 1)	36.4	24.3	21	38.5	26.8	11	5.0%	-0.08 [-0.81 , 0.65]
Dakof 2010	0	0.01	29	0	0.01	23	8.9%	0.00 [-0.55 , 0.55]
Slesnick 2013	30.5	40.1	30	28.35	37.18	25	9.5%	0.05 [-0.48 , 0.59]
Catalano 1999	9.08	25.78	78	6.78	19.69	57	22.8%	0.10 [-0.24 , 0.44]
Slesnick 2016	16.1	33.88	114	8.83	24.18	51	24.3%	0.23 [-0.10 , 0.56]
Total (95% CI)			**381**			**244**	**100.0%**	**-0.02 [-0.18 , 0.15]**

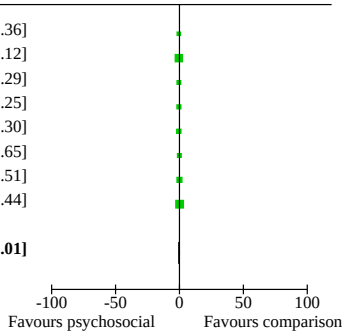
Heterogeneity: Tau² = 0.00; Chi² = 7.57, df = 9 (P = 0.58); I² = 0%
Test for overall effect: Z = 0.18 (P = 0.85)
Test for subgroup differences: Not applicable



Analysis 5.2. Comparison 5: Frequency of drug use - all psychosocial interventions, Outcome 2: Long term follow up (12 months)

Study or Subgroup	Psychosocial Mean	SD	Total	Comparison Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Saldana 2015	0	0.1	13	3.33	10	9	5.1%	-0.51 [-1.37 , 0.36]
Catalano 1999	6.89	15.81	74	19.68	36.82	58	24.9%	-0.47 [-0.82 , -0.12]
Kelley 2002 (Intervention 2)	33.1	35.6	22	48.8	32.2	11	7.0%	-0.44 [-1.18 , 0.29]
Lam 2009 (Intervention 2)	21.4	19.4	25	29.8	18.6	13	8.0%	-0.43 [-1.11 , 0.25]
Lam 2009 (Intervention 1)	22.2	20.2	25	29.8	18.6	13	8.1%	-0.38 [-1.05 , 0.30]
Kelley 2002 (Intervention 1)	46.6	24.8	21	48.8	32.2	11	7.0%	-0.08 [-0.81 , 0.65]
Dakof 2010	0	0.01	29	0	0.01	29	13.2%	0.00 [-0.51 , 0.51]
Slesnick 2016	12.31	28.96	110	9.2	25.18	51	26.8%	0.11 [-0.22 , 0.44]
Total (95% CI)			**319**			**195**	**100.0%**	**-0.21 [-0.41 , -0.01]**

Heterogeneity: Tau² = 0.01; Chi² = 7.96, df = 7 (P = 0.34); I² = 12%
Test for overall effect: Z = 2.10 (P = 0.04)
Test for subgroup differences: Not applicable

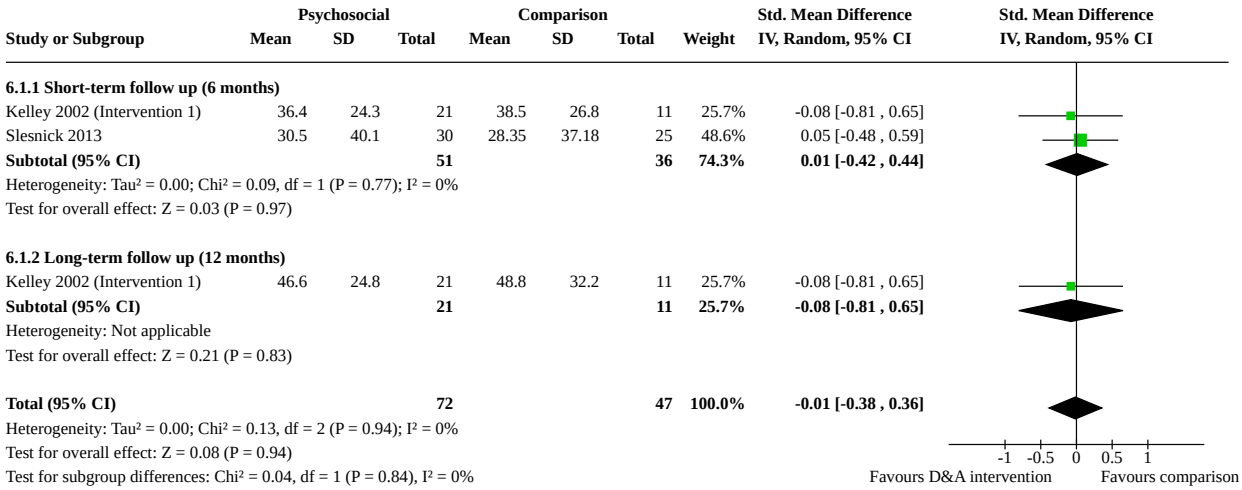


Comparison 6. Frequency of drug use - intervention type

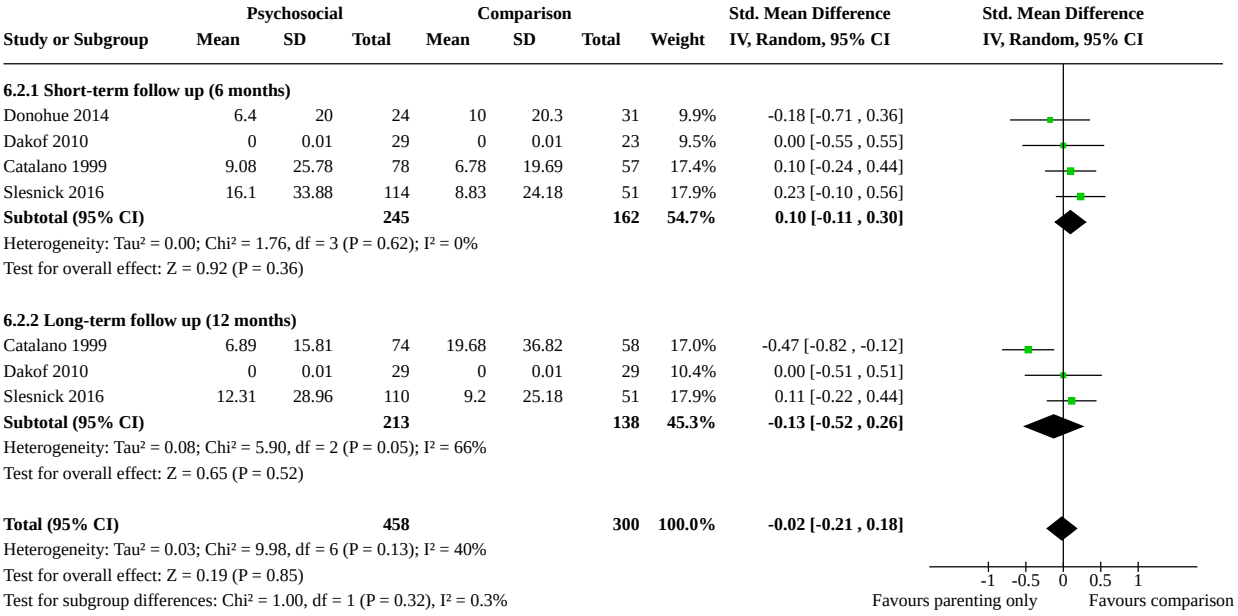
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
6.1 Substance-focused interventions	2	119	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.38, 0.36]
6.1.1 Short-term follow up (6 months)	2	87	Std. Mean Difference (IV, Random, 95% CI)	0.01 [-0.42, 0.44]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
6.1.2 Long-term follow up (12 months)	1	32	Std. Mean Difference (IV, Random, 95% CI)	-0.08 [-0.81, 0.65]
6.2 Parenting-focused interventions	4	758	Std. Mean Difference (IV, Random, 95% CI)	-0.02 [-0.21, 0.18]
6.2.1 Short-term follow up (6 months)	4	407	Std. Mean Difference (IV, Random, 95% CI)	0.10 [-0.11, 0.30]
6.2.2 Long-term follow up (12 months)	3	351	Std. Mean Difference (IV, Random, 95% CI)	-0.13 [-0.52, 0.26]
6.3 Integrated parenting interventions	4	262	Std. Mean Difference (IV, Random, 95% CI)	-0.41 [-0.67, -0.15]
6.3.1 Short-term follow up (6 months)	4	131	Std. Mean Difference (IV, Random, 95% CI)	-0.39 [-0.75, -0.03]
6.3.2 Long-term follow up (12 months)	4	131	Std. Mean Difference (IV, Random, 95% CI)	-0.43 [-0.80, -0.07]

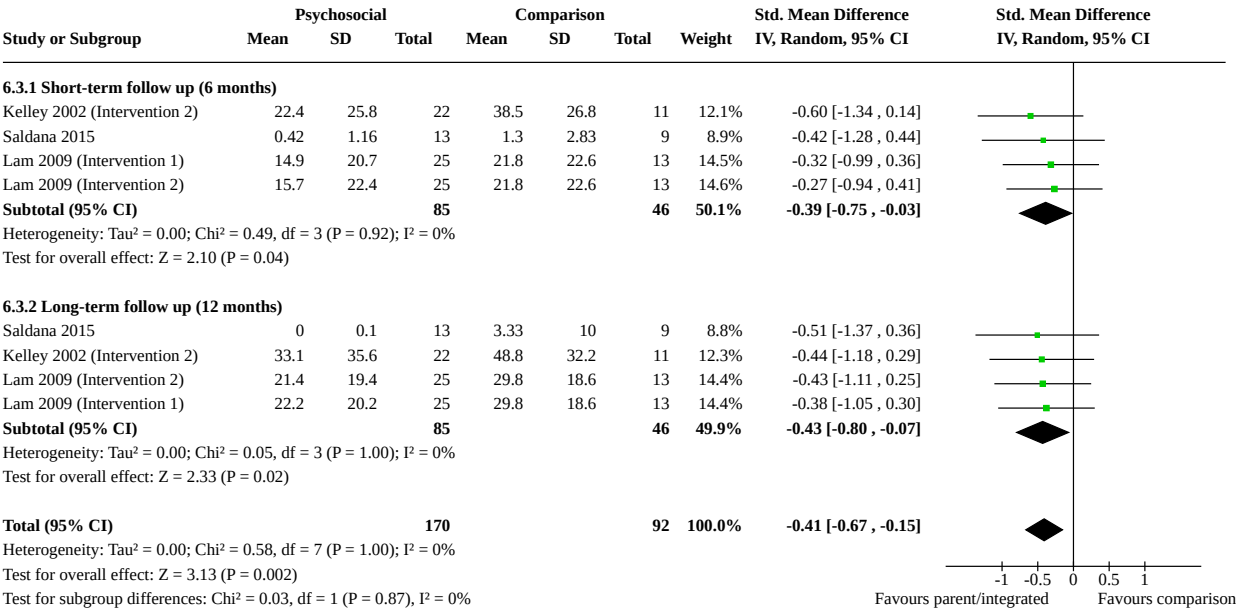
Analysis 6.1. Comparison 6: Frequency of drug use - intervention type, Outcome 1: Substance-focused interventions



Analysis 6.2. Comparison 6: Frequency of drug use - intervention type, Outcome 2: Parenting-focused interventions



Analysis 6.3. Comparison 6: Frequency of drug use - intervention type, Outcome 3: Integrated parenting interventions



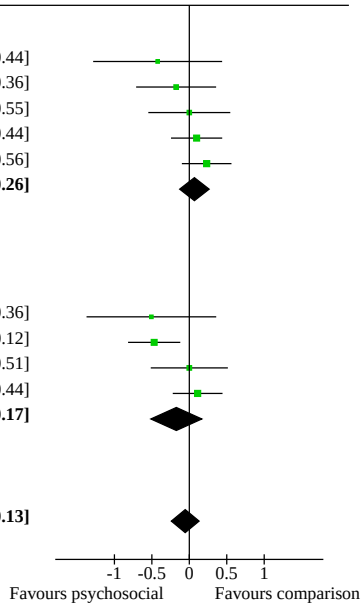
Comparison 7. Frequency of drug use - child involvement

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
7.1 Child present	5	802	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.24, 0.13]

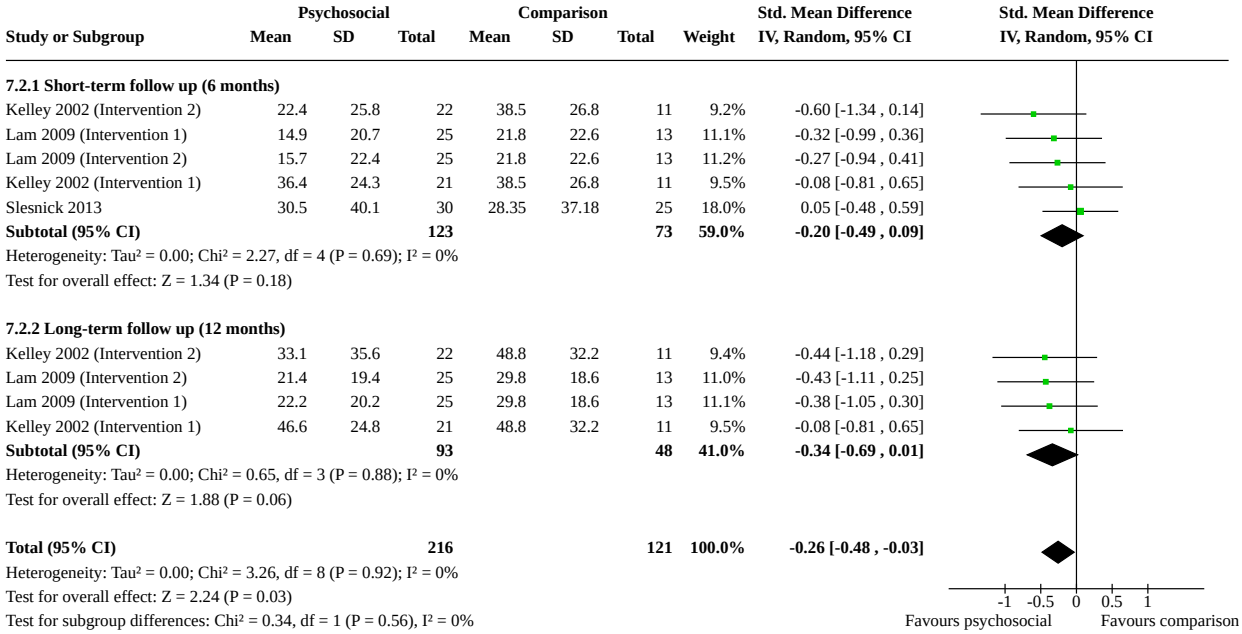
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
7.1.1 Short-term follow up (6 months)	5	429	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.13, 0.26]
7.1.2 Long-term follow up (12 months)	4	373	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.51, 0.17]
7.2 Without child	5	337	Std. Mean Difference (IV, Random, 95% CI)	-0.26 [-0.48, -0.03]
7.2.1 Short-term follow up (6 months)	5	196	Std. Mean Difference (IV, Random, 95% CI)	-0.20 [-0.49, 0.09]
7.2.2 Long-term follow up (12 months)	4	141	Std. Mean Difference (IV, Random, 95% CI)	-0.34 [-0.69, 0.01]

Analysis 7.1. Comparison 7: Frequency of drug use - child involvement, Outcome 1: Child present

Study or Subgroup	Psychosocial Mean	SD	Total	Comparison Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
7.1.1 Short-term follow up (6 months)								
Saldana 2015	0.42	1.16	13	1.3	2.83	9	4.1%	-0.42 [-1.28 , 0.44]
Donohue 2014	6.4	20	24	10	20.3	31	9.0%	-0.18 [-0.71 , 0.36]
Dakof 2010	0	0.01	29	0	0.01	23	8.6%	0.00 [-0.55 , 0.55]
Catalano 1999	9.08	25.78	78	6.78	19.69	57	16.0%	0.10 [-0.24 , 0.44]
Slesnick 2016	16.1	33.88	114	8.83	24.18	51	16.6%	0.23 [-0.10 , 0.56]
Subtotal (95% CI)			**258**			**171**	**54.3%**	**0.07 [-0.13 , 0.26]**
Heterogeneity: Tau² = 0.00; Chi² = 3.08, df = 4 (P = 0.55); I² = 0%								
Test for overall effect: Z = 0.68 (P = 0.50)								
7.1.2 Long-term follow up (12 months)								
Saldana 2015	0	0.1	13	3.33	10	9	4.0%	-0.51 [-1.37 , 0.36]
Catalano 1999	6.89	15.81	74	19.68	36.82	58	15.7%	-0.47 [-0.82 , -0.12]
Dakof 2010	0	0.01	29	0	0.01	29	9.5%	0.00 [-0.51 , 0.51]
Slesnick 2016	12.31	28.96	110	9.2	25.18	51	16.5%	0.11 [-0.22 , 0.44]
Subtotal (95% CI)			**226**			**147**	**45.7%**	**-0.17 [-0.51 , 0.17]**
Heterogeneity: Tau² = 0.06; Chi² = 6.57, df = 3 (P = 0.09); I² = 54%								
Test for overall effect: Z = 1.00 (P = 0.32)								
Total (95% CI)			**484**			**318**	**100.0%**	**-0.05 [-0.24 , 0.13]**
Heterogeneity: Tau² = 0.03; Chi² = 12.00, df = 8 (P = 0.15); I² = 33%								
Test for overall effect: Z = 0.58 (P = 0.56)								
Test for subgroup differences: Chi² = 1.45, df = 1 (P = 0.23), I² = 31.1%								



Analysis 7.2. Comparison 7: Frequency of drug use - child involvement, Outcome 2: Without child

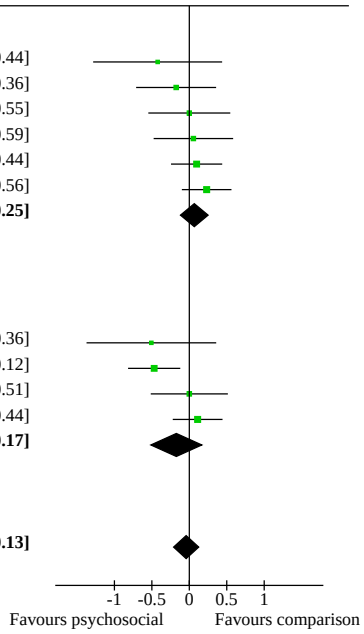


Comparison 8. Frequency of drug use - recipient parent

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
8.1 Mother	6	857	Std. Mean Difference (IV, Random, 95% CI)	-0.04 [-0.21, 0.13]
8.1.1 Short-term follow up (6 months)	6	484	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.12, 0.25]
8.1.2 Long-term follow up (12 months)	4	373	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.51, 0.17]
8.2 Father	4	282	Std. Mean Difference (IV, Random, 95% CI)	-0.32 [-0.57, -0.08]
8.2.1 Short-term follow up (6m)	4	141	Std. Mean Difference (IV, Random, 95% CI)	-0.31 [-0.66, 0.04]
8.2.2 Long-term follow up (12m)	4	141	Std. Mean Difference (IV, Random, 95% CI)	-0.34 [-0.69, 0.01]

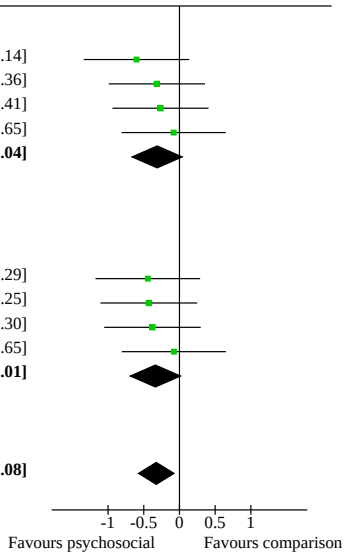
Analysis 8.1. Comparison 8: Frequency of drug use - recipient parent, Outcome 1: Mother

Study or Subgroup	Psychosocial Mean	SD	Total	Comparison Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
8.1.1 Short-term follow up (6 months)								
Saldana 2015	0.42	1.16	13	1.3	2.83	9	3.5%	-0.42 [-1.28 , 0.44]
Donohue 2014	6.4	20	24	10	20.3	31	7.9%	-0.18 [-0.71 , 0.36]
Dakof 2010	0	0.01	29	0	0.01	23	7.6%	0.00 [-0.55 , 0.55]
Slesnick 2013	30.5	40.1	30	28.35	37.18	25	8.0%	0.05 [-0.48 , 0.59]
Catalano 1999	9.08	25.78	78	6.78	19.69	57	15.1%	0.10 [-0.24 , 0.44]
Slesnick 2016	16.1	33.88	114	8.83	24.18	51	15.7%	0.23 [-0.10 , 0.56]
Subtotal (95% CI)			**288**			**196**	**57.8%**	**0.07 [-0.12 , 0.25]**
Heterogeneity: Tau² = 0.00; Chi² = 3.08, df = 5 (P = 0.69); I² = 0%								
Test for overall effect: Z = 0.71 (P = 0.48)								
8.1.2 Long-term follow up (12 months)								
Saldana 2015	0	0.1	13	3.33	10	9	3.4%	-0.51 [-1.37 , 0.36]
Catalano 1999	6.89	15.81	74	19.68	36.82	58	14.7%	-0.47 [-0.82 , -0.12]
Dakof 2010	0	0.01	29	0	0.01	29	8.4%	0.00 [-0.51 , 0.51]
Slesnick 2016	12.31	28.96	110	9.2	25.18	51	15.6%	0.11 [-0.22 , 0.44]
Subtotal (95% CI)			**226**			**147**	**42.2%**	**-0.17 [-0.51 , 0.17]**
Heterogeneity: Tau² = 0.06; Chi² = 6.57, df = 3 (P = 0.09); I² = 54%								
Test for overall effect: Z = 1.00 (P = 0.32)								
Total (95% CI)			**514**			**343**	**100.0%**	**-0.04 [-0.21 , 0.13]**
Heterogeneity: Tau² = 0.02; Chi² = 12.10, df = 9 (P = 0.21); I² = 26%								
Test for overall effect: Z = 0.49 (P = 0.62)								
Test for subgroup differences: Chi² = 1.48, df = 1 (P = 0.22), I² = 32.2%								



Analysis 8.2. Comparison 8: Frequency of drug use - recipient parent, Outcome 2: Father

Study or Subgroup	Psychosocial Mean	SD	Total	Comparison Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
8.2.1 Short-term follow up (6m)								
Kelley 2002 (Intervention 2)	22.4	25.8	22	38.5	26.8	11	11.3%	-0.60 [-1.34 , 0.14]
Lam 2009 (Intervention 1)	14.9	20.7	25	21.8	22.6	13	13.6%	-0.32 [-0.99 , 0.36]
Lam 2009 (Intervention 2)	15.7	22.4	25	21.8	22.6	13	13.6%	-0.27 [-0.94 , 0.41]
Kelley 2002 (Intervention 1)	36.4	24.3	21	38.5	26.8	11	11.6%	-0.08 [-0.81 , 0.65]
Subtotal (95% CI)			**93**			**48**	**50.0%**	**-0.31 [-0.66 , 0.04]**
Heterogeneity: Tau² = 0.00; Chi² = 0.99, df = 3 (P = 0.80); I² = 0%								
Test for overall effect: Z = 1.74 (P = 0.08)								
8.2.2 Long-term follow up (12m)								
Kelley 2002 (Intervention 2)	33.1	35.6	22	48.8	32.2	11	11.5%	-0.44 [-1.18 , 0.29]
Lam 2009 (Intervention 2)	21.4	19.4	25	29.8	18.6	13	13.4%	-0.43 [-1.11 , 0.25]
Lam 2009 (Intervention 1)	22.2	20.2	25	29.8	18.6	13	13.5%	-0.38 [-1.05 , 0.30]
Kelley 2002 (Intervention 1)	46.6	24.8	21	48.8	32.2	11	11.6%	-0.08 [-0.81 , 0.65]
Subtotal (95% CI)			**93**			**48**	**50.0%**	**-0.34 [-0.69 , 0.01]**
Heterogeneity: Tau² = 0.00; Chi² = 0.65, df = 3 (P = 0.88); I² = 0%								
Test for overall effect: Z = 1.88 (P = 0.06)								
Total (95% CI)			**186**			**96**	**100.0%**	**-0.32 [-0.57 , -0.08]**
Heterogeneity: Tau² = 0.00; Chi² = 1.65, df = 7 (P = 0.98); I² = 0%								
Test for overall effect: Z = 2.56 (P = 0.01)								
Test for subgroup differences: Chi² = 0.01, df = 1 (P = 0.92), I² = 0%								



ADDITIONAL TABLES

Table 1. Psychosocial interventions compared with varied comparison conditions for substance-using parents

Psychosocial interventions compared with varied comparison conditions for substance-using parents

Table 1. Psychosocial interventions compared with varied comparison conditions for substance-using parents *(Continued)*

Patient or population: Parents who use substances

Settings: Outpatient drug and alcohol treatment, maternity hospitals, community settings, welfare departments, child welfare

Intervention: Psychosocial interventions

Comparison: Minimal intervention, attention control, treatment as usual, and alternative intervention

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	Psychosocial interventions			
Frequency of substance use presented as median composite score at 6 months	Less use reported for all substances (heroin, other opiates, alcohol, cannabis, amphetamine, benzodiazepines).	More use reported for all substances (heroin, other opiates, alcohol, cannabis, amphetamine, benzodiazepines).	152 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	Examined health visitor home-visiting intervention. Direction of effect favoured control.
% drug-free	Median Opiate Treatment Index scores at 6 month follow up: Heroin: 0.04 (0.04–0.21) Alcohol: 0.39 (0.04–6.0)	Median Opiate Treatment Index scores at 6 month follow up: Heroin: 0.21 (0.04–2.50) Alcohol: 0.33 (0.03–2.8)	60 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	Examined home-visiting intervention. Direction of effect favoured the intervention.
Substance use (%) at 12 months	26% of participants were using cocaine at time of follow-up.	14% of participants were using cocaine at time of follow-up.	144 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	Examined integrated parenting intervention. Direction of effect favoured the intervention.
Abstinence at 36 months	Mean proportion of abstinence rates was 2.6 (SD 4.2).	Mean proportion of abstinence rates was 3.3 (3.8).	85 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	Examined integrated parenting intervention. Direction of effect favoured the intervention.
Urine toxicology screens at 6 months	Positive urine screens increased for opiate use and decreased for cocaine at 6-month follow-up.	Positive urine for opiates decreased significantly more than controls, whilst urine screens showed no between group difference for cocaine.	61 (1 RCT)	⊕⊖⊖⊖ **very low** [1 2 3]	Examined integrated parenting intervention. Direction of effect was inconsistent.
Urine toxicology screens at 6 and 12 months	Mean presence of opiate-positive screens was 0.09 at 6 months and 0.17 at 12 months. Mean presence of cocaine-positive screens was 0.41 at 6 months and 0.29 at 12 months.	Mean presence of opiate-positive screens was 0.15 at 6 months and 0.20 at 12 months. Mean presence of cocaine-positive screens was 0.21 at 6 months and 0.33 at 12 months.	67 (1 RCT)	⊕⊖⊖⊖ **very low** [1 2 3]	Examined integrated parenting intervention. Direction of effect favoured control.
Abstinence from sub-	26% abstinent	43% abstinent	302	⊕⊕⊖⊖ **low**[1 2]	Examined intensive case management ser-

Table 1. Psychosocial interventions compared with varied comparison conditions for substance-using parents *(Continued)*

abstinence (%) for period of 1 month at 15-month follow-up			(1 RCT)		vices. Direction of effect favoured the intervention.
Maximum weeks of continuous abstinence during 12-month period	Mean number of weeks was 2.5 (SD 3.0) in voucher control group. "No significant difference" was reported between counselling type.	Mean number of weeks was 4.6 (SD 5.4) in contingency management group. "No significant difference" was reported between counselling type.	145 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	2 x 2 study design examining community reinforcement approach (CRA) and contingency management (CM). Direction of effect favoured CM, but not CRA.
Substance use (%) in past 6 months	68% had used alcohol. 37.8% had used marijuana. 44% had used heroin/cocaine.	64.8% had used alcohol. 25.4% had used cannabis. 45.6% had used heroin/cocaine.	171 (1 RCT)	⊕⊖⊖⊖ **very low** [1 2 3]	Examined a parenting intervention targeting mother-infant feeding interaction. No difference observed in direction of effect.
Rates of relapse at 6 months	Mean rates for heroin: 0.08 (SD 0.03); opioid: 0.00 (SD 0.00); and cocaine: 0.12 (SD 0.16)	Mean rates for heroin: 0.05 (SD 0.03); opioid: 0.00 (SD 0.00); and cocaine: 0.07 (SD 0.03)	87 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	Examined parenting intervention without adjunctive substance use component. Direction of effect favoured intervention.

*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% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; **RCT:** randomised controlled trial; **SD:** standard deviation

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]Downgraded one level due to serious imprecision.
[2]Downgraded one level due to serious risk of performance and detection bias.
[3]Downgraded one level due to unexplained heterogeneity or inconsistency of results.

Table 2. Psychosocial interventions compared with treatment as usual and alternative treatment for substance-using parents

Psychosocial interventions compared with treatment as usual and alternative treatment for substance-using parents
Patient or population: Parents who use substances
Settings: Drug and alcohol community treatment, family drug court, child welfare services, prenatal services, welfare services
Intervention: Integrated parenting intervention, parenting intervention, intensive case management drug and alcohol treatment

Table 2. Psychosocial interventions compared with treatment as usual and alternative treatment for substance-using parents *(Continued)*

Comparison: Treatment as usual and alternative treatment

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	Psychosocial interventions			
Risk of child abuse (Brief version of Child Abuse Potential Inventory - BCAP 24 item) at 6 and 12 months	The mean BCAP scores were 8.8 (SD 6.4) at 6 months and 9.8 (SD 5.7) at 12 months. Number positive for abuse (score of 12 or more) was 18 (41.9%) at 6 months and 16 (41%) at 12 months.	The mean BCAP scores were 7.0 (SD 5.7) at 6 months and 7.3 (SD 5.8) at 12 months. Number positive for abuse (score of 12 or more) was 9 (21.4%) at 6 months and 8 (22.2%) at 12 months.	100 (1 RCT)	⊕⊕⊖⊖ **low**[1,2]	Examined integrated parenting intervention. Direction of effect favoured the intervention.
Risk of child abuse (Child Abuse Potential Inventory - 77 item) at 18 months	Women in comparison group reported total abuse scores that were significantly elevated in reference to the norms at 18 months follow up.	Women in the intervention group reported total abuse scores that did not differ significantly from the norms at 18 months follow up.	60 (1 RCT)	⊕⊕⊖⊖ **low**[1,2]	Examined parenting intervention without adjunctive substance use component. No difference observed in direction of effect.
Risk of child abuse (Brief version of Child Abuse Potential Inventory - BCAP 24 item) at 6, 9, 12, and 18 months	The mean BCAP scores were 6 month: 7.36 (SD 5.77); 9 month: 5.23 (SD 4.79); 12 month: 7.52 (SD 5.19); 18 month: 4.83 (SD 3.84).	The mean BCAP scores were 6 month: 7.90 (SD 5.74); 9 month: 6.49 (SD 4.79); 12 month: 7.31 (SD 6.43); 18 month: 4.81 (SD 3.85).	62 (1 RCT)	⊕⊕⊖⊖ **low**[1,2]	Examined parenting intervention without adjunctive substance use component. No difference observed in direction of effect.
Risk of child abuse (Child Abuse Potential Inventory - 160 item) at 6 months	Risk of child abuse showed a significant increase over time.	Risk of child abuse showed a significant decrease over time.	64 (1 RCT)	⊕⊕⊖⊖ **low**[1,2]	Examined integrated parenting intervention. Direction of effect favoured the intervention.
Risk of child abuse (Child Abuse Potential Inventory - full version) at 6 and 10 months	Mean CAPI score 10.0 (SD 20.3) at 6 months and 7.5 (SD 16.3) at 10 months	Mean CAPI score 6.4 (SD 20.0) at 6 months and 7.0 (SD 20.1) at 10 months	72 (1 RCT)	⊕⊕⊖⊖ **low**[1,2]	Examined parenting intervention without adjunctive substance use component. Direction of effect favoured the intervention at 6 months, but no difference observed at 10 months.
Percentage of cases with open child protection services	40% with open CPS involvement at 6 months and 30% at 12 months	25% with open CPS involvement at 6 months and 15% at 12 months	30 (1 RCT)	⊕⊕⊖⊖ **low**[3]	Examined integrated parenting intervention. Direction of effect favoured the intervention.

Table 2. Psychosocial interventions compared with treatment as usual and alternative treatment for substance-using parents *(Continued)*

(CPS) involvement at 6 and 12 months					
Child maltreatment risk measured with the Parental Acceptance/Rejection Questionnaire (PARQ) at 6 and 12 months	Mean mother report risk: 107.0 at 6 months and 102.4 at 12 months. Mean child report risk: 108 at 6 months and 96.7 at 12 months	Mean mother report risk: 94.9 at 6 months and 90.3 at 12 months. Mean child report risk: 91.9 at 6 months and 91.1 at 12 months	61 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	Examined parenting intervention without adjunctive substance use component. Direction of effect favoured the intervention.
Child maltreatment risk measured with the Parental Acceptance/Rejection Questionnaire (PARQ) at 6 and 12 months	Mean mother report risk: 100.82 at 6 months and 105.17 at 12 months. Mean child report risk: 86.10 at 6 months and 90.98 at 12 months. Mean clinician report risk: 65.85 at 6 months and 81.00 at 12 months	Mean mother report risk: 92.14 at 6 months and 97.01 at 12 months. Mean child report risk: 84.00 at 6 months and 98.77 at 12 months. Mean clinician report risk: 78.50 at 6 months and 78.78 at 12 months	67 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	Examined parenting intervention without adjunctive substance use component. Direction of effect was inconsistent.
Incident reports made to child welfare services and dichotomous measure of whether child had been in an out-of-home placement at any point within the year over 4-year period.	Incident report rates: 28% (Y1); 14% (Y2); 17% (Y3); 16% (Y4) Out-of-home placement rates: 23% (Y1); 19% (Y2); 18% (Y3); 19% (Y4)	Incident report rates: 21% (Y1); 17% (Y2); 13% (Y3); 9% (Y4) Out-of-home placement rates: 15% (Y1); 15% (Y2); 16% (Y3); 14% (Y4)	302 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	Examined intensive case management services. No difference observed in direction of effect.
Risk of child abuse (Brief version of Child Abuse Potential Inventory - BCAP 33 item) at 6 and 12 months	Mean BCAP 7.40 (SD 6.88) at 6 months and 6.11 (SD 4.17) at 12 months	Mean BCAP 8.30 (SD 5.59) at 6 months and 6.81 (SD 4.89) at 12 months	31 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	Examined parenting intervention without adjunctive substance use component. Direction of effect favoured the control condition at 6 months, and no difference was observed at 12 months.
Risk of child abuse (Child Abuse Potential Inventory - Rigidity subscales score) at 18 months	Mean CAPI Rigidity score was 31.3 (SD 18.4).	Mean CAPI Rigidity score was 34.7 (SD 19.1).	131 (1 RCT)	⊕⊕⊖⊖ **low**[1 2]	Examined parenting intervention without adjunctive substance use component. Direction of effect favoured the control.

Table 2. Psychosocial interventions compared with treatment as usual and alternative treatment for substance-using parents *(Continued)*

*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% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CAPI: Child Abuse Potential Inventory; **CI:** confidence interval; **RCT:** randomised controlled trial; **SD:** standard deviation

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]Downgraded one level due to serious imprecision.
[2]Downgraded one level due to serious risk of performance and detection bias.
[3]Downgraded two levels due to serious imprecision.

APPENDICES

Appendix 1. MEDLINE search strategy

1. substance-related disorders/ or alcohol-related disorders/ or amphetamine-related disorders/ or cocaine-related disorders/ or drug overdose/ or inhalant abuse/ or marijuana abuse/ or opioid-related disorders/ or phencyclidine abuse/ or psychoses, substance-induced/ or substance abuse, intravenous/ or substance withdrawal syndrome/ or alcohol withdrawal delirium/ or alcohol withdrawal seizures/
2. ((stimulant* or polydrug* or drug* or substance) adj6 (abus* or dependen* or addict* or disorder* or intoxicat* or misuse*)).ab,ti.
3. exp alcohol drinking/
4. (alcohol adj3 (dependen* or drink* or intoxicat* or abus* or misus* or risk* or consum* or excess* or reduc* or intervention*)).ab,ti.
5. (drink* adj3 (excess or heavy or heavily or harm or harmful or hazard* or risky or binge or harmful or problem*)).ab,ti..
6. (addict* or abstain* or abstinen*).ab,ti.
7. (heroin or methadone or temegesic or subutex or opiate* or crack cocaine or cocaine or ecstasy or methamphetamine* or crystal meth or amphetamine* or cannabis or marijuana or marihuana or lsd or magic mushrooms or mephedrone or khat or cathinone or ketamine or steroid* or performance enhancing drug* or gammahydroxybutrate or ghb or amyl nitrate).ab,ti.
8. 1 or 2 or 3 or 4 or 5 or 6 or 7
9. maternal deprivation/ or parent-child relations/ or father-child relations/ or mother-child relations/ or parenting/ or paternal behavior/ or paternal deprivation/ or nuclear family/ or exp parents/ or single-parent family/
10. (parent or parents or parental or guardian* or mother or maternal or father or paternal or mum or dad).ab,ti.
11. 9 or 10
12. psychotherapy/ or exp behavior therapy/ or exp cognitive therapy/ or exp relaxation therapy/ or gestalt therapy/ or narrative therapy/ or nondirective therapy/
13. play therapy/ or exp psychoanalytic therapy/ or exp psychotherapeutic processes/ or psychotherapy, brief/ or psychotherapy, multiple/ or psychotherapy, psychodynamic/
14. psychotherapy, rational-emotive/ or reality therapy/
15. socioenvironmental therapy/
16. counseling/ or exp directive counseling/
17. (motivat* adj5 (interview* or therap* or consult* or intervention* or enhance*)).ab,ti.
18. (brief adj3 intervention*).ab,ti.
19. (cognit* adj2 (train* or behavior* or therap* or technique* or skill*)).ab,ti.
20. ((psychodynamic or psychosocial) adj2 (therap$ or treatment$ or intervention$ or program$)).ab,ti.
21. (psychotherap* or counsel* or residential rehabilitation).ab,ti.
22. ((relaxation or imagery) adj2 (therap$ or technique$)).ab,ti.

23.(family adj2 therap*).ab,ti.
24.(case adj2 management).ab,ti.
25.((coping skill* or cbst or self control or assertive*) adj2 (training or therap*)).ab,ti.
26.12 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.(randomised controlled trial or controlled clinical trial).pt.
28.(randomised or placebo).ab.
29.clinical trials as topic.sh.
30.randomly.ab.
31.trial.ti.
32.27 or 28 or 29 or 30 or 31
33.exp animals/ not humans.sh.
34.32 not 33
35.8 and 11 and 34

Appendix 2. PsycINFO search strategy

1. exp Drug Abuse/ or exp Drug Dependency/ or exp Drug Addiction/ or exp Alcoholism/ or exp Alcohol Abuse/ or exp Binge Drinking/ or exp Alcohol Drinking Patterns/ or exp Drugs/ or exp Binge Drinking/ or exp Alcohol Drinking Patterns/ or exp Drugs/
2. ((stimulant* or polydrug* or drug* or substance) adj6 (abus* or dependen* or addict* or disorder* or intoxicat* or misuse*)).ab,ti.
3. (alcohol adj3 (dependen* or drink* or intoxicat* or abus* or misus* or risk* or consum* or excess* or reduc* or intervention*)).ab,ti.
4. (drink* adj3 (excess or heavy or heavily or harm or harmful or hazard* or risky or binge or harmful or problem*)).ab,ti.
5. (addict* or abstain* or abstinen*).ab,ti.
6. (heroin or methadone or temegesic or subutex or opiate* or crack cocaine or cocaine or ecstasy or methamphetamine* or crystal meth or amphetamine* or cannabis or marijuana or marijuana or lsd or magic mushrooms or mephedrone or khat or cathinone or ketamine or gammahydroxybutrate or ghb or amyl nitrate).ab,ti.
7. 1 or 2 or 3 or 4 or 5 or 6
8. exp parent/ or exp single parents/
9. exp unwed mother/ or exp single mother/ or exp mothers/
10. exp single fathers/ or exp fathers/
11. exp Parent Child Relations/ or exp Parental Role/ or exp Father Child Relations/ or exp Parental Characteristics/ or exp Family/
12. (parent or parents or parental or guardian* or mother or maternal or father or paternal or mum or dad).ab,ti.
13. 8 or 9 or 10 or 11 or 12
14. exp ericksonian psychotherapy/ or exp humanistic psychotherapy/ or exp brief psychotherapy/ or exp experientialpsychotherapy/ or exp individual psychotherapy/ or exp interperonal psychotherapy/ or exp psychodynamic psychotherapy/ or exp expressive psychotherapy/ or exp supportive psychotherapy/ or exp group psychotherapy/ or exp integrative psychotherapy/ or exp psychotherapy/ or exp eclectic psychotherapy/
15. exp Group Counseling/ or exp Intervention/ or exp Psychotherapeutic Processes/ or exp Counselors/ or exp Family Therapy/ or exp Counseling Psychology/ or exp Counseling/ or exp Online Therapy/exp Motivational Interviewing/ exp Brief Psychotherapy/ or exp Treatment Effectiveness Evaluation/ or exp Alcohol Rehabilitation/
16. exp rehabiltation/ or exp rehabiltation counseling/ or exp drug rehabilitation/ or exp rehabilitation counselors/ or exp psychosocial rehabilitation/
17. (motivat* adj5 (interview* or therap* or consult* or intervention* or enhance*)).ab,ti.
18. (brief adj3 intervention*).ab,ti
19. (cognit* adj2 (train* or behavior* or therap* or technique* or skill*)).ab,ti.
20. ((psychodynamic or psychosocial) adj2 (therap$ or treatment$ or intervention$ or program$)).ab,ti.
21. (psychotherap* or counsel* or residential rehabilitation).ab,ti.
22. ((relaxation or imagery) adj2 (therap$ or technique$)).ab,ti.
23. (family adj2 therap*).ab,ti.
24. (case adj2 management).ab,ti.
25. ((coping skill* or cbst or self control or assertive*) adj2 (training or therap*)).ab,ti.
26. 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25
27. Randomized Controlled Trial.pt.
28. Pragmatic Clinical Trial.pt.
29. "Randomized Controlled Trial (topic)"/
30. Randomized Controlled Trial/

31. Randomization/ or Random Allocation/ or Double-Blind Method/ or Double Blind Procedure/ or Double-Blind Studies/ or Single-Blind Method/ or Single Blind Procedure/ or Single-Blind Studies/ or Placebos/ or Placebo/ or
32. (random* or sham or placebo*).ti,ab,hw.
33. ((singl* or doubl*) adj (blind* or dumm* or mask*)).ti,ab,hw
34. ((tripl* or trebl*) adj (blind* or dumm* or mask*)).ti,ab,hw.
35. 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34
36. 7 and 13 and 26 and 35
37. 52. exp animals/ not humans.sh.
38. 36 not 37

Appendix 3. Embase search strategy

1. addiction/co, di, dm, ep, et, pc, rh, th [Complication, Diagnosis, Disease Management, Epidemiology, Etiology, Prevention, Rehabilitation, Therapy]
2. drug dependence/ or substance abuse/ or alcoholism/ or alcohol/ or drug abuse/
3. drinking behavior/co, ep, pc [Complication, Epidemiology, Prevention]
4. ((stimulant* or polydrug* or drug* or substance) adj6 (abus* or dependen* or addict* or disorder* or intoxicat* or misuse*)).ab,ti.
5. (alcohol adj3 (dependen* or drink* or intoxicat* or abus* or misus* or risk* or consum* or excess* or reduc* or intervention*)).ab,ti.
6. (drink* adj3 (excess or heavy or heavily or harm or harmful or hazard* or risky or binge or harmful or problem*)).ab,ti.
7. (addict* or abstain* or abstinen*).ab,ti.
8. (heroin or methadone or temegesic or subutex or opiate* or crack cocaine or cocaine or ecstasy or methamphetamine* or crystal meth or amphetamine* or cannabis or marijuana or marijuana or lsd or magic mushrooms or mephedrone or khat or cathinone or ketamine or gammahydroxybutrate or ghb or amyl nitrate).ab,ti.
9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
10. single parent/ or parent/ or divorced parent/ or separated parent/
11. mother/
12. maternal deprivation/ or maternal treatment/ or maternal behavior/
13. parent counseling/
14. father/
15. paternal behavior/
16. (parent or parents or parental or guardian* or mother or maternal or father or paternal or mum or dad).ab,ti.
17. 10 or 11 or 12 or 13 or 14 or 15 or 16
18. psychotherapy/ or psychodynamic psychotherapy/
19. counseling/
20. marital therapy/ or cognitive behavioral therapy/ or cognitive remediation therapy/ or therapy/ or anger management therapy/ or gestalt therapy/ or group therapy/ or narrative therapy/ or family therapy/ or cognitive therapy/ or behavior therapy/
21. (motivat* adj5 (interview* or therap* or consult* or intervention* or enhance*)).ab,ti.
22. (brief adj3 intervention*).ab,ti.
23. (cognit* adj2 (train* or behavior* or therap* or technique* or skill*)).ab,ti.
24. ((psychodynamic or psychosocial) adj2 (therap$ or treatment$ or intervention$ or program$)).ab,ti.
25. (psychotherap* or counsel* or residential rehabilitation).ab,ti.
26. ((relaxation or imagery) adj2 (therap$ or technique$)).ab,ti.
27. (family adj2 therap*).ab,ti.
28. (case adj2 management).ab,ti
29. ((coping skill* or cbst or self control or assertive*) adj2 (training or therap*)).ab,ti.
30. 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 29
31. (random$ or placebo$ or single blind$ or double blind$ or triple blind$).ti,ab.
32. (random sampl$ or random digit$ or random effect$ or random survey or random regression).ti,ab.
33. 31 or 32
34. 9 and 17 and 30 and 33

Appendix 4. ProQuest - ASSIA search strategy

1. SU.EXACT("Drugs") OR SU.EXACT("Drug abuse") OR SU.EXACT("Drug abusers") OR SU.EXACT("Drug culture") OR SU.EXACT("Drunken offenders") OR SU.EXACT("Drug courts") OR SU.EXACT("Drug addiction") OR SU.EXACT("Drug addicts") OR SU.EXACT("Drug

dependency") OR SU.EXACT("Drug related problems") OR SU.EXACT("Drug dealing")) OR (SU.EXACT("Alcohol abuse") OR SU.EXACT("Alcohol intoxication") OR SU.EXACT("Alcohol related problems") OR SU.EXACT("Alcoholic beverages") OR SU.EXACT("Alcoholic mothers") OR SU.EXACT("Alcoholism") OR SU.EXACT("Alcohol dependence") OR SU.EXACT("Alcohol consumption") OR SU.EXACT("Alcohol related") OR SU.EXACT("Alcoholics") OR SU.EXACT("Alcoholic parents") OR SU.EXACT("Alcoholic fathers") OR SU.EXACT("Familial alcoholism")) OR (SU.EXACT("Substance abuse disorders") OR SU.EXACT("Substance dependency") OR SU.EXACT("Substance abuse") OR SU.EXACT("Substance abusers"))

2. ab((heroin or methadone or temegesic or subutex or opiate* or crack cocaine or cocaine or ecstasy or methamphetamine* or crystal meth or amphetamine* or cannabis or marijuana or marihuana or lsd or magic mushrooms or mephedrone or khat or cathinone or ketamine or steroid* or performance enhancing drug* or gammahydroxybutrate or ghb or amyl nitrate OR alcohol N/3 (dependen* or drink* or intoxicat* or abus* or misus* or risk* or consum* or excess* or reduc* or intervention*) or drink* N/3 (excess or heavy or heavily or harm or harmful or hazard* or risky or binge or harmful or problem*))))
3. 1 or 2
4. SU.EXACT("Custodial parents") OR SU.EXACT("Natural parents") OR SU.EXACT("Noncustodial parents")) OR (SU.EXACT("Motherhood") OR SU.EXACT("Mothering") OR SU.EXACT("Noncustodial mothers") OR SU.EXACT("Mothers") OR SU.EXACT("Natural mothers")) OR (SU.EXACT("Natural fathers") OR SU.EXACT("Fathers") OR SU.EXACT("Separated fathers") OR SU.EXACT("Single fathers") OR SU.EXACT("Noncustodial fathers"))
5. ab(parent OR parents OR parental OR guardian* OR mother OR maternal OR father OR paternal OR mum OR dad))
6. 4 or 5
7. SU.EXACT("Feminist group therapy") OR SU.EXACT("Exercise therapy") OR SU.EXACT("Brief group therapy") OR SU.EXACT("Adjuvant therapy") OR SU.EXACT("Behaviour family therapy") OR SU.EXACT("Cognitive group therapy") OR SU.EXACT("Developmental family therapy") OR SU.EXACT("Cognitive behaviour family therapy") OR SU.EXACT("Art therapy") OR SU.EXACT("Brief therapy") OR SU.EXACT("Family play therapy") OR SU.EXACT("Group therapy") OR SU.EXACT("Cognitive therapy") OR SU.EXACT("Contextual therapy") OR SU.EXACT("Feminist therapy") OR SU.EXACT("Brief psychodynamic therapy") OR SU.EXACT("Behaviour therapy") OR SU.EXACT("Cognitive behaviour therapy") OR SU.EXACT("Brief cognitive therapy") OR SU.EXACT("Cognitive analytic therapy") OR SU.EXACT("Gestalt therapy") OR SU.EXACT("Family therapy") OR SU.EXACT("Brief family therapy") OR SU.EXACT("Couple therapy")) OR (SU.EXACT("Psychosocial rehabilitation") OR SU.EXACT("Rehabilitation units") OR SU.EXACT("Rehabilitation counselling") OR SU.EXACT("Vocational rehabilitation") OR SU.EXACT("Rehabilitation") OR SU.EXACT("Social rehabilitation")) OR SU.EXACT("Motivational interviewing") OR (SU.EXACT("Counselling") OR SU.EXACT("Counselling psychology") OR SU.EXACT("Counselling services") OR SU.EXACT("Counselling centres") OR SU.EXACT("Counselling psychologists")) OR (SU.EXACT("Early intervention programmes") OR SU.EXACT("Intervention") OR SU.EXACT("Brief interventions") OR SU.EXACT("Interventions") OR SU.EXACT("Crisis intervention")) OR SU.EXACT("Social interventions")
8. ab((motivat* N/5 (interview* or therap* or consult* or intervention* or enhance*) OR brief N/3 intervention*)) OR ab((cognit* adj2 (train* or behavior* or therap* or technique* or skill*) OR (psychodynamic or psychosocial) N/2 (therap$ or treatment$ or intervention$ or program$))) OR ab((psychotherap* or counsel* or residential rehabilitation OR (relaxation or imagery) N/2 (therap$ or technique$))) OR ab((family N/2 therap* OR case N/2 management)))
9. 7 or 8
10. 9 and 6 and 9

Appendix 5. ProQuest - Sociology Database search strategy

1. SU.EXACT("Drugs") OR (SU.EXACT("Alcoholic beverages") OR SU.EXACT("Alcohol use") OR SU.EXACT("Alcohol") OR SU.EXACT("Alcoholism")) OR (SU.EXACT("Addictive behaviors") OR SU.EXACT("Drug addiction") OR SU.EXACT("Addictions") OR SU.EXACT("Substance abuse treatment")))
2. ab(stimulant* OR polydrug* OR drug* OR substance NEAR/6 (abus* OR dependen* OR addict* OR disorder* OR intoxicat* OR misuse*) drink* NEAR/3 (excess OR heavy OR heavily OR harm OR harmful OR hazard* OR risky OR binge OR harmful OR problem*)) OR ab((alcohol NEAR/3 (dependen* OR drink* OR intoxicat* OR abus* OR misus* OR risk* OR consum* OR excess* OR reduc* OR intervention*) OR drink* NEAR/3 (excess OR heavy OR heavily OR harm OR harmful OR hazard* OR risky OR binge OR harmful OR problem*))) OR ab((addict* OR abstain* OR abstinen* OR heroin OR methadone OR temegesic OR subutex OR opiate* OR crack cocaine OR cocaine OR ecstasy OR methamphetamine* OR crystal meth OR amphetamine* OR cannabis OR marijuana OR marihuana OR lsd OR magic mushrooms OR mephedrone OR khat OR cathinone OR ketamine OR steroid* OR performance enhancing drug* OR gammahydroxybutrate OR ghb OR amyl nitrate))))
3. 1 or 2
4. SU.EXACT("Parents & parenting") OR SU.EXACT("Mothers") OR SU.EXACT("Fathers")
5. ab(parent OR parents OR parental OR guardian* OR mother OR maternal OR father OR paternal OR mum OR dad))
6. 4 or 5
7. SU.EXACT("Rehabilitation") OR SU.EXACT("Creative therapy") OR SU.EXACT("Group therapy") OR SU.EXACT("Psychotherapy") OR SU.EXACT("Art therapy") OR SU.EXACT("Therapy") OR SU.EXACT("Cognitive therapy")) OR (SU.EXACT("Early intervention") OR SU.EXACT("Intervention") OR SU.EXACT("Crisis intervention")))

8. (ab(motivation* enhancement OR motivation* interview*) OR ab((cognitive N/3 therpay OR psychodynamic or psychosocial)) OR ab((psychotherap* or counsel* or residential rehabilitation OR family N/2 therap*)) OR ab((case N/2 management OR relaxation n/2 therap*))
9. 7 or 8
10. 3 and 6 and 9

Appendix 6. ProQuest - Sociological Abstracts search strategy

1. ab(stimulant* OR polydrug* OR drug* OR substance NEAR/6 (abus* OR dependen* OR addict* OR disorder* OR intoxicat* OR misuse*) drink* NEAR/3 (excess OR heavy OR heavily OR harm OR harmful OR hazard* OR risky OR binge OR harmful OR problem*)) OR ab((alcohol N/3 (dependen* or drink* or intoxicat* or abus* or misus* or risk* or consum* or excess* or reduc* or intervention*) OR drink* N/3 (excess or heavy or heavily or harm or harmful or hazard* or risky or binge or harmful or problem*))) OR ab((addict* or abstain* or abstinen* OR heroin or methadone or temegesic or subutex or opiate* or crack cocaine or cocaine or ecstasy or methamphetamine* or crystal meth or amphetamine* or cannabis or marijuana or marihuana or lsd or magic mushrooms or mephedrone or khat or cathinone or ketamine or steroid* or performance enhancing drug* or gammahydroxybutrate or ghb or amyl nitrate))
2. SU.EXACT("Drug Abuse") OR SU.EXACT("Drug Addiction") OR SU.EXACT("Drug Injection") OR SU.EXACT("Drugs")) OR (SU.EXACT("Alcohol Abuse") OR SU.EXACT("Alcoholism") OR SU.EXACT("Alcoholic Beverages")) OR SU.EXACT("Substance Abuse"))
3. 1 or 2
4. OR ab(parent OR parents OR parental OR guardian* OR mother OR maternal OR father OR paternal OR mum OR dad))
5. SU.EXACT("Parents & parenting") OR SU.EXACT("Mothers") OR SU.EXACT("Fathers")
6. 4 or 5
7. ab(motivation* enhancement OR motivation* interview*) OR ab((cognitive N/3 therpay OR psychodynamic or psychosocial)) OR ab((psychotherap*)) or counsel* or residential rehabilitation OR family N/2 therap*)) OR ab((case N/2 management OR relaxation n/2 therap*))
8. SU.EXACT("Conjoint Therapy") OR SU.EXACT("Group Therapy") OR SU.EXACT("Family Therapy")))
9. 7 or 8
10. 3 and 6 and 9

Appendix 7. ProQuest - Social Services search strategy

1. SU.EXACT("Drug Abuse") OR SU.EXACT("Drug Addiction") OR SU.EXACT("Drug Injection") OR SU.EXACT("Drugs")) OR (SU.EXACT("Alcohol Abuse") OR SU.EXACT("Alcoholism") OR SU.EXACT("Alcoholic Beverages")) OR SU.EXACT("Substance Abuse"))
2. ab(stimulant* OR polydrug* OR drug* OR substance NEAR/6 (abus* OR dependen* OR addict* OR disorder* OR intoxicat* OR misuse*) drink* NEAR/3 (excess OR heavy OR heavily OR harm OR harmful OR hazard* OR risky OR binge OR harmful OR problem*)) OR ab((alcohol N/3 (dependen* or drink* or intoxicat* or abus* or misus* or risk* or consum* or excess* or reduc* or intervention*) OR drink* N/3 (excess or heavy or heavily or harm or harmful or hazard* or risky or binge or harmful or problem*))) OR ab((addict* or abstain* or abstinen* OR heroin or methadone or temegesic or subutex or opiate* or crack cocaine or cocaine or ecstasy or methamphetamine* or crystal meth or amphetamine* or cannabis or marijuana or marihuana or lsd or magic mushrooms or mephedrone or khat or cathinone or ketamine or steroid* or performance enhancing drug* or gammahydroxybutrate or ghb or amyl nitrate))
3. 1 or 2
4. SU.EXACT("Parents & parenting") OR SU.EXACT("Mothers") OR SU.EXACT("Fathers")
5. ab(parent OR parents OR parental OR guardian* OR mother OR maternal OR father OR paternal OR mum OR dad))
6. 4 or 5
7. SU.EXACT("Conjoint Therapy") OR SU.EXACT("Group Therapy") OR SU.EXACT("Family Therapy")
8. ab(motivation* enhancement OR motivation* interview*) OR ab((cognitive N/3 therpay OR psychodynamic or psychosocial)) OR ab((psychotherap* or counsel* or residential rehabilitation OR family N/2 therap*)) OR ab((case N/2 management OR relaxation n/2 therap*))
9. 7 or 8
10. 3 and 6 and 9

Appendix 8. ProQuest - Social Science search strategy

1. SU.EXACT("Drugs") OR (SU.EXACT("Addictive behaviors") OR SU.EXACT("Drug addiction") OR SU.EXACT("Alcoholism") OR SU.EXACT("Addictions") OR SU.EXACT("Substance abuse treatment")) OR (SU.EXACT("Alcoholic beverages") OR SU.EXACT("Alcohol use") OR SU.EXACT("Alcohol") OR SU.EXACT("Alcoholism")) OR (SU.EXACT("Drug addiction") OR SU.EXACT("Addictions"))
2. ab(stimulant* OR polydrug* OR drug* OR substance NEAR/6 (abus* OR dependen* OR addict* OR disorder* OR intoxicat* OR misuse*) drink* NEAR/3 (excess OR heavy OR heavily OR harm OR harmful OR hazard* OR risky OR binge OR harmful OR problem*)) OR ab((alcohol N/3 (dependen* or drink* or intoxicat* or abus* or misus* or risk* or consum* or excess* or reduc* or intervention*) OR drink* N/3 (excess or heavy or heavily or harm or harmful or hazard* or risky or binge or harmful or problem*))) OR ab((addict* or abstain* or abstinen* OR heroin or methadone or temegesic or subutex or opiate* or crack cocaine or cocaine or ecstasy or methamphetamine* or crystal meth

or amphetamine* or cannabis or marijuana or marihuana or lsd or magic mushrooms or mephedrone or khat or cathinone or ketamine or steroid* or performance enhancing drug* or gammahydroxybutrate or ghb or amyl nitrate))

3. 1 or 2
4. SU.EXACT("Parents & parenting") OR SU.EXACT("Mothers") OR SU.EXACT("Fathers")
5. ab(parent OR parents OR parental OR guardian* OR mother OR maternal OR father OR paternal OR mum OR dad))
6. 4 or 5
7. SUACT("Early interventon) OR SU.EXACT("Intervention") OR SU.EXACT("Crisis intervention")) OR SU.EXACT("Creative therapy") OR SU.EXACT("Cognitive therapy") OR SU.EXACT("Counselling services") OR SU.EXACT("Counselling psychology") OR SU.EXACT("Counselling") OR SU.EXACT("Family counselling") OR SU.EXACT("Psychotherapy")
8. ab(motivation* enhancement OR motivation* interview*) OR ab((cognitive N/3 therpay OR psychodynamic or psychosocial)) OR ab((psychotherap* or counsel* or residential rehabilitation OR family N/2 therap*)) OR ab((case N/2 management OR relaxation n/2 therap*))
9. 7 or 8
10. 3 or 6 or 9

Appendix 9. ProQuest - Criminal Justice search strategy

1. SU.EXACT("Drugs") OR (SU.EXACT("Alcoholic beverages") OR SU.EXACT("Alcohol use") OR SU.EXACT("Alcohol") OR SU.EXACT("Alcoholism")) OR (SU.EXACT("Addictive behaviors") OR SU.EXACT("Drug addiction") OR SU.EXACT("Alcoholism") OR SU.EXACT("Addictions") OR SU.EXACT("Substance abuse treatment")) OR SU.EXACT("Dependence"))
2. ab(stimulant* OR polydrug* OR drug* OR substance NEAR/6 (abus* OR dependen* OR addict* OR disorder* OR intoxicat* OR misuse*) drink* NEAR/3 (excess OR heavy OR heavily OR harm OR harmful OR hazard* OR risky OR binge OR harmful OR problem*)) OR ab((alcohol N/3 (dependen* or drink* or intoxicat* or abus* or misus* or risk* or consum* or excess* or reduc* or intervention*) OR drink* N/3 (excess or heavy or heavily or harm or harmful or hazard* or risky or binge or harmful or problem*))) OR ab((addict* or abstain* or abstinen* OR heroin or methadone or temegesic or subutex or opiate* or crack cocaine or cocaine or ecstasy or methamphetamine* or crystal meth or amphetamine* or cannabis or marijuana or marihuana or lsd or magic mushrooms or mephedrone or khat or cathinone or ketamine or steroid* or performance enhancing drug* or gammahydroxybutrate or ghb or amyl nitrate)))
3. 1 or 2
4. ab(parent OR parents OR parental OR guardian* OR mother OR maternal OR father OR paternal OR mum OR dad)
5. SU.EXACT("Parents & parenting") OR SU.EXACT("Mothers") OR SU.EXACT("Fathers"))
6. 4 or 5
7. SU.EXACT("Creative therapy") OR SU.EXACT("Art therapy") OR SU.EXACT("Cognitive therapy")) OR (SU.EXACT("Early intervention") OR SU.EXACT("Intervention") OR SU.EXACT("Crisis intervention")) OR SU.EXACT("Case management") OR (SU.EXACT("Counseling psychology") OR SU.EXACT("Counseling") OR SU.EXACT("Family counseling"))
8. ab(motivation* enhancement OR motivation* interview*) OR ab((cognitive N/3 therpay OR psychodynamic or psychosocial)) OR ab((psychotherap* or counsel* or residential rehabilitation OR family N/2 therap*)) OR ab((case N/2 management OR relaxation n/2 therap*))
9. 7 or 8
10. 3 and 6 and 9

Appendix 10. ProQuest - IBBS search strategy

1. SU.EXACT("Drugs") OR (SU.EXACT("Alcoholic beverages") OR SU.EXACT("Alcohol use") OR SU.EXACT("Alcohol") OR SU.EXACT("Alcoholism")) OR (SU.EXACT("Addictive behaviors") OR SU.EXACT("Drug addiction") OR SU.EXACT("Alcoholism") OR SU.EXACT("Addictions") OR SU.EXACT("Substance abuse treatment")) OR SU.EXACT("Dependence"))
2. ab(stimulant* OR polydrug* OR drug* OR substance NEAR/6 (abus* OR dependen* OR addict* OR disorder* OR intoxicat* OR misuse*) drink* NEAR/3 (excess OR heavy OR heavily OR harm OR harmful OR hazard* OR risky OR binge OR harmful OR problem*)) ab((alcohol N/3 (dependen* or drink* or intoxicat* or abus* or misus* or risk* or consum* or excess* or reduc* or intervention*) OR drink* N/3 (excess or heavy or heavily or harm or harmful or hazard* or risky or binge or harmful or problem*))) OR ab((addict* or abstain* or abstinen* OR heroin or methadone or temegesic or subutex or opiate* or crack cocaine or cocaine or ecstasy or methamphetamine* or crystal meth or amphetamine* or cannabis or marijuana or marihuana or lsd or magic mushrooms or mephedrone or khat or cathinone or ketamine or steroid* or performance enhancing drug* or gammahydroxybutrate or ghb or amyl nitrate)))
3. 1 or 2
4. SU.EXACT("Parents & parenting") OR SU.EXACT("Mothers") OR SU.EXACT("Fathers"))
5. ab(parent OR parents OR parental OR guardian* OR mother OR maternal OR father OR paternal OR mum OR dad)
6. 4 or 5
7. SU.EXACT("Creative therapy") OR SU.EXACT("Art therapy") OR SU.EXACT("Cognitive therapy")) OR (SU.EXACT("Early intervention") OR SU.EXACT("Intervention") OR SU.EXACT("Crisis intervention")) OR SU.EXACT("Case management") OR (SU.EXACT("Counseling psychology") OR SU.EXACT("Counseling") OR SU.EXACT("Family counseling")))

8. ab(motivation* enhancement OR motivation* interview*) OR ab((cognitive N/3 therpay OR psychodynamic or psychosocial)) OR ab((psychotherap* or counsel* or residential rehabilitation OR family N/2 therap*)) OR ab((case N/2 management OR relaxation n/2 therap*))
9. 7 or 8
10. 3 and 6 and 9

Appendix 11. Scopus search strategy

1. ((TITLE-ABS-KEY (drug AND consumption OR drug AND misuse OR drug AND disorder* OR illicit AND drugs OR heroin OR opiate* OR crack AND cocaine OR cocaine OR ecstasy OR amphetamine* OR cannabis OR marijuana OR mephedrone OR cathinone OR ketamine OR recreational AND drug OR alcohol AND consumption OR alcohol AND misuse OR alcohol AND intoxicat* OR alcohol AND drinking OR alcohol AND disorder* OR binge AND drinking OR social AND drinking OR risky AND drinking OR substance AND misuse OR substance AND disorder OR hazardous AND drinking OR hazardous AND alcohol OR harmful AND alcohol OR harmful AND drinking)) OR (TITLE-ABS-KEY (alcohol AND consumption OR alcohol AND misuse OR alcohol AND intoxicat* OR alcohol AND drinking OR alcohol AND disorder* OR binge AND drinking OR social AND drinking OR risky AND drinking OR substance AND misuse OR substance AND disorder OR hazardous AND drinking OR hazardous AND alcohol OR harmful AND alcohol OR harmful AND drinking))))
2. ((TITLE-ABS-KEY (parent* OR mother* OR father* OR maternal OR paternal))
3. ((TITLE-ABS-KEY (intervention* OR psychotherap* OR counsel* OR cognitive OR behavior* AND therapy OR behaviour* AND therapy OR groupwork OR treatment OR family AND therap* OR system* AND therap*)))
4. 1 and 2 and 3

Appendix 12. Criteria for 'Risk of bias' assessment adapted to the addiction field

Item	Judgment	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 regarding the sequence generation process to permit a 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 have foreseen assignments because one of the following methods 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; or any other explicitly unconcealed procedure.
	Unclear risk	Insufficient information available to permit a 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 permit a definitive judgement.
3. Blinding of participants and providers (performance bias)	Low risk	No blinding, or incomplete blinding, but the review authors judge that the outcome is not likely to be influenced by lack of blinding.

(Continued)

		Blinding of participants and key study personnel ensured, and it is unlikely that the blinding could have been broken.
	High risk	No blinding, or incomplete blinding, and the outcome is likely to be influenced by lack of blinding. Blinding of key study participants and personnel attempted, but it is likely that the blinding could have been broken, and the outcome is likely to be influenced by lack of blinding.
	Unclear risk	Insufficient information available to permit a judgement of low or high risk.
4. Blinding of outcome assessor (detection bias)	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 is ensured, and it is 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 it is 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 available to permit a judgement of low or high risk.
5. Incomplete outcome data (attrition bias) For all outcomes except retention in treatment or dropout	Low risk	Any one of the following: • 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 is 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) amongst missing outcomes is 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 groups to which they had been allocated by randomisation irrespective of non-compliance and co-interventions (intention-to-treat).
	High risk	Any one of the following: • reason for missing outcome data likely to be related to true outcome, with either an 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 is enough to induce clinically relevant bias in the intervention effect estimate; • for continuous outcome data, plausible effect size (difference in means or standardised difference in means) amongst missing outcomes is 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.

(Continued)

	Unclear risk	Insufficient information available to permit a judgement of low or high risk (e.g. number randomised not stated, no reasons for missing data provided; number of dropouts not reported for each group).
6. Selective reporting (reporting bias)	Low risk	Either of the following: • the study protocol is available, and all of the study's prespecified (primary and secondary) outcomes that are of interest in the review have been reported in the prespecified way; • the study protocol is not available, but it is clear that the published reports include all expected outcomes, including those that were prespecified (convincing text of this nature may be uncommon).
	High risk	Any one of the following: • not all of the study's prespecified primary outcomes have been reported; • one or more primary outcomes is reported using measurements, analysis methods, or subsets of the data (e.g. subscales) that were not prespecified; • one or more reported primary outcomes were not prespecified (unless clear justification for their reporting is provided, such as an unexpected adverse effect); • one or more outcomes of interest in the review are reported incompletely so that they cannot be entered in a meta-analysis; • the study report fails to include results for a key outcome that would be expected to have been reported for such a study.
	Unclear risk	Insufficient information available to permit a judgement of low or high risk.
7. Other bias (comparability of cohorts)	Low risk	No difference in the importance covariates (e.g. gender or type of substance misused) between study groups at baseline. No risk of contamination of intervention effects (e.g. practitioner is not delivering more than one study intervention).
	High risk	Any one of the following: • Baseline imbalance between study groups on important covariates (e.g. gender or type of substance misused); • Contamination of intervention effects (e.g. practitioner delivers more than one study intervention to different participants).
	Unclear risk	Insufficient information to permit a judgement of low or high risk for confounding or contamination.

Appendix 13. Abbreviations

ITT intention to treat analysis

TAU treatment as usual

AUDIT alcohol use disorder identification test

SD standard deviation

STD sexually transmitted disease

DSM-III-R diagnostic statistical manual version III revised

DSM-IV diagnostic statistical manual version IV

GED general education development

IV intravenious

HISTORY

Protocol first published: Issue 10, 2017
Review first published: Issue 3, 2021

CONTRIBUTIONS OF AUTHORS

Ruth McGovern conducted all searches, independently selected trials for inclusion, extracted data, and appraised the quality of the evidence. Ruth McGovern drafted the review, revised the review, and approved the final review as submitted.

James J Newham conducted meta-analysis of the included trials and contributed to the initial draft of the review, revised the review, and approved the final review as submitted.

Michelle T Addison independently selected trials for inclusion, extracted data, and appraised the quality of the evidence. In addition, Michelle Addison reviewed and revised the review and approved the final version as submitted.

Matthew Hickman and Eileen FS Kaner jointly reviewed and revised the review and approved the final review as submitted. Additionally, Matthew Hickman and Eileen Kaner provide mentorship within the lead author's NIHR fellowship.

DECLARATIONS OF INTEREST

Ruth McGovern is supported by the National Institute for Health Research (NIHR) fellowship programme.

Eileen Kaner is supported by an NIHR Senior Investigator award and also the NIHR Applied Research Collaboration (ARC) for the North East and North Cumbria.

Matthew Hickman is a member of the Cochrane Drugs and Alcohol Review Group (CDAG).

Michelle T Addison and James J Newham have no interests to declare.

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Internal sources

- Newcastle University, UK

  This is the host organisation for some of the authors.
- Bristol University, UK

  This is the host organisation for one of the authors.
- Northumbria University, UK

  This is the host organisation for one of the authors.

External sources

- NHS National Institute of Health Research (NIHR), Fellowship Programme, UK

  NIHR is funding the salaries and consumables for the systematic review.

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

We had planned on converting the number of days of heavy episodic drinking/illicit drug use in the past 30 days to enable comparison. However, we decided to use standardised mean differences between the number of days studies asked participants to recall their alcohol/drug use and variation in the unit studies used to report frequency (number of days and percentage of days over a time period).

In the 'Risk of bias' assessment, we intended to consider blinding of participants, personnel, and outcome assessor (avoidance of performance bias and detection bias) separately for objective outcomes (e.g. dropout, use of substance of abuse measured by urine analysis, participants engaged and/or retained in further treatments, number of child welfare incident reports, legal and care status of the child) and subjective outcomes (e.g. participant self-reported use of substance). Almost all the outcomes were subjective, therefore we entered one assessment per domain. Additionally, we planned to assess reporting bias by funnel plot inspection; however, our prespecified minimum number of studies included in the meta-analysis was not met (n = 10).

We planned to conduct subgroup analysis by duration of intervention (short intervention of one session, medium intervention of up to six sessions, and extended intervention of more than six sessions) and family composition (number of children, parents within household); however, all interventions examined in the trials were of extended duration and reported similar family compositions. As such, this subgroup analysis was not required.

We had intended to undertake a sensitivity analysis by excluding trials which had a high risk of selection bias (random sequence generation or allocation concealment). However, all studies meeting the inclusion criteria were assessed as being at low or unclear risk, therefore this was not required. Due to our decision to use standardised mean differences in preference to converted postintervention scores, no sensitivity analysis was conducted to exclude different approaches. Only one study reported completer-analysis. As our preferred data were intention-to-treat, we excluded this study from the meta-analysis and reported on this as our primary analysis.

INDEX TERMS

Medical Subject Headings (MeSH)

Alcoholism [therapy]; Bias; Child Welfare; Cocaine-Related Disorders [therapy]; Confidence Intervals; Family; Fathers; Heroin Dependence [therapy]; Mothers; *Parenting; Parents [*psychology]; Psychosocial Intervention [*methods]; Randomized Controlled Trials as Topic; Substance-Related Disorders [*therapy]; Time Factors; Treatment Outcome

MeSH check words

Adult; Child; Female; Humans; Male