Drug misuse prevention: targeted interventions

Appendix 1 to Evidence Review 1

Contains:
- Evidence tables

National Institute for Health and Care Excellence

Appendix 1A: Evidence Tables

Baer et al. (2007)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Baer et al. (2007)

Quality score
+

Study type
Randomised controlled trial

Location
USA

Study aims
To improve average treatment responses through modifying the brief motivational intervention design – unblinding intervention group during assessment and allowing counsellors to intervene at any point,</td>
<td>Number of participants
n=127

Participant characteristics
56% male, 44% female.

Average age 17.9 years (SD 1.2).

58% Caucasian, 19% multiracial, 9% Native American, 8% African American, 4% Hispanic or Latino, 2% Asian or Pacific Islander.

Average age when left home=13 years (SD 3.4). On the streets for average of 26.0 months (SD 22.9).

Abstinence from alcohol and other drugs for average of 8.4 days (SD 9.2) in prior month. 24% reported ever injecting drugs.

Authors state no</td>
<td>Intervention
Brief motivational intervention (BMI, n=75)

Started straight after baseline interview. Up to 4 BMI sessions total, within 4 weeks of baseline interview. Interviews done by master's level clinicians.

Personalised feedback on patterns and risk related to substance use. Participants picked topics to discuss from booklet of 13 topics. Counsellors aimed to review 2 sections in first session and 3 to 4 in later sessions.

Feedback and exercises organised around alcohol and other drug use frequency; perceived norms for substance abuse; consequences</td>
<td>Intervention: Brief motivational interview (BMI)
Control: Treatment as usual (TAU)

Outcomes
Abstinence (from all substances, including alcohol but excluding tobacco), mean (SD)
<table>
<tr><th></th><th>Intervention</th><th>Control</th><th>Total</th></tr>
<tr><td>Baseline</td><td>8.7 (8.9)</td><td>9.2 (9.8)</td><td>8.9 (9.2)</td></tr>
<tr><td>1 month</td><td>12.4 (10.6)</td><td>15.6 (12.1)</td><td>13.6 (11.2)</td></tr>
<tr><td>3 months</td><td>11.4 (10.4)</td><td>15.2 (11.8)</td><td>12.9 (11.1)</td></tr>
</table>
p values and effect sizes were not reported for between group differences.
p<0.01 (d=0.44) for difference between total at 1 month compared to baseline
p<0.01 (d=0.37) for difference between total at 3 months compared to baseline

Marijuana use in past 30 days, mean (SD)
<table>
<tr><th></th><th>Intervention</th><th>Control</th><th>Total</th></tr>
<tr><td>Baseline</td><td>17.4 (11.5)</td><td>19.1 (11.1)</td><td>18.1 (11.3)</td></tr>
<tr><td>1 month</td><td>13.7 (11.9)</td><td>13.0 (12.9)</td><td>13.4 (12.3)</td></tr>
<tr><td>3 months</td><td>14.8 (12.1)</td><td>13.2 (12.4)</td><td>14.2 (12.3)</td></tr>
</table>
p values and effect sizes were not reported for between group differences.
p<0.01 (d=0.41) for difference between total at 1 month compared to baseline
p<0.01 (d=0.32) for difference between total at 3 months compared to baseline

'Other' drug use in past 30 days (cocaine/crack, amphetamines, hallucinogens, club drugs, heroin, other opiates, tranquilisers or downers, inhalants and over-the-counter medicines), mean (SD)
<table>
<tr><th></th><th>Intervention</th><th>Control</th><th>Total</th></tr>
<tr><td>Baseline</td><td>6.4 (8.6)</td><td>5.6 (8.3)</td><td>6.1 (8.5)</td></tr>
<tr><td>1 month</td><td>4.1 (5.9)</td><td>2.6 (3.8)</td><td>3.5 (5.2)</td></tr>
</table>
</td>
<td>Limitations identified by the author
Study power: not reported, but study authors state “Randomization was unbalanced during the course of the study to increase experimental power to evaluate differences in response within the BMI group with a final ratio of 3 to 2.”

Loss to follow up: 97 (82.9%) returned for 1 month interview and 89 (76.1%) completed all 3 interviews. No statistically significant difference between those that did not return for interviews at 2 and 3 months, and those that did except those that attended all 3 interviews were more likely to be racial minority group members (86% vs. 69%, p<0.05).

Limitations identified by the review team
Not clear if allocation sequence was randomly generated or how it was</td>
</tr>
</table>

Study details	Population	Intervention/ comparator	Results	Notes
providing greater selection and choice for topics of conversation, dividing the intervention into 4 shorter sessions over a 4 week period, providing vouchers for attendance, integrating the intervention into other existing case management services (providing food, hygiene, social activities and case management). **Length of follow up** 3 months **Source of funding** Supported by the National Institute on Drug Abuse Grant R01 DA15751.	statistically significant differences between groups on demographic measures, rates of substance use, or agency use (data not reported). **Inclusion criteria** 13 to 19 years old and not stably housed ('stability' defined as living in 1 place for prior 30 days with anticipation of being housed there for following 30 days). At least 1 binge drinking episode or used illicit street drugs at least 4 times in prior 30 days. No alcohol or drug treatment in prior 30 days (not including Alcoholics Anonymous or Narcotics Anonymous). In the area for more than a week, no specific plans to leave in next month. **Exclusion criteria** None stated.	related to substance abuse; symptoms of substance dependence; personal goals; motivation for change; and social influences. Counsellors could use 3D objects to demonstrate risk relationships (e.g. drug use and housing risk) and normative comparisons (e.g. percentages). Counsellors aimed to be non-confrontational - provided advice only with permission. Counsellors trained and supervised via session audiotape review by 1 study author. **Comparator** Treatment as usual (n=52 [not explicitly reported, calculated from 127 recruited participants minus 75 assigned to intervention group]) No details provided.	**3 months** 3.6 (5.6) 3.3 (5.9) 3.5 (5.7) p values and effect sizes were not reported for between group differences. p<0.05 (d=0.36) for difference between total at 1 month compared to baseline p<0.05 (d=0.32) for difference between total at 3 months compared to baseline No significant condition x time effects at 1 month or 3 months for abstinence (p>0.05; d=-0.281* at 1 month, d=-0.342* at 3 months), use of marijuana in past 30 days (p>0.05; d=0.056* at 1 month, d=0.131* at 3 months) or use of other drugs in past 30 days (p>0.05; d=0.302* at 1 month, d=0.052* at 3 months). Statistical significance of differences between groups at 1 month and 3 months not reported. [*denotes effect sizes calculated by the review team] **Analysis** Participants reporting lifetime use of tobacco, alcohol, marijuana, cocaine/crack, amphetamines, hallucinogens, club drugs, heroin, other opiates, tranquilisers or downers, inhalants, and over-the-counter medicines were asked to recall their use across the prior 30 days using a modified time line follow-back interview procedure. Initial BMI sessions averaged 17 minutes and subsequent sessions averaged 32 minutes. Mean duration of time spent in intervention was 73.1 minutes (SD 43.6), covering 4.1 sections (SD 2.4). Data from 117 participants analysed. 10 of 127 participants removed from analysis - 4 for incarceration in 30 days prior to baseline assessment, 4 for spending more than 15 days in jail prior to either follow-up interview, 2 for consistently negative ratings from interviewers regarding consistency. 31 in intervention group completed all sessions, 9 completed 3 sessions, 14 completed 2 sessions and 12 completed 1 session. Results presented for participants with complete data from all time points - authors report no difference in findings if all participants were included. Study authors state that counsellor skill could have contributed to findings, but they were unable to analyse the effects statistically. Report that no differences in outcomes were suggested by the analyses. 78 participants gave urine samples at 3 months. No evidence of systematic underreporting but 45 participants who reported some use in previous 30 days had negative test.	concealed. Assessors not blind to allocated intervention. **Other comments** Participants approached and asked to fill in a screening questionnaire by counsellors at a drop-in centre. 254 youth screened, half were ineligible. Participants assigned using urn randomisation program balanced for gender and minority vs. non-minority. Brief check-in at 2 months for sample retention. Follow-up interviews by clinician or project director who did not administer the intervention or baseline interview. Participants received $20 to $35 for completing baseline and follow-ups. Participants in intervention group received $10 vouchers for each completed session.

Catalano et al. (1999)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Catalano et al. (1999) [linked to Haggerty et al. (2008)]

Quality score
-
Study type
RCT

Location
Seattle, USA.

Study aims
To examine whether Focus on Families, an intensive family-focused intervention with methadone-treated parents and their children, can reduce parents' drug use</td>
<td>Number of participants
Children: 178 (97 vs 81)*

[130 families (144 parents and 178 children); (75 families – 82 parents, 95 children vs. 55 families – 62 parents; 81 children)]

*There is a discrepancy between the numbers reported here and in Haggerty et al. 2008 [Children: 177 (95 vs 82)].

Children were interviewed at baseline and follow-up if they were aged 6 or older. 90% (n=104; 58 experimental, 46 control) of those who were old enough to be interviewed were contacted 6 months following completion of the group interventions and 87% (n=100; 57 experimental 43 control) were contacted at 12-month follow-up.

Participant characteristics at baseline
Mean age of children: 10.4 years (SD: 2.4 years, range: 3-14 years)

<table>
<tr><th>Prevalence of substance use</th><th>n</th><th>%</th></tr>
</table>
</td>
<td>Intervention
Focus on Families (FOF) [n= 97 children]
Combined parent management skills training with home-based case management services. Addressed risk factors for relapse in opiate addicts and risk and protective factors for drug abuse among their children. Based on social development model which organises empirical information on risk and protective factors into a developmental theory of antisocial behaviour.

Skills training component:
• 53 hours of training in small groups (6 to 10 families) including initial 5 hour family retreat and 32 x 90 minute meetings twice weekly.
• Children attended 12 sessions to enable families to practice new skills in controlled environment.
• Parent trainers, with master's level training in social work, led sessions using structured cognitive-affective-behavioural skills training curriculum.
• Skills training for parents provided for relapse prevention and coping, anger management, child development and communication skills, holding family meetings, setting clear expectations of children and use of appropriate rewards and disciplinary consequences.</td>
<td>Intervention: Focus on Families
Control: Standard methadone treatment (for parents)

Outcomes
Marijuana use
<table>
<tr><th></th><th colspan="3">6 month follow-up</th><th colspan="3">12 month follow-up</th></tr>
<tr><th></th><th>Intervention</th><th>Control</th><th>n</th><th>Intervention</th><th>Control</th><th>n</th></tr>
<tr><td>% used marijuana</td><td>2%</td><td>9%</td><td>75</td><td>7%</td><td>9%</td><td>73</td></tr>
</table>
Differences in marijuana use did not reach significance but favoured the intervention group at both follow-up periods (use was 7% in both groups at baseline) (p>0.05; effect sizes cannot be calculated from data reported in the paper).

Level of engagement
<table>
<tr><th>Exposure to intervention</th><th>Number of families (%)</th></tr>
<tr><td>Actively engaged</td><td>61 (74%)</td></tr>
<tr><td>Attended at least 50% of sessions</td><td>16 (18%)</td></tr>
<tr><td>Did not attend a single session</td><td>11 (13%)</td></tr>
</table>
Mean length of home based service: 9 months (range: 3-12 months)

Mean number of service provider meetings with clients per month: 6

Mean number of hours service providers spent with families: 54

Effect sizes were not reported for any outcomes.

Study authors report that only about half of participants attended more than half of the sessions (exact data not reported). Pattern of results remained ‘largely similar’ when analyses were re-run</td>
<td>Limitations identified by the author
Loss to follow up for total sample: 41% (73/178) at 6 or 12 month. Data for each group is unclear and p values not reported.

Study power: not specified but authors stated in Haggerty et al. (2008) that “small sample size…may have limited power to detect small effect sizes”. Children under 6 years excluded from some of the analyses thus reducing the power to detect significant effects.

Follow-up period of 12 months may not have been sufficient to detect intervention effects in children; efficacy of FOF for problem behaviours may only become measurable as children reach adolescence.

Limitations identified by the review team
There are</td>
</tr>
</table>

Study details	Population	Intervention/comparator	Results	Notes
and prevent children's initiation of drug use. **Length of follow up** 12-months **Source of funding** Supported by a grant from the National Institute on Drug Abuse.	<table><tr><td>**initiation in the 105** children**</td><td></td><td></td></tr><tr><td>Smoked cigarettes</td><td>29</td><td>28</td></tr><tr><td>Drank alcohol (more than a sip)</td><td>28</td><td>27</td></tr><tr><td>Smoked marijuana</td><td>7</td><td>7</td></tr></table> **Paper reports 2 different sample sizes of children interviewed at baseline (n=104 and n=105) No significant baseline differences between groups were found. **Inclusion criteria** For parents: • been in methadone treatment at 1 of the 2 participating clinics for a minimum of 90 days prior to participation • have 1 or more children between the age of 3 and 14 years who lived with them at least 50% of the time • reside no more than 25 miles from methadone clinic **Exclusion criteria** None stated.	• Parents were also instructed in how to teach their children refusal and problem-solving skills and strategies for succeeding in school. Home-based case management component: • Following standardised manual, case managers provided home-based services to families for about 9 months, beginning 1 month before the start of parent training sessions and continuing through group training period (4 months) and for 4 months afterward. • Case managers helped families identify goals, monitored progress toward these goals, and reinforced at home skills that parents learned in training sessions. • Case managers attempted to reduce parents' risk for relapse by reinforcing relapse prevention and coping skills, helping parents engage in school or employment, and helping parents to build supportive and drug-free social networks. • Case managers attempted to have 1 home visit (about 90 minutes' duration) and 2 phone calls per week, including 3 hours of groups sessions and 2 hours of case management. **Control** Standard methadone treatment alone for parents (methadone dispensing and some individual and group counselling). [n= 81 children]	without those that did not attend many sessions (p value and effect size not reported, effect size cannot be calculated from data reported in the paper). **Analysis** Parents and their children (aged 6 and older) were interviewed in person prior to the intervention and at 6 and 12 months following the parent training. Three different developmentally appropriate interviews were used for the age groups 6-8, 9-10 and 11 and older, based on the age of the child at the time of the interview. The survey measured problem behaviour among parents and children as well as risk and protective factors for drug abuse and other problem behaviours among children All measures of intervention effects were based on responses to survey questions with the exception of the 2 measures of problem-solving skills. Problem-solving skills measures were derived from the Problem Situation Inventory (PSI), an audio-taped role-play instrument. Analysis of covariance (ANCOVA) techniques were used to assess experimental and control group differences at 6- and 12-month follow-up, controlling for baseline measures. Logistic regression was used to examine dichotomous dependent variables. Most of the data reported were based on interview items common to both the 9-10 year olds and those aged 11 and older. Due to the limited nature of the interview for the youngest children, they were included in analyses only for questions common to the interviews of older children. Some families had data collected on more than one parent or more than one child. Because the sample size was relatively small, all participants were included in the analyses. However, to investigate the effect of their non-independence, the authors also re-analysed the data averaging participants' reports within families. The results of these analyses did not differ from the presented analyses in terms of statistical or substantive significance.	inconsistencies in reporting of sample size within this paper and when compared with Haggerty et al. (2008). It is not clear how missing outcome data from eligible children were accounted for in the analyses. There are also inconsistencies in reporting of 6 and 12 month follow-up data compared to Catalano et al. (2002). **Other comments** Recruitment: parents (families) recruited from 2 methadone clinics. FOF offered monetary reinforcers, transport to sessions, childcare, and toys for the children for participation. Authors state level of programme engagement compared favourably with other parenting programmes. Other outcomes are reported in the paper (e.g. delinquency, school grades) but are not presented here.

Catalano et al. (2002)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Catalano et al. (2002) [linked to Catalano et al. (1999) and Haggerty et al. (2008)]

Quality score
-

Study type
Follow-up study

Location
Seattle, USA.

Study aims
To assess the medium-term effects of the Focus on Families programme, an intervention aimed at reducing substance use disorders among children in families with a parent in methadone treatment.

Length of follow up
2 years

Source of funding
Report preparation supported by a NIDA grant.</td>
<td>Number of participants
Children: 178 (97 vs 81) [130 families in total - 144 parents,178 children Intervention: 75 families – 82 parents, 97 children Control: 55 families – 62 parents, 81 children]

*There is a discrepancy between the numbers reported here and in Haggerty et al. 2008 [Children: 177 (95 vs 82)].

Participant characteristics
Baseline characteristics of children are not reported in this paper. See Catalano et al. 1999.

Inclusion criteria
Parents had to have been in methadone treatment for a minimum of 90 days and have 1 or more children between the ages of 3 and 14 years residing with them at least 50% of the time.

Exclusion criteria
None stated.</td>
<td>Intervention
Focus on Families (FOF) = 97 children [See Catalano et al. (1999) for intervention description]

Control
Treatment as usual = 81 children

[See Catalano et al. (1999) for description of control condition]</td>
<td>Intervention: Focus on Families
Control: Standard methadone treatment (for parents)

<table>
<tr><th>Participants using marijuana in previous month (%)</th><th>Intervention</th><th>Control</th><th>n</th></tr>
<tr><td>6 month follow-up*</td><td>2</td><td>8</td><td>80</td></tr>
<tr><td>12 month follow-up*</td><td>6</td><td>8</td><td>88</td></tr>
<tr><td>24 month follow-up</td><td>7</td><td>16</td><td>98</td></tr>
</table>
For groups differences at all follow-up points p>0.05

No statistically significant differences in drug use between experimental and control group at any of the 3 follow-up points (p>0.05). Effect sizes not reported for any outcomes. [Effect sizes cannot be calculated from data reported in the paper.] Study authors report that only about half of participants attended more than half of the sessions (exact data not reported). Pattern of results remained ‘largely similar’ when analyses were re-run without those that did not attend many sessions.

*There is a discrepancy between the data reported here and the 6 and 12 month follow-up data presented in Catalano et al. (1999).

[See Catalano et al. (1999) for data related to level of engagement]

Analysis
Children aged 6 or older interviewed at baseline and at 6, 12 and 24 month follow-up. Three different developmentally appropriate interviews were used. [See Catalano et al. (1999) for more detailed description of data collection instruments]

Analysis of covariance (ANCOVA) and logistic regression used to assess differences between groups at follow-up time points. Age included as a control variable for child outcomes and the interaction</td>
<td>Limitations identified by the author
Loss to follow up: 86% of children completed 24 month follow-up.

Study power: not specified but authors stated in Haggerty et al. (2008) “small sample size which may have limited power to detect small effect sizes”. Several parents/children in the intervention group never received the programme so ITT analysis is a conservative test of FOF’s effects.

Children’s self-reported drug use not biochemically validated.

Limitations identified by the review team
Inconsistencies in reporting of sample size compared to Haggerty et al. 2008 and of 6 and 12 month follow-up data compared to Catalano et al. 1999.

Substance use at baseline not reported.

Other comments
Parents (and thereby families) recruited from 2 methadone clinics.

Intervention used several incentives (e.g. monetary reinforcers, transport to sessions, childcare, and toys for the children).

Other outcomes are reported in the paper (e.g. delinquency, school attainment) but are not presented here.</td>
</tr>
</table>

Study details	Population	Intervention/ comparator	Results	Notes
			between group assignment, age, and each outcome variable was examined to test whether the effectiveness of the intervention was contingent on the age of the child.	

Cervantes et al. (2004)

Study details	Population	Intervention/comparator	Results	Notes
Reference Cervantes et al. (2004) **Quality score** + **Study type** Before and after study **Location** California, USA **Study aims** To test Programa Shortstop's effectiveness as an innovative delinquency intervention program. Intervention aimed to improve personal decision making and self-identity, improve parent-child bond/communication, improve academic performance, increase pro-social behaviours, reduce substance use, and decrease other delinquency acts. **Length of follow up** 8 weeks **Source of funding** None reported	**Number of participants** n=352 youths **Participant characteristics** 246 (70%) male, 65 (18%) female, 41 (12%) unidentified Average age 14.6 years 54% born in Mexico, 33.5% born in California 35.5% Mexican, 24.7% Mexican-American, 17.3% Hispanic All had formal legal involvement as a first time juvenile offender Marijuana use: 'Ever tried'=39% Current use (past 30 days)=11% **Inclusion criteria** First time Hispanic juvenile offenders referred through local court system. **Exclusion criteria** None reported.	**Intervention** Programa Shortstop. 4 sessions for youths and parents over 8 weeks. *Session 1.* Video on behaviour choices and options. Introspective analysis of current problem behaviour. Discussion of juvenile justice system with legal professional using slides. Mandatory homework assignment. *Session 2.* Video on negative life choices and consequences, depicted through inmates in jails and prisons. Simulated incarceration component - youth placed in holding cells and wards. Speakers from detention facility talk about their life. Interactive presentation to examine youth's actions, problems in family communication, and conflict resolution strategies. Parent-child communication training. Essay assignment for presentation in session 3. *Session 3.* Motivational video of individuals who overcame challenges to become successful. Education on pharmacological effects of drugs and associated harms. Motivational speech from instructor. Self-esteem building drills. *Session 4.* Educational drug video to reinforce previous information. Parent workshop on family communication, legal rights, and responsibilities. Activities on choices and future plans. Session 4 followed by voluntary case management component - taken up by less than 10% of families. Youth mentoring service also available to participants in the city of Santa Ana - youths matched with adult,	**Intervention:** Programa Shortstop **Comparator:** None **Outcomes** Use of 'any other' illicit substance (i.e. not tobacco or alcohol): Baseline =13.1% 8 weeks=12.8% No statistically significant difference (p>0.05, effect size not reported*). No statistically significant interaction between length of program (three sessions vs. four sessions) and current illicit drug use (F=3.00, p>0.05,effect size not reported*). Participants' academic social skills as perceived by parents (mean, range 1 to 3, higher score is better): Baseline=2.34 8 weeks=2.47 p<0.001, effect size not reported* Participants' family social skills as perceived by parents (mean, range 1 to 3, higher score is better): Baseline=2.31 8 weeks=2.36 p<0.05, effect size not reported* Participants' community social skills as perceived by parents (mean, range 1 to 3, higher score is better): Baseline=2.58 8 weeks=2.63	**Limitations identified by the author** Study power: not reported. Attrition rate:20% Lack of comparison group. Limited time period may be ineffective in altering family dynamics and communication. Ability of program to reduce or prevent use of tobacco, alcohol or other drugs is uncertain. **Limitations identified by the review team** Outcome data for some participants for case management and mentoring scheme not reported. The missing data were not adequately addressed and results were not reported separately for participants receiving these parts of the intervention. **Other comments** Program ran from 1995 to 1997. Shortened from 4 sessions to 3 sessions in June 1996. Program was designed to be a Spanish language, culturally sensitive program. Additional outcomes for youths and parents (including legal knowledge and family dynamics) reported in the study

Study details	Population	Intervention/comparator	Results	Notes
		meeting 1/month for 6 months to identify role models, career development, support education - but only 15 youths matched. 'Did not function as expected' (no further details given). Participants completed a survey after session 4. Not clear if completed after the case management and mentoring components, where applicable. It is unclear who delivered the sessions. **Comparator** Not applicable.	p<0.05, effect size not reported* * denotes effect size not calculable by review team based on data reported in the study. **Analysis** Pre/post-test design used to assess the effectiveness of the program. Participants completed the Substance Use Survey - a 22 item questionnaire measuring lifetime use, current use, and frequency of use of various drugs in yes/no format - before starting Programa Shortstop and after session 4. Program was shortened from 4 sessions to 3 sessions during June 1996. Mixed design ANOVA with dichotomised between-subjects factor (3 and 4 sessions) and a within-subjects factor for each outcome measure (e.g. illicit drug use) was used to determine whether length of program affected outcomes.	but not presented here. Participants followed up for 1 year to determine probation status but drug use at 1 year not reported.

D'Amico et al. (2013)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
D'Amico et al. (2013)

Quality score
+

Study type
Randomised controlled trial

Location
California, USA.

Study aims
Understanding client acceptance of Free Talk, determining the feasibility of training facilitators to deliver motivational interviewing in a group setting, and conducting a preliminary evaluation of Free Talk's efficacy.

Length of follow up
3 months

Source of funding
Grant from the National Institute of Drug Abuse (R01DA019938).</td>
<td>Number of participants
n=193

Participant characteristics
67% male

45% Hispanic, 45% white, 10% mixed and 'other'

Mean age at baseline=16.6 years (SD 1.05)

Inclusion criteria
Youth referred to the Teen Court program for first time alcohol or marijuana offence (e.g. possession of alcohol or marijuana, driving under the influence, or driving with an open container).

14 to 18 years old.

Exclusion criteria
People who:
• needed more intensive treatment (n=18)
• could not be located (n=7)
• were younger than 14 years or older than 18 years (n=6)
• had 1 or more alcohol or other</td>
<td>Intervention
Free Talk (n=113)

Harm minimisation approach. 6 sessions of 55 minutes, each with its own protocol. Group based motivational Interviewing approach facilitated by 4 psychology doctoral graduate students. Brief feedback, e.g. amount of alcohol and other drugs use by the teen compared to other teens their age. Open-ended questions and reflective statements.

Facilitators received approximately 40 hours of motivational interviewing training and training on the group session protocol. 1 hour/week of group supervision was provided by psychologists.

Specific topics of the sessions included:
• Pros and cons of continued alcohol or drug use vs. cutting back
• Myths around alcohol and other drugs use and how personal beliefs may affect subsequent use.
• Thoughts about the path from no use to experimental use to addiction and how they might make changes to exit this path if they wanted to.
• How alcohol and other drug use may affect other risk-taking behaviour such as unsafe sex and driving under the influence, and the pros and cons of planning</td>
<td>Intervention: Free talk
Control: Usual care

Outcomes
Marijuana use in past 30 days (mean, SD):
<table>
<tr><th></th><th>Intervention</th><th>Control</th></tr>
<tr><td>Baseline</td><td>3.15 (2.36)</td><td>2.96 (2.22)</td></tr>
<tr><td>3 months</td><td>2.75 (1.23)</td><td>2.38 (2.03)</td></tr>
</table>
p=0.519 (d=0.12) between the 2 groups at 3 months.

Marijuana 'consequences' (no further definition provided) (mean, SD):
<table>
<tr><th></th><th>Intervention</th><th>Control</th></tr>
<tr><td>Baseline</td><td>1.27 (2.26)</td><td>0.93 (2.07)</td></tr>
<tr><td>3 months</td><td>0.62 (1.30)</td><td>0.64 (1.66)</td></tr>
</table>
p=0.772 (d=-0.03)between the 2 groups at 3 months.

Analysis
Participants completed surveys at baseline (before attending Teen Court) and 3 months after completing 6 educational sessions, or 180 days after baseline survey.

Free Talk sessions were audio recorded for group supervision. Integrity to motivational</td>
<td>Limitations identified by the author
Follow up rate: 96.5% in Free Talk, 97.5% in usual care.

Power: not reported, but study authors state “our sample size was small…which limited our power to detect differences.” and “Future work is needed with larger samples to increase the power to detect effects.”.

Unequal randomisation strategy used (3 participants in 5 were assigned to Free Talk to allow sufficient numbers for intervention to work successfully) - this will have affected power.

Limitations identified by the review team
Participants randomised using permuted block randomisation procedure. Not clear what method was used to generate random numbers.

It is not clear if allocation was adequately concealed.

No statistically significant differences between groups at baseline for sex, race, or age (exact p values not provided). However, more participants in Free Talk group reported lifetime alcohol use, alcohol consequences, being drunk or high in public, and past 30 day prescription drug use at baseline (significance and p value not reported).

Not clear if there is a statistically significant difference between groups in number of participants followed up at 3 months.

Unclear whether knowledge of allocated intervention was adequately prevented among participants and people implementing the intervention/usual care.

Other comments
Teen Court program is for first-time offenders who do</td>
</tr>
</table>

Study details	Population	Intervention/comparator	Results	Notes
	drugs offences (n=6) • had a medical marijuana prescription card (n=5) • did not speak and read English well enough to complete the surveys (n=2). 'Other' (no further details provided) (n=11).	ahead and making different choices. • Communication and alcohol or other drugs use. • Information on the effects of alcohol and other drugs use on the brain, and discussions as to how this information might affect personal alcohol or other drugs use. **Comparator** Usual care (n=80) 6 sessions of 55 minutes. Abstinence-based Alcoholics Anonymous approach led by 1 facilitator. Topics included: • Group check-in • Discussion of personal triggers • Consequences of alcohol and other drugs use • Educational videos • Discussion of personal experiences with alcohol and other drugs use • Myths about alcohol and other drugs use	interviewing using the "Motivational Integrity (sic. Interviewing?) Treatment Integrity" (MITI) Scale assessed with a randomly selected 20 minute segment for each session - audio recordings were used for Free Talk and a trained coder observed the usual care group in-person. 4 raters received approximately 40 hours of training on MITI and met weekly to discuss discrepancies. All sessions coded by 1 rater and 85 (27%) sessions coded by 2 raters. 47 (15%) Free Talk sessions were coded by 3 raters. For MITI global ratings, raters were within 0.5 points.	not need more intensive intervention. Offered instead of formal processing in the juvenile justice system. Consists of 6 education groups and 'other sanctions' (examples given are community service, service on the Teen Court jury, fees). Participants who successfully complete Teen Court requirements have their offence expunged from their probation record. 275 screened, 59 excluded (see 'exclusion criteria'), 23 refused to participate (not interested [n=14]; conflicting commitment [n=4]; transportation problem [n=2]; 'doesn't do research' [n=2]; parents did not want teen to have incentive [n=1]). Usual care included people not eligible for the study because they did not meet study criteria. All participants in usual care group reported problems with alcohol or other drugs. Each Free Talk and usual care session was standalone - participants did not have to start with session 1, so that participants could start attending as soon as possible. Participants had 90 days to complete all 6 group sessions. Participants were paid $25 for completing baseline survey and $45 for completing 3-month follow up survey. Participants were not paid to attend groups. All teens were randomly drug tested by the Teen Court whilst attending the group sessions, but the results of the drug tests were not shared with the study authors. Results for client Acceptance, motivational integrity and clinician adherence are also reported in the paper, but are not reported here.

De Dios et al. (2012)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
de Dios et al. (2012)

Quality score
+

Study type
RCT

Location
Providence, Rhode Island, USA

Study aims
To evaluate a brief intervention combining motivational interviewing with mindfulness meditation to reduce marijuana use as a method for coping with anxiety among young adult females.

Length of follow up
3 months

Source of funding
Not stated. The paper acknowledges</td>
<td>Number of participants
n=34
(Intervention: n=22
Control: n=12)

Participant characteristics
Average age of participants was 23 years (SD=2.9). The intervention and control groups were not significantly different with respect to age, ethnicity or employment status.
There were no between-group differences in baseline marijuana use or number of anxiety symptoms as measured by the PDSQ-GAD.
<table>
<tr><th></th><th>Intervention</th><th>Control</th><th>Total</th></tr>
<tr><td>Days used marijuana in past 30 days, M (SD)</td><td>17.05 (9.96)</td><td>18.83 (8.09)</td><td>17.68 (9.26)</td></tr>
<tr><td>PDSQ-GAD symptoms, M (SD)</td><td>5.95 (2.90)</td><td>4.92 (3.12)</td><td>5.59 (2.98)</td></tr>
</table>
Inclusion criteria
• female
• aged 18-29
• lived within 20 miles of Providence, RI, and planned to remain in area for next 3 months
• speaks English
• smoked marijuana at least 3 times in past month
• endorsed a desire to quit or reduce marijuana use
• used marijuana as a way to relax,</td>
<td>Intervention
2x 45 minute sessions delivered a fortnight apart by Masters-level practitioners who were experienced in delivering motivational interviewing. Practitioners were also trained in mindfulness meditation by a certified instructor.

Core motivational interviewing components were expressing empathy, developing discrepancy, avoiding argumentation, rolling with resistance, and supporting self-efficacy. [Note: this information is from Stein et al, 2011, as cited in the de Dios study paper].

Session 1: Mindfulness-based meditation (MM) introduced as possible alternative for coping with negative affect:
• 5 minute MM experiential exercise guided by audio CD
• discussion of mental & physical experiences during meditation exercise
• overview of mindfulness-related concepts
• 15 minute meditation exercise followed by discussion re: applying mindfulness concepts to meditation experience
Participants were given audio CD containing 2 guided meditation exercises from the session. Participants encouraged to use CD and keep daily diary of CD use, experiences and marijuana use.</td>
<td>Intervention: Motivational interviewing plus mindfulness meditation
Control: Assessment only

Outcomes
Effect of intervention on days using marijuana at 1-, 2-, and 3-month follow up (valid n=27)
<table>
<tr><th></th><th>Difference in days used marijuana in past month</th><th>p</th></tr>
<tr><td>1 month</td><td>-6.15 (-11.00 to -1.10)</td><td>p<0.05</td></tr>
<tr><td>2 months</td><td>-7.81 (-13.33 to -2.30)</td><td>p<0.05</td></tr>
<tr><td>3 months</td><td>-6.83 (-12.94 to -0.81)</td><td>p<0.05</td></tr>
</table>
Effect sizes not reported and could not be calculated by the review team from the available data.

Compared with controls, those receiving the intervention were estimated to have significantly less frequent marijuana use during follow-up. Intervention participants were estimated to use marijuana on 6.15 fewer days at 1 month, 7.81 fewer days at 2 months and 6.83 fewer days at 3 months. Effect sizes not reported and not calculable from the available data.

11.1% (n=3) participants achieved full marijuana abstinence between baseline and 1 month, 15.4% (n=4) between 1 and 2 months, and 8.0% (n=2) between 2 and 3 months. 1 participant was abstinent for the entire follow up period and another was abstinent at both 2 and 3 months. There were no between-group differences in marijuana abstinence at any of the follow-up points (data and p values not reported). Effect sizes not reported and not calculable for between group differences from the available data.</td>
<td>Limitations identified by the author
Loss to follow up: In total, 20.7%, 23.5% and 26.5% of participants were lost to follow-up at 1, 2 and 3 months respectively. Differences in attrition rates between groups were not significant.

Study power: Power calculation not reported.

Limitations identified by the review team
Authors state in Methods that participants were assessed at baseline, 2 weeks, 1 month and 3 months; however, the Results section reports findings from 1, 2 and 3 month follow-up points.

Small sample size.

Not clear why data</td>
</tr>
</table>

Study details	Population	Intervention/comparator	Results	Notes
that 1 author (Stein) is a recipient of a Mid-Career Investigator Award in Substance Abuse Research from the National Institute on Drug Abuse.	relive anxiety, or calm down **Exclusion criteria** • severe psychiatric disorder/s that would interfere with treatment (schizophrenia, untreated bipolar disorder, or posttraumatic stress disorder) • using alcohol or other substances at high levels (more than 7 alcoholic drinks per week in the past month) • using any cocaine, heroin, methamphetamines, or other drugs in the past month	Session 2: Participants discussed their experience of meditation exercises and application of mindfulness concepts in past 2 weeks: • positive effects of meditation • barriers to practising meditation and applying mindfulness concepts to daily life • connection between anxiety, stress, worry and marijuana use **Comparator** Participants assigned to the control condition completed baseline, 2 week, 1 month and 3 month assessment visits only.	Secondary analysis of odds of using marijuana on days when participants meditated vs. when they did not meditate: OR 0.51 (95% CI 0.22 to 0.86, $p<0.05$). **Analysis** Past 90-day marijuana and other substance use assessed using timeline follow back (TLFB) and biochemically confirmed by urinalysis at all follow-up points. Meditation practice also assessed by TLFB. Anxiety-related symptoms were measured using the generalised anxiety disorder (GAD) subscale of the Psychiatric Diagnostic Screening Questionnaire (PDSQ). Group differences in baseline characteristics, baseline marijuana use and study attrition were assessed using t-tests and chi-squared tests. A fixed-effects estimator was used to estimate treatment effects at 1, 2 and 3 months post-baseline. Fixed-effects logistic regression was used to assess the subject-specific association between daily meditation and marijuana use. The unit of analysis was the person-day and the analysis was restricted to participants randomised to the intervention.	for only 27/34 participants were included in the main analyses. **Other comments** Participants were compensated for attending all study assessment visits (no further information provided).

De Gee et al. (2014)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention / comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
de Gee et al. (2014)

Quality score
++

Study type
Randomised controlled trial

Location
Netherlands

Study aims
To test whether the effectiveness of the Weed-Check (Dutch translation of the Adolescent Cannabis Check-up [ACCU]) could be replicated in a Dutch sample of non-treatment-seeking adolescents who used cannabis frequently.

Length of follow up</td>
<td>Number of participants
n=119 (58 vs. 61)

Participant characteristics at baseline
<table>
<tr><th></th><th>Intervention (n=58)</th><th>Control (n=61)</th><th>Total sample (n=119)</th></tr>
<tr><td>Mean Age in years (SD)</td><td>17.9 (1.79)</td><td>18.3 (1.83)</td><td>18.1 (1.8)</td></tr>
<tr><td>% Male</td><td>75.9</td><td>72.1</td><td>74</td></tr>
<tr><td>% living with parents</td><td>75.9</td><td>76.7</td><td>76</td></tr>
<tr><td>% Dutch ethnicity</td><td>79.3</td><td>78.7</td><td>79</td></tr>
<tr><td>Mean age of cannabis use onset (SD)</td><td>14.2 (1.6)</td><td>14.1 (1.6)</td><td>14.1 (1.6)</td></tr>
<tr><td>Mean joint use per week (SD)</td><td>11.5 (9.2)</td><td>11.3 (9.6)</td><td>11.4 (9.4) [range: 0.5-28]</td></tr>
<tr><td>Mean number of days/week cannabis used (SD)</td><td>4.6 (2.2)</td><td>4.3 (2.2)</td><td>4.4 (2.2)</td></tr>
</table>
No significant differences between groups for the characteristics described above (p values not reported).

Inclusion criteria
• Aged 14 to 21 years.
• Cannabis use at least weekly.
• No intention to seek help for cannabis use.</td>
<td>Intervention
Weed-Check (n=58)

Motivational enhancement therapy. Motivational interviewing approach. 2 X 60 to 90 minute sessions 1 week apart.

Aim to increase awareness of possible negative consequences of cannabis use. Prevention workers had detailed manual for delivery of intervention. Interventions generally took place at treatment centre or school, sometimes at participant's home or youth centre.

1st session - assessment and establish rapport. Non-judgemental and use not labelled as problematic. Information on substance use and</td>
<td>Intervention: Weed-Check (motivational enhancement therapy)
Control: Single information session only.

Outcomes
Mean number of joints per week (SD):
<table>
<tr><th></th><th>Intervention (n=45)</th><th>Control (n=53)</th></tr>
<tr><td>Baseline</td><td>11.5 (9.3)</td><td>11.3 (9.6)</td></tr>
<tr><td>3 months</td><td>10.4 (8.4)</td><td>10.1 (9.7)</td></tr>
</table>
Between groups at 3 months, p=0.960, d=0.033*
Those using more than 14 joints per week had greater reduction in number of joints per week in intervention group vs. control group (6.1 vs. 3, p=0.05, effect size not reported and not calculable from the data reported in the paper).

Mean number of cannabis using days per week (SD):
<table>
<tr><th></th><th>Intervention (n=45)</th><th>Control (n=53)</th></tr>
<tr><td>Baseline</td><td>4.6 (2.2)</td><td>4.3 (2.2)</td></tr>
<tr><td>3 months</td><td>4.4 (2.3)</td><td>4.1 (2.5)</td></tr>
</table>
Between groups at 3 months, p=0.977, d=0.125*

Mean cannabis problems score (SD):
<table>
<tr><th></th><th>Intervention (n=45)</th><th>Control (n=53)</th></tr>
<tr><td>Baseline</td><td>6.2 (4.3)</td><td>5.7 (3.7)</td></tr>
<tr><td>3 months</td><td>6.2 (3.8)</td><td>5.7 (3.7)</td></tr>
</table>
Between groups at 3 months, p=0.907, d=0.133*

Mean Severity of Dependence Scale score (SD):
<table>
<tr><th></th><th>Intervention (n=45)</th><th>Control (n=53)</th></tr>
<tr><td>Baseline</td><td>3.2 (2.5)</td><td>3.2 (2.8)</td></tr>
<tr><td>3 months</td><td>3.0 (2.5)</td><td>3.1 (2.9)</td></tr>
</table></td>
<td>Limitations identified by the author
Loss to follow-up: Intervention: 22.4% (13/58); Control: 13.1% (8/61). p value not reported but stated as non-significant.

Study power: 0.67 (140 participants required for a standard 0.8 power calculation for an effect size of 0.45).

Recruitment: Prior to randomisation 245 participants identified, 70% (171/245) consented. 6.9% (17/245) did not complete baseline assessment and 14.3% (35/245) excluded. Potential for selection bias during recruitment.

Analysis: ITT analysis with missing values replaced by regression imputation. Those lost to follow up more likely to be 'not Dutch' and more frequent users - ethnicity and frequency of use included as variables in regression.

Limitations identified by the review team
Prevention workers aware of allocation of participants after baseline assessment.</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention / comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>3 months

Source of funding
Funded by ZonMW (60-60600-97-194).</td>
<td>• (Recruitment Jan 2011 to Mar 2012)

Exclusion criteria
• Significant cognitive impairment.
• Treatment for drug or alcohol use in past 3 months.
• Heavy alcohol consumption (more than 21 drinks per week for 14 and 15 year olds, more than 30 drinks per week for older than 15 years).
• Illicit drug use other than cannabis more than twice a week in past 3 months.</td>
<td>3 year goals collected through structured interview.

2nd session – structured feedback session comparing cannabis use to age-specific norms, perception of use. If a desire to change drug use raised then referral for drug treatment discussed.

Control
Single informational session (n=61)

Mean duration= 56 mins. Discussed effects of cannabis on the body with computerised animation if internet access available. Quiz on cannabis use and effects - answers given to participants to take home. Personal advice only given when explicitly requested.</td>
<td>Between groups at 3 months, p=0.908, d=-0.037*

Mean impaired Control score (SD):
<table>
<tr><th></th><th>Intervention (n=45)</th><th>Control (n=53)</th></tr>
<tr><td>Baseline</td><td>29.0 (8.3)</td><td>28.9 (8.1)</td></tr>
<tr><td>3 months</td><td>28.9 (9.4)</td><td>28.6 (9.6)</td></tr>
</table>
Between groups at 3 months, p=0.859, d=0.032*

* denotes effect sizes calculated by review team. Effect sizes were not reported in the study paper.

Analysis
Average time between 2 sessions=15.6 days (SD 12.0). Average duration: 1st session=94 minutes (SD 24.3), 2nd session=76 minutes (SD 26.1).

20 prevention workers trained over 2 days to deliver intervention and control. Individual 20 minute supervision session. 2nd intervention session and control sessions audiotaped and assessed by 9 independent raters - bachelor level social work students trained over 16 hours with 9 hours of booster sessions over 6 months. 9% of audiotapes rated by all raters. ICC scores ranged from 0.44 to 0.92 (fair to excellent). ‘Nearly complete’ adherence to protocol in 88.3% of intervention and 98.1% of control sessions.

The following scales / questionnaires were used:
• Cannabis Use Problem Identification Test (2 subscales, total of 16 items)
• Severity of Dependence Scale (5 items)
T-tests, chi-squared, Mann Whitney, stepwise logistic regression used.</td>
<td>Other comments
Blocked randomisation by region was used. Randomisation lists generated with Microsoft Excel.

Participants were blinded to allocation.

Screened and recruited by prevention workers from 8 substance abuse treatment centres and Drug Information Line staff. Source of recruitment - concerned other 42.1% (intervention) and 49.2% (control), prevention worker 24.6% (intervention) and 27.1% (control), 'another professional' 12.3% (intervention) and 8.5% (control), and flyer/website/newspaper 26.3% (intervention) and 20.3% (control).

Email reminder 1 week after email invite to each assessment, text message 2 weeks before follow up assessment. 10 Euro gift voucher for each assessment and entered into prize draw for 2 iPads if completed all assessments.</td>
</tr>
</table>

Dore et al. (1999)

Study details	Population	Intervention/comparator	Results	Notes
Reference Dore et al. (1999) **Quality score** - **Study type** Quasi-experimental before and after study **Location** Philadelphia, USA. **Study aims** To design and test a model curriculum for use with groups of latency aged children in schools located in communities where drug use is pervasive. **Length of follow up** Unclear **Source of funding** The study was funded by a grant to the first author from the New York Community Trust.	**Number of participants** n=206 (in intervention groups, not clear how many were in control groups) **Participant characteristics at baseline (intervention group only)** 63% (n=129) male; 37% (n=77) female. [Note: It is not clear whether the rest of the baseline data described below are just for children in the intervention groups or if children in both intervention and control groups are included] 70% black, 29% white and 1% were from 'other' ethnic groups. 188 participants from regular classrooms in grades 3 and 4, 10 children came from grade 5 classrooms, 8 children from classrooms for children with serious emotional disturbances or mental retardation. Mean Children's Loneliness Questionnaire Score= 33.5 (50% scored 31 or higher; 'normal' range 18 to 20). Participants were within normative ranges for locus of control and self-worth. 20% to 25% of participants rated by teachers as distractible, short attention spans, restless and unable to sit still in the classroom. 'Smaller percentages' (numbers not reported) exhibited difficulties in peer relationships, including physical aggression and social	**Intervention** 'Friends in Need' (n=206). 8 group sessions of 90 minutes over 8 weeks, each following the same structured format. Opening activities (replicated in each session): • review of the "group rules" to set expectations of behaviour during the session. • recitation of the "Four Cs": 'You didn't cause it; you can't control it; you can't cure it; you can be okay'; with a stated aim of ameliorating 'the pervasive guilt that children from substance-abusing families have been found to carry because of their interpretation that parental substance abuse is somehow their fault.' • the "Name Game" to help children begin to see themselves as worthy individuals with positive attributes. • "Best and Worst" which enables children to share their experiences with others and to give and receive support from peers. Closing activities (replicated in each session): • a "closing circle" with a special handshake and goodbye statement recited in unison. • individual goodbyes from each of the group leaders to allow verbal reinforcement of each child's positive behaviour during the session.	**Intervention:** Friends in Need **Control:** No intervention **Outcomes** Children in intervention group had greater sense of internal locus of control, higher levels of social acceptance and enhanced feelings of self-worth (not clear if this is compared to pre-treatment or control group or both). Teachers reported children in intervention group showed improvements in classroom behaviour, including restlessness, clowning, relations with peers, completion of assignments. However, only physical attacks on others was statistically significantly different vs. controls ($p<0.05$, effect size not reported and not calculable from the data reported). Data and effect sizes not reported for any outcomes. No changes observed in loneliness or social isolation. **Analysis** 3 standardised, self-report instruments were administered to both treatment and control group participants in early Autumn (time 1), after the Autumn semester groups were completed (time 2) and again after the spring groups were completed (time 3): • Social isolation was measured	**Limitations identified by the author** Loss to follow-up: not reported Study power: not reported. Missing data for the self-reported outcome measures as a consequence of variable school attendance across the 3 study sites. Measures may be inappropriate or insensitive to change, and difficult to use with children that had difficulties reading and writing. Intervention may not have been given for long enough duration. **Limitations identified by the review team** Authors describe the study as a randomised trial but the method of randomisation not reported - not clear if adequately generated or concealed. Unclear whether outcome measurements or characteristics were similar at baseline. Unclear whether there were any missing data and

Study details	Population	Intervention/comparator	Results	Notes
	withdrawal. **Inclusion criteria** School staff were asked to identify children that they believed to be particularly affected by drug abuse in their homes and neighbourhoods from a list of children who had expressed an interest in participating in small discussion groups to talk about "their worries and feelings about people they know using drugs" during a general drug education programme. No other inclusion criteria stated. **Exclusion criteria** None stated.	Each session also included 2 brief activities designed to highlight and address psychosocial issues of concern, for example: • reading a story about a boy whose big sister is using drugs and discussing it • writing a letter to the boy in the story giving him suggestions of things he could do when he felt upset or scared about his sister's drug involvement. **Control** No intervention (n = not reported).	using the Children's Loneliness Questionnaire (CLQ). • Locus of control was measured using the Nowicki-Strickland Locus of Control Questionnaire (LOC). • Self-worth in study participants was measured using the Self Perception Profile for Children; it is designed to measure a child's sense of adequacy and competence in scholastic, social, athletic, physical, and behavioural domains and allows an overall self-worth score to be derived. Classroom behaviour of participants was measured by an abbreviated form the Teachers Report Form (TRF) of the Achenbach Child Behavior Checklist at the 3 designated time points. Captures teachers' views of children's academic performance, adaptive functioning and behaviour problems. 2 independent variables were measured through observation by group leaders: • familial substance abuse • comprehension of concepts	how they were accounted for. Unclear if participants in control group received the intervention or not. 50 participants were randomly assigned to 1 of 4 treatment groups - those in Spring groups served as controls for those in the Fall groups. It is not clear whether there were subsequent controls for the Spring groups. **Other comments** Parents were notified by letter that substance abuse education was taking place in their child's school - only 1 parent refused participation. The design stated in the first column is the reviewer's description.

Edwards et al. (2006)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention / comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Edwards et al. (2006)

Quality score
++

Study type
Randomised controlled trial

Location
Melbourne, Australia

Study aims
To evaluate a cannabis-focused intervention (cannabis and psychosis therapy: CAP) for patients continuing to use cannabis following initial treatment for first-episode psychosis.

Length of</td>
<td>Number of participants
n=47 (23 vs 24)

Participant characteristics at baseline (total sample and for both groups where available):
% Male: 72.3% (65.2% vs 79.2%, p=0.29)
Mean age in years (SD): 20.9 (3.5)

% with schizophrenia:71.7% (63.6% vs 79.2%, p=0.57)
% with affective psychosis: 10.9%
% delusion / other/ NOS: 17.4%

% daily cannabis use (n): 17.9% (7)
% weekly cannabis use (n): 57.4% (27)
% monthly cannabis use (n): 42.6% (20)
% cannabis abuse or dependence: 48.9% (54.5% vs 43,5%, p=0.46)

Inclusion criteria
• Consecutive admissions to Early Psychosis Prevention and Intervention Centre (EPPIC,</td>
<td>Intervention
Cannabis and psychosis therapy (CAP, n=23)

Individually delivered, cognitive-behavioural harm minimisation approach. Delivered over 3 months; 10 weekly sessions of 20-60 minutes.

Starts with a detailed assessment and attention to engagement, education about cannabis and psychosis, and building motivation to change. Then dependent on phase of commitment to change, may include further education, motivational interviewing, goal setting, goal achievement strategies, discussion about relapse prevention.

Booster telephone call 3 months after end of weekly sessions to emphasise gains made and reinforce strategies to manage potential relapse.</td>
<td>Intervention: Cannabis and psychosis therapy (CAP)
Control: Psychoeducation (PE)

Outcomes (reported for intention to treat analysis)
% used cannabis in past 4 weeks (n):
<table>
<tr><th></th><th>Intervention (n=23)</th><th>Control (n=24)</th><th>p value</th><th>Effect size (d)</th></tr>
<tr><td>Baseline</td><td>100% (23)</td><td>100% (24)</td><td>-</td><td>-</td></tr>
<tr><td>End of treatment*</td><td>56.5% (13)</td><td>54.2% (13)</td><td>0.87</td><td>0**</td></tr>
<tr><td>6 months</td><td>65.2% (15)</td><td>50.0% (12)</td><td>0.29</td><td>-0.010**</td></tr>
</table>
Mean % days cannabis used in past 4 weeks (SD) [median]:
<table>
<tr><th></th><th>Intervention (n=23)</th><th>Control (n=24)</th><th>p value</th><th>Effect size (d)</th></tr>
<tr><td>Baseline</td><td>39.4 (38.4) [17.9]</td><td>26.0 (28.3) [14.3]</td><td>NR</td><td>-</td></tr>
<tr><td>End of treatment*</td><td>30.4 (41.8) [3.6]</td><td>18.8 (30.6) [8.9]</td><td>0.99</td><td>0.317**</td></tr>
<tr><td>6 months</td><td>32.4 (44.9) [3.6]</td><td>19.3 (30.4) [3.6]</td><td>0.84</td><td>0.342**</td></tr>
</table>
Mean severity of cannabis use score (SD) [median]:
<table>
<tr><th></th><th>Intervention (n=23)</th><th>Control (n=24)</th><th>p value</th><th>Effect size (d)</th></tr>
<tr><td>Baseline</td><td>2.6 (0.9) [3.0]</td><td>2.4 (1.2) [2.0]</td><td>NR</td><td>-</td></tr>
<tr><td>End of treatment*</td><td>1.4 (1.4) [1.0]</td><td>1.3 (1.4) [1.0]</td><td>0.99</td><td>0.071**</td></tr>
<tr><td>6 months</td><td>1.4 (1.4) [1.0]</td><td>1.3 (1.5)</td><td>0.99</td><td>0.069**</td></tr>
</table>
</td>
<td>Limitations identified by the author
Loss to follow up: intervention up to end of treatment: 4.3% (1/23), control up to end of treatment: 2.9% (1/24); intervention at 6 months: 30.4% (7/23), control at 6 months: 29.2% (7/24); no significant differences between groups (p values not reported, % calculated by NICE team)

Study power: not reported but authors mention ‘the small sample size’.

Recruitment: 65.2% of eligible participants agreed to participate. No statistically significant differences between participants and non-participants on gender, never married status, DSM-IV disorder, cannabis used in past 4 weeks, age, or severity of cannabis use at T2. Statistically significantly more non-participants had post-secondary education than participants, and non-participants had a statistically significantly lower score on the Scale for the Assessment of Negative Symptoms.

No 'treatment as usual' comparator group.

Intervention group had greater cannabis use - could have stratified sample on cannabis use.

Single-blind RCT. Raters blinded with separate rooms and admin procedures for project staff and limiting information recorded in clinical notes. 2 raters (85% of outcome assessments) had excellent reliability (intra-class correlation coefficients from 0.93 to 0.98).

Baseline comparison: specific data not reported for each group except gender, schizophrenia diagnosis and cannabis abuse or dependence. However, paper reported no statistically</td>
</tr>
</table>

Study details	Population	Intervention / comparator	Results	Notes
follow up 6 months **Source of funding** Victorian Government Department of Human Services funded the study.	community-based treatment program for people with first episode psychosis aged 15 to 29 years) between March 1998 and December 1999. • DSM-IV diagnosis of a psychotic disorder - schizophrenia, schizophreniform, schizoaffective, delusional disorder, bipolar disorder, major depressive disorder with psychotic features, psychosis not otherwise stated, and brief reactive psychosis. • "Adequate English language comprehension." • Continuing to use cannabis at 10 weeks post-initial clinical stabilisation. • Used cannabis in 4 weeks prior to assessment. **Exclusion criteria** None reported.	Also received standard EPPIC care - case management, regular psychiatric review and medication, access to mobile assessment and treatment, family work, group programs, and prolonged recovery clinic. **Control** Psychoeducation (PE, n=24) 10 Weekly sessions guided by PowerPoint presentations (in electronic or printed format) covering the nature of psychosis, medication and other treatments, and relapse prevention and stigma, but avoided explicit discussion of cannabis. Also received standard EPPIC care - case management, regular psychiatric review and medication, access to mobile assessment and treatment, family work, group programs, and prolonged recovery clinic.	<table><tr><td></td><td></td><td>[0.5]</td><td></td><td></td></tr></table> *approximately at 3 months **denotes effect sizes calculated by review team Specific effect sizes not reported for these outcomes. Authors report effect sizes were 'mostly small' at end of treatment. *Complete data only outcomes:* No significant difference between groups at end of treatment or 6 months. No statistically significant differences between groups for subgroups: regular (weekly) users at end of treatment (p=0.53, effect size 'very small' [d not reported]) or 6 months (p=0.86, d=0.25), or participants with schizophrenia/ schizophreniform disorders at end of treatment (p=0.26, d=0.41) or 6 months (p=0.91, effect size 'negligible' [d not reported]). No statistically significant difference in pattern of change over time between groups (p=0.92), but change over time effect, regardless of treatment group for all participants (p<0.001, effect size not reported and not calculable given data reported in the study), regular users (p=0.002, effect size not reported and not calculable given data reported in the study) and those with schizophrenia/schizophreniform disorders (p<0.001, effect size not reported and not calculable from the data reported in the study). For all participants, percentage of days cannabis was used decreased significantly between baseline and end of treatment (p<0.001, effect size not reported and not calculable given data reported in the study), but not between end of treatment and 6 months (p=0.91, effect size not reported and not calculable given data reported in the study). **Analysis** T-test, chi-square and Mann Whitney U test used. 1 way ANCOVA used. Non-normal data were transformed.	significant differences between the groups for mean percentage days of cannabis use, mean scores on severity of cannabis use, psychopathology, social and occupational functioning, Knowledge About Psychosis Questionnaire, or outpatient attendance. Reliance on self-reported use. Use of multiple study entry points. Included people with poly-substance abuse (study only reports cannabis related outcomes). **Limitations identified by the review team** No other limitations to report. **Other comments** Randomisation codes were computer generated and placed in sealed envelopes, managed by a non-clinical member of research team. Intention to treat analyses used. Missing data handled using last observation carried forward. Also analysed only complete data. Assessments occurred within first few days following entry to EPPIC (T1), at symptom stabilisation (usually 10 weeks after entry, T2), 3 months after symptom stabilisation (T3), and 12 months after symptom stabilisation (T4). Intervention and control delivered by 4 clinical psychologists trained in cognitive-behaviour therapy and experienced in treatment of first episode psychosis. 1 psychologist led weekly peer supervision sessions. Psychosis related outcomes also reported.

Elliott et al. (2014)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Full citation
Elliott et al. (2014)

Quality score
+

Study type
RCT

Location
North-east USA

Study aims
To assess the short-term effectiveness of eCHECKUP TO GO (e-TOKE), a web-based intervention, in changing marijuana involvement and perceived norms in university students.

Length of follow up
1 month

Source of funding
None stated.</td>
<td>Number of participants
n=317
Intervention: n= 161
Control: n=156

Data on marijuana use was only available from 162 participants who received a full assessment at baseline.

Participant characteristics
Participants were aged 18-23 (M=19.34; SD=1.22). 52% of the sample were female, 78% of the sample were white.
No significant baseline differences between intervention and control groups were found.
Inclusion criteria
Participants recruited from psychology courses at large private university. Students were eligible if they reported past-month marijuana use.
Exclusion criteria
None stated.</td>
<td>Half of the participants in the intervention group and half in the control group received assessment without any questions about marijuana use (brief assessment).

Intervention
n=161 (full baseline assessment=77; brief baseline assessment=84)

The Marijuana eCHECKUP TO GO (e-TOKE), a self-directed, web-based marijuana educational programme designed to prompt self-reflection and consideration of decreased use. Participation typically takes 20 minutes although a thorough review of all material can take 45 minutes.

Programme assesses:
• marijuana use
• pros and cons
• alcohol and cigarette use
• substance-related expenses
• other valued activities
• readiness to change
Participants receive:
• feedback (e.g. on norms and annual</td>
<td>Intervention: Web based assessment and feedback (eToke)
Control: Assessment only

Outcomes
Marijuana-related outcomes in groups with full baseline assessment (means, SD)
<table>
<tr><th></th><th colspan="2">Baseline</th><th colspan="2">Follow-up</th><th></th></tr>
<tr><th></th><th>eToke</th><th>Control</th><th>eToke</th><th>Control</th><th>p and d values*</th></tr>
<tr><td>Days marijuana used in past month</td><td>10.97 (10.11)</td><td>11.14 (13.16)</td><td>10.01 (9.59)</td><td>10.90 (11.25)</td><td>p=0.7353 d=0.08</td></tr>
<tr><td>Marijuana problems</td><td>6.55 (6.12)</td><td>5.72 (5.36)</td><td>7.57 (8.20)</td><td>7.17 (7.79)</td><td>p=0.8067 d=0.10</td></tr>
<tr><td>Marijuana abuse symptoms</td><td>0.81 (0.81)</td><td>0.85 (0.96)</td><td>0.77 (0.82)</td><td>0.76 (0.89)</td><td>p=0.6377 d=-0.04</td></tr>
<tr><td>Marijuana dependence symptoms</td><td>2.18 (1.80)</td><td>2.14 (1.76)</td><td>1.94 (1.73)</td><td>1.96 (1.85)</td><td>p=0.9646 d=0.03</td></tr>
</table>
*for differences between intervention and control groups; NS Not significant

Within group p values and effect sizes for marijuana-related outcomes in groups with full baseline assessment
<table>
<tr><th></th><th>eToke</th><th>Control</th></tr>
<tr><td>Days marijuana used in past month</td><td>p not reported d=0.09</td><td>p not reported d=0.02</td></tr>
<tr><td>Marijuana problems</td><td>p not reported d=-0.16</td><td>p not reported d=-0.27</td></tr>
<tr><td>Marijuana abuse symptoms</td><td>p not reported d=0.05</td><td>p not reported d=0.09</td></tr>
<tr><td>Marijuana dependence symptoms</td><td>p not reported d=0.13</td><td>p not reported d=0.10</td></tr>
</table>
No significant intervention effects for marijuana use frequency, problems, abuse or dependency symptoms. No significant interactions for condition x time, time x gender, or condition x time x gender.

Men who received intervention reported more cannabis use symptoms than men in the control group, whereas women who received the web based assessment reported fewer symptoms than women in the control group (p value and effect size not reported). Significant interaction between gender and condition for the number of problems caused by cannabis (p value and effect size not reported),</td>
<td>Limitations identified by the author
Loss to follow up: 1.6% (completers and non-completers did not differ on any baseline variables).

Study power: Power calculation not reported.

Short follow-up time – possible that changes in use may have emerged over a longer period of time.

Participants were psychology student volunteers; unclear if this group would resemble specific populations who may be targeted by such interventions e.g. mandated or help-seeking students.

Limitations identified by the review team
Repeated analyses on multiple variables may increase the risk of chance observations reaching statistical significance. Unclear</td>
</tr>
</table>

Study details	Population	Intervention/comparator	Results	Notes
		expense of substance use) • health information • campus resource information • tips to decrease use (e.g. set a limit, hide paraphernalia) **Comparator** n=156 (full baseline assessment=85; brief baseline assessment=71) Assessment only, without receiving eToke intervention. 85 participants received the full baseline assessment and 71 had a baseline assessment without questions on marijuana use.	however, direction of the effect was not reported. No main effects of assessment condition (full baseline assessment vs brief baseline assessment) were found on marijuana outcomes. Results were also reported for participants who only received a brief baseline assessment, however, these are not reported here as their baseline marijuana use was not known. **Analysis** Participants reported the number of days they used marijuana in the past month. Marijuana-related problems in the past month were reported using the 18-item Rutgers Marijuana Problems Inventory (RMPI). Symptoms of marijuana abuse and dependence were assessed using the Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV. Participants estimated descriptive norms around the proportion of university students who use marijuana (a) more and (b) less than themselves, and (c) the proportion of university students who don't use marijuana at all in a typical month. They also estimated the proportion of university students who have used marijuana (d) in the last month and € in their lifetime. Participants were also asked if they believed their close friends would approve, disapprove, or not care if they (a) abstained, (b) experimented, (c) used occasionally, and (d) used regularly. 158/161 (98.1%) participants assigned to the intervention group went on to participate. Non-completers did not differ on age, gender, use frequency, marijuana problems, abuse or dependence symptoms, norms, or social desirability, but did differ in ethnicity. Intention-to-treat ANOVA analyses were used to compare differences between intervention and control groups. As no main effects of assessment condition (full baseline assessment vs brief baseline assessment) were found on marijuana outcomes, assessment conditions were collapsed to maximise power to detect intervention effects. Due to non-normal data, nonlinear transformations were used. Analyses were conducted on both sets of data; when discrepant, analyses reflected transformed data.	if analyses of effects by gender were conducted post-hoc. **Other comments** Participants also reported satisfaction with the intervention; these outcomes are presented separately in evidence review 2.

Fischer et al. (2013)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Fischer et al. (2013)

Quality score
-

Study type
RCT

Location
Toronto, Canada

Study aims
To assess the feasibility and short-term impact of brief interventions (BIs) for cannabis use – utilising 2 different delivery modalities – among young adult high-frequency cannabis users.

Length of follow up
3 months

Source of funding
Funding support provided via a Catalyst Grant from the Canadian Institutes of Health Research (CIHR). 3 authors also</td>
<td>Number of participants
n=134

(Intervention group 1: n=25
Intervention group 2: n=47
Control group 1: n=25
Control group 2: n=37)

Participant characteristics
Study participants were recruited from 2 university campuses in Toronto.

Demographics of baseline sample not reported.

The follow-up sample (n=113, 84.3%) was predominantly male (68.1%), had a mean age of 20.6 years (95% CI=20.1—21.0) and a mean number of 2.6 years at university (95% CI=2.3—2.9).

The majority of the follow-up sample were White/Caucasian (74%), followed by Middle Eastern/Arab (10%), Asian (8%) and others (8%). Between-group differences in demographic</td>
<td>Interventions
n=72

Intervention 1: oral brief intervention on cannabis use (n=25)

Delivered face-to-face by a psychologist with training in substance use and health behaviour counselling. Average 20 to 30 minutes long. Covered cannabis-related health risks. Short, fact-based and non-judgemental. Concrete suggestions and techniques to modify health risks. Brief motivational components.

Intervention 2: written brief intervention on cannabis use (n=47)

Provided in the form of an 8-page, colourfully designed booklet with corresponding written text Covered cannabis-related health risks. Short, fact-based and non-judgemental. Concrete suggestions and techniques to modify health risks. Brief motivational components.

Comparators
n=62</td>
<td>Intervention: oral brief intervention on cannabis use (n=25); written brief intervention on cannabis use (n=47)
Control: oral brief intervention on general health (n=25); written brief intervention on general health (n=37)

Outcomes
Number of cannabis use days in the last 30 days
<table>
<tr><th>Group</th><th>Baseline (mean)</th><th>3 months (mean)</th><th>P value</th></tr>
<tr><td>Oral intervention</td><td>21.96</td><td>18.78</td><td>0.125</td></tr>
<tr><td>Written intervention</td><td>24.82</td><td>24.38</td><td>0.469</td></tr>
<tr><td>Oral control</td><td>21.36</td><td>21.18</td><td>0.737</td></tr>
<tr><td>Written control</td><td>25.35</td><td>23.55</td><td>0.108</td></tr>
<tr><td>Total sample</td><td>23.79</td><td>22.41</td><td>0.024</td></tr>
<tr><td>Combined intervention groups</td><td>23.83</td><td>22.31</td><td>0.094</td></tr>
<tr><td>Combined control groups</td><td>23.74</td><td>22.53</td><td>0.133</td></tr>
</table>
Effect sizes not reported and not calculable from the data reported in the paper.

Statistical significance of between-group differences are not reported.

Authors state no changes in mean number of cannabis use episodes between baseline and follow-up – not clear if this is between groups, within groups and/or for the total sample. Data, p values and effect sizes not reported.

Prevalence of use of deep inhalation/ breath holding in last 30 days
From baseline to 3 months, use fell from 79.65% to 3.72% (p<0.001) in the total sample, from 77.78% to 51.61% (p=0.001) in the combined interventions groups, and from 80.00% to 39.13% (p=0.003) in the oral intervention group. Changes from baseline to 3 months were significantly different in the combined intervention groups compared with the combined control groups (p=0.014) but the magnitude or direction of the difference are not reported. Statistical significance of between-group differences are not reported. The full results for this outcome are reported in table 2 of the study paper.

Prevalence of cannabis and driving in the last 30 days (%)</td>
<td>Limitations identified by the author
Loss to follow up: 113/134 (84.3%) participants were retained and assessed at follow-up. No significant differences found between completers and non-completers with regards to age, sex, ethnicity or number of years at university).

Study power: Power calculation not reported.

Limitations identified by the review team
Baseline participant demographics and baseline outcome measurements not reported and between-group differences not statistically compared.

Some evidence of selective outcome reporting - between-group differences (i.e. group x time interactions) not</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>acknowledged funding support from the Ontario Ministry of Health and Long-Term Care. First author also acknowledges salary support from CIHR/Public Health Agency of Canada Chair in Allied Public Health.</td>
<td>characteristics at either baseline or follow-up are not reported.

Inclusion criteria
• 18-28 years of age
• active full-time university enrolment
• active cannabis user for at least 1 year
• cannabis use on at least 12 of the past 30 days

Exclusion criteria
None stated.</td>
<td>The 2 control groups were designed and delivered in the same way as the intervention groups, but consisted of general health information (e.g. nutrition, stress, exercise) rather than cannabis-related information.

Control 1: oral brief intervention on general health (n=25)

Control 2: written brief intervention on general health (n=37)</td>
<td>
<table>
<tr><th>Group</th><th>Baseline (mean)</th><th>3 months (mean)</th><th>P value</th></tr>
<tr><td>Oral intervention</td><td>40.00</td><td>30.42</td><td>0.414</td></tr>
<tr><td>Written intervention</td><td>46.81</td><td>30.77</td><td>0.020</td></tr>
<tr><td>Oral control</td><td>29.17</td><td>27.27</td><td>0.317</td></tr>
<tr><td>Written control</td><td>29.73</td><td>27.59</td><td>0.414</td></tr>
<tr><td>Total sample</td><td>37.59</td><td>29.20</td><td>0.011</td></tr>
<tr><td>Combined intervention groups</td><td>44.44</td><td>30.65</td><td>0.020</td></tr>
<tr><td>Combined control groups</td><td>29.51</td><td>27.45</td><td>0.257</td></tr>
</table>
Effect sizes not reported and not calculable from the data reported in the paper.

Statistical significance of between-group differences are not reported.

Analysis
Baseline assessments were conducted by research assistants and consisted of a 25-30 minute interviewer-administered questionnaire including items on socio-demographic characteristics; cannabis use, risk and outcome; and other drug use and health indicators. A salivary test was administered to confirm recent cannabis use. Follow-up assessments consisted of an abbreviated version of the baseline assessment plus some opened-ended qualitative question items.

A standard pre-post analysis was conducted to compare differences within groups in mean scores at baseline and follow-up using repeated measures analysis of variance techniques. A second analysis was then undertaken to compare intervention and control groups for each of the measures assessed in the first analysis.
</td>
<td>reported in full.

Other comments
Participants received a $20 honorarium for the baseline assessment and a $30 honorarium for the follow-up assessment.

Study collected select qualitative feedback data from participants; these data are reported in detail in a separate paper.</td>
</tr>
</table>

Fors and Jarvis (1995)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Fors and Jarvis (1995)

Quality score
-

Study type
Non-randomised controlled trial

Location
USA

Study aims
To evaluate the Drug Prevention in Youth risk reduction program implemented in shelters for runaway/homeless youths in South-eastern United States - establishing how effective the program was in achieving its goals objectives and how the effectiveness of peer or 'near peer' educators as group leaders compared to the use of adult leaders and a non-intervention group.

Length of follow up
14 days</td>
<td>Number of participants
n=221 in analysis (total n not reported)

Participant characteristics
Data on sex and race was not collected to protect identities of participants.

Ages ranged from 10 to 19 years old.

Inclusion criteria
For peer led group: Participants at shelters willing to recruit and provide training for peer leaders. For adult led group: Participants at shelters that already had adults trained in the group process. For non-intervention group: Participants at shelters that</td>
<td>Intervention
Drug Prevention in Youth risk reduction program with peer/'near peer' educators as group leaders (n=173 in analysis, total n not reported).

4 1-hour sessions. 3-6 minute long videotapes depicting scenes in a young person's life to trigger discussions followed by role playing and group exercises.

Session 1 - Why do people use? Quick review of types and effect of drugs. Explore reasons young people and adults use drugs.

Session 2 - Who's affected? Effects of drug use reach beyond user to others.

Session 3 - What can you do about it? Identify and practice ways to intervene in a friend or family member's drug use.

Session 4 - Where do you turn? Learn about various types of intervention and treatment resources.

Shelter program directors</td>
<td>Intervention: Drug Prevention in Youth program
Comparator: None

Outcomes
Knowledge about drugs and their effects
<table>
<tr><th></th><th>Change in mean score from baseline to 14 days</th><th>P value</th></tr>
<tr><td>All groups (n=221)</td><td>+0.08</td><td>0.001</td></tr>
<tr><td>Peer led group (n=173)</td><td>+0.09</td><td>0.001</td></tr>
<tr><td>Adult led group (n=34)</td><td>+0.05</td><td>0.1271</td></tr>
<tr><td>Comparison group (n=14)</td><td>+0.06</td><td>0.3293</td></tr>
</table>
Effect sizes not reported and not calculable from data provided in the paper.

Intention to help a friend (range from 5 ['definitely will'] to 1 ['definitely will not'])
<table>
<tr><th></th><th>Change in mean score from baseline to 14 days</th><th>P value</th></tr>
<tr><td>All groups (n=193)</td><td>+0.12</td><td>0.0560</td></tr>
<tr><td>Peer led group (n=156)</td><td>+0.08</td><td>0.2318</td></tr>
<tr><td>Adult led group (n=23)</td><td>+0.32</td><td>0.1813</td></tr>
<tr><td>Comparison group (n=14)</td><td>+0.28</td><td>0.3881</td></tr>
</table>
Cronbach's alpha=0.66, effect sizes not reported and not calculable from data provided in the paper.

Intention to help a friend use community resources within 7 days (range from 5 ['definitely will'] to 1 ['definitely will not'])
<table>
<tr><th></th><th>Change in mean score from baseline to 14 days</th><th>P value</th></tr>
<tr><td>Peer led group (n=142)</td><td>+0.93</td><td>0.0002</td></tr>
<tr><td>Adult led group (n=21)</td><td>+0.62</td><td>0.2843</td></tr>
<tr><td>Comparison group (n=14)</td><td>No change</td><td>0.40</td></tr>
</table>
Cronbach's alpha=0.74. Data for 'all groups' not reported. Effect sizes not reported and not calculable from data provided in the paper.</td>
<td>Limitations identified by the author
Power: not reported.

Loss to follow up: Some data were 'lost' due to changes in support staff at the office (n not reported).

Could not use ANCOVA on most variables of interest because of 'beginning differences' in the groups, e.g. group size.

Self-selected group of shelters.

Limited number of questionnaires in adult-led and non-intervention groups.

Limitations identified by the review team
Allocation sequence was not randomised.

Outcome</td>
</tr>
</table>

Study details	Population	Intervention/comparator	Results	Notes
Source of funding Supported in part by grant #90CK2.086/01 from DHHS/OHDS/ACYF.	had not participants in a previous project using adult leaders. **Exclusion criteria** None stated.	and potential group leaders received 3 days training. Each shelter provided with detailed resource manual including objectives and activities for each of the 4 sessions. **Comparator** Two comparator groups: • Drug Prevention in Youth risk reduction program with adult educators as group leaders (n=34 in analysis, total n not reported). Intervention and training as for intervention group, but with adult group leaders rather than peer group leaders. • No Drug Prevention in Youth risk reduction program (n=14 in analysis, total n not reported).	Younger participants were more likely to indicate a positive intention to help friends: 10 to 13 years old (n=53) vs. 14 to 16 years old (n=97) p=0.0122 14 to 16 years old (n=97) vs. 17 to 19 years old (n=25) p=0.8647 10 to 13 years old (n=53) vs. 17 to 19 years old (n=25) p=0.1064 Authors state that the results section of the paper only presents variables with significant differences. Variables of interest reported in the methods section of the paper that are not reported in the results section are: • Changes in scores on knowledge items (helping agencies) • Changes in scores on attitudes about peer influence • Changes in intention to use 'formal' helping agencies • Changes in intention to act in various ways when a friend is intoxicated • Membership in the intervention group or 1 of the 2 comparison groups as a factor in program effects • Number of sessions attended as a factor in program effects • Which sessions attended as a factor in program effects. **Analysis** Data available from 7 shelters in peer-led group, 2 in adult-led group, and 2 in non-intervention group. Data collected over 9 months, from autumn 1991 to summer 1992. For peer-led and adult-led groups, tested pre-intervention and after the 4th group session. Non-intervention sites tested on 'day one' and then 'day 14'. Only participants with a completed pre-test and post-test were used in the analysis. Dependent samples t-test and ANCOVA using Least Squares Means used.	measures and participant characteristics at baseline were not compared between groups. Incomplete outcome data were not adequately addressed and is not clear if the missing data would have affected results. Study authors only present outcomes in the results section that show a significant effect. **Other comments** Shelters were assigned to groups. Adult led and non-intervention shelters were paid $5 for each completed questionnaire set.

Goti et al. (2010)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention / comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Goti et al. (2010)

Quality score
-

Study type
Randomised controlled trial

Location
Spain

Study aims
To assess the short-term efficacy of a brief intervention that aimed to change attitudes and thoughts about substance-use among adolescents substance users who were undergoing psychiatric or psychological treatment because of</td>
<td>Number of participants
n=143 (78 vs 65)

Participant characteristics / substance use parameters at baseline (only reported for participants who completed follow-up)
<table>
<tr><th></th><th>Intervention (n=59)</th></tr>
<tr><td>Mean age in years (SD)</td><td>15.2 (1.2) [range: 12-17]</td></tr>
<tr><td>% Male (n)</td><td>30.5% (18)</td></tr>
<tr><td>% Mood disorder (n)*</td><td>13.5% (8)</td></tr>
<tr><td>% Eating disorder (n)*</td><td>37.4% (22)</td></tr>
<tr><td>% Externalising disorder (n)*</td><td>30.5% (18)</td></tr>
<tr><td>% Anxiety disorder (n)*</td><td>8.5% (5)</td></tr>
<tr><td>% Adjustment disorder (n)*</td><td>10.1% (6)</td></tr>
<tr><td>Mean cannabis joints per week (SD)</td><td>5.6 (10.8)</td></tr>
<tr><td>Mean age of cannabis use onset (SD)</td><td>13.7 (1.3)</td></tr>
<tr><td>Mean episodes of other drug use[$] (SD)</td><td>3.9 (14.8)</td></tr>
<tr><td>Mean age of other drug use onset in years (SD)</td><td>14.9 (1.1)</td></tr>
<tr><td>% Minor problems on substance-use severity scale (n)</td><td>64% (38)</td></tr>
<tr><td>% Severe problems on substance-use severity scale (n)</td><td>36% (21)</td></tr>
</table>
</td>
<td>Intervention
Brief intervention (n=78)

Based on motivational interviewing (empathy, non-confrontation, acceptance and support of self-efficacy and autonomy).

Adolescents' session - 60 minutes, feedback from evaluation, analysis of an episode of substance use, pros and cons of use, personal goals, problems and risks of use, preoccupations, marking decisions, questions and answers, decisional balance, planning changes, and self-monitoring.

Parents'/mentors' session (duration not reported) - educational materials and brief counselling intervention on parenting skills and adolescent substance use, consequences, and relevance of monitoring and intervention.

All interventions conducted by same 2 psychologists with significant clinical experience in treating substance-use disorders. 20 hours training by experienced doctoral level supervisor. 15% of interventions supervised by external observers.</td>
<td>Intervention: Brief motivational interviewing intervention
Control: Treatment as usual

Outcomes

Mean problems derived from drugs scores (SD):
<table>
<tr><th></th><th>Intervention (n=59)</th><th>Control (n=44)</th></tr>
<tr><td>Baseline</td><td>11.7 (4.2)</td><td>10.7 (4.1)</td></tr>
<tr><td>1 month</td><td>11.8 (4.2)</td><td>10.9 (3.4)</td></tr>
<tr><td>p value</td><td>0.29</td><td>0.54</td></tr>
</table>
No statistically significant difference between intervention and control at 1 month (p=0.39, d=0.236*).

Mean intention to use scores (SD):
<table>
<tr><th></th><th>Intervention (n=59)</th><th>Control (n=44)</th></tr>
<tr><td>Baseline</td><td>37.7 (7)</td><td>36.8 (5.1)</td></tr>
<tr><td>1 month</td><td>37.5 (5.1)</td><td>37.9 (6.5)</td></tr>
<tr><td>p value</td><td>0.53</td><td>0.4</td></tr>
</table>
No statistically significant difference between intervention and control at 1 month (p=0.32, d=-0.068*).

Mean knowledge of psychoactive substances scores (SD):
<table>
<tr><th></th><th>Intervention (n=59)</th><th>Control (n=44)</th></tr>
<tr><td>Baseline</td><td>16.9 (4.8)</td><td>16.1 (4.2)</td></tr>
<tr><td>1 month</td><td>19.6 (4.8)</td><td>17.2 (4.5)</td></tr>
<tr><td>p value</td><td>0.0001</td><td>0.03</td></tr>
</table>
Statistically significant difference between intervention and control at 1 month (p=0.01, d=0.516*).</td>
<td>Limitations identified by the author
Loss to follow-up: Intervention 24.4% (19/78); control: 32.3% (21/65); no p value reported.

Study power: not reported.

No objective measurement of the supervision for the intervention.

Outcome measures might not be best measure of effectiveness of intervention.

Reliance on self-report.

Majority female participants - could limit generalisability.

Limitations identified by the review team
Unclear how allocation sequence was</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention / comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>another disorder not primarily related to substance-use.

Length of follow up
1 month

Source of funding
Supported by a grant from the INIFD (National Institute for Research and Training on Drugs) (INT/1525/2003) as part of the Spanish Government's National Plan on Drugs (Ministry of Health and Consumption).</td>
<td>*main diagnosis determined according to DSM-IV
$defined as ‘not cannabis, alcohol or tobacco’
§as reported in the paper but could be an error

Inclusion criteria
Consecutive referrals for psychiatric or psychological assessment and treatment to a Child and Adolescent Psychiatry and Psychology Department, aged 12 to 17 years with reported substance use (tobacco, alcohol, cannabis or other substances).

Exclusion criteria (349♦ screened for an initial epidemiological study)
• Refusal to participate: 13.8%♦ (n=48)
• Did not complete a substantial part of the protocol: 9.5%♦ (n=33)
• Acute psychopathological disturbances (psychotic state, severe depression): 2.9%♦ (n=10)
• Mental retardation: 4.3%♦ (n=15)
• Patients referred to a residential centre for more intensive intervention 1.7%♦ (n=6)

Of the remaining 237 who were then screened for this specific study, a further 26.9%♦ (n=94) were excluded because they did not meet the study inclusion criteria (i.e. not identified as substance users).

♦calculated by NICE team</td>
<td>Also received standard care - diagnostic evaluation and initial therapeutic approach (pharmacological or cognitive-behavioural therapy).

Control
Treatment as usual (TAU, n=65)

No further intervention after baseline assessment. Received standard care - diagnostic evaluation and initial therapeutic approach (pharmacological or cognitive-behavioural therapy).</td>
<td>Mean perception of risk scores (SD):
<table>
<tr><th></th><th>Brief intervention (n=59)</th><th>TAU (n=44)</th></tr>
<tr><td>Baseline</td><td>39.7 (8.2)</td><td>40 (7.9)</td></tr>
<tr><td>1 month</td><td>41.8 (6.1)</td><td>40.1 (7.7)</td></tr>
<tr><td>p value</td><td>0.04</td><td>0.39</td></tr>
</table>
No statistically significant difference between intervention and control at 1 month (p=0.137, d=0.245*).

*denotes where effect sizes have been calculated by the review team.

Analysis
Participants were evaluated with semi-structured interviews based on those used in the Collaborative Studies on Genetics of Alcoholism project. Quantity and frequency of substance use obtained from semi-structured interviews and clinical records. Participants were scored on the Teen Addiction Severity Index (semi-structured interview) and divided into 2 groups - minor to moderate problem and severe problems with drugs. Problems derived from use (e.g. being ill, fighting, legal problems) measured on an 8-item questionnaire with a 4 point scale (never, 1 or 2 times, 3 or 4 times, 5+ times) which enquires about the past presentation of drug related problems and psychosocial consequences. Intention to use psychoactive substances scored on a 5-point scale. Knowledge about psychoactive substances derived from a 31-itenm questionnaire. Risk assessment derived from 8-item questionnaire. Chi-squared test, Student's t test, Wilcoxon signed-rank test, and ANCOVA used.</td>
<td>generated and concealed.
Authors state ITT approach used, but do not include participants lost to follow up in their analysis. Unclear how missing data were addressed.
Other comments
Follow-up evaluators were blind to which group participants were in.

Co-morbid mental health diagnoses at baseline, alcohol and tobacco use were also reported in the paper.</td>
</tr>
</table>

Haggerty et al. (2008)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention / comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Haggerty et al. (2008) [follow-up of Catalano et al.(1999)]

Quality score
-

Study type
Follow up study

Location
Seattle, USA.

Study aims
To examine the long-term effects of the Focus on Families programme (also known as Families Facing the Future) a preventive intervention aimed at reducing substance use disorders among children in</td>
<td>Number of participants
Children: 177 (95 vs 82)*

[130 families in total (144 parents and 177 children]).
Intervention: 75 families – 82 parents, 95 children
Control: 55 families – 62 parents; 82 children)]

* There is a discrepancy between the numbers reported here and in Catalano 1999 [Children: 178 (97 vs 81]

Child participant characteristics

<u>Baseline (data collected 1991 – 1993)</u>
Mean age (SD): 8.21 years (3.9). No difference between the treatment and control groups (8.2 vs. 8.2, p=n.s.) or between males and females (8.0 vs 8.4, p=n.s.).

<u>At long-term follow-up</u> (data collected between 2005 and 2006).</td>
<td>Intervention
Focus on Families = 95 children

[See Catalano et al., (1999)]

Control
Treatment as usual = 82 children.

Parents received standard services from methadone clinics, including daily clinic visits to receive methadone, counselling sessions at least once a month, random urinalysis, and relapse and recovery groups held at the clinic.</td>
<td>Intervention: Focus on Families
Control: Standard methadone treatment (for parents)

Outcomes (reported for children only)
% children with abuse / dependence on substances at 12-15 year follow-up (n)[only reported for those who completed follow-up]:
<table>
<tr><th></th><th>Intervention Females (n=37)</th><th>Control Females (n=34)</th><th>Intervention Males (n=45)</th><th>Control Males (n=35)</th><th>Total sample (n=151)</th></tr>
<tr><td>Any substance abuse</td><td>8% (3)</td><td>12% (4)</td><td>22% (10)</td><td>17% (6)</td><td>15% (23)</td></tr>
<tr><td>Any substance dependence</td><td>43% (16)</td><td>32% (11)</td><td>44% (20)</td><td>54% (19)</td><td>44% (66)</td></tr>
<tr><td>Marijuana abuse</td><td>16% (6)</td><td>6% (2)</td><td>21% (9)</td><td>23% (8)</td><td>21% (31)</td></tr>
<tr><td>Marijuana dependence</td><td>19% (7)</td><td>24% (8)</td><td>21% (9)</td><td>37% (13)</td><td>21% (31)</td></tr>
<tr><td>Opiates abuse</td><td>0</td><td>6% (2)</td><td>13% (6)</td><td>9% (3)</td><td>7% (11)</td></tr>
<tr><td>Opiates dependence</td><td>8% (3)</td><td>3% (1)</td><td>4% (2)</td><td>11% (4)</td><td>7% (10)</td></tr>
<tr><td>Cocaine /amphetamines abuse</td><td>11% (4)</td><td>6% (2)</td><td>0</td><td>8% (3)</td><td>6% (9)</td></tr>
<tr><td>Cocaine /amphetamines dependence</td><td>14% (5)</td><td>12% (4)</td><td>22% (10)</td><td>17% (6)</td><td>17% (25)</td></tr>
</table>
Note: ‘any substance’ includes alcohol

Overall, intervention and control participants did not differ significantly in risk of developing a substance use disorder for any substance. Significant reduction in the risk of developing a substance use disorder for intervention group males compared to control group males (HR=0.53, p=0.03) while differences between intervention and control group females were non-significant.

Mean age of onset of substance use disorders in years (SD):</td>
<td>Limitations identified by the author
Loss to follow up (children only): total sample: 14.7% (26/177); intervention: 13.7 % (13/95), control: 15.9% (13/82),p value not reported (% calculated by NICE team). Participants competing long-term follow-up interview (n=151) did not differ from non-completers (n=26) by race, gender, age, experimental condition, or consumption of marijuana at baseline.

Study power: not specified, authors stated “small sample size which may have limited power to detect small effect sizes”.
Participation: Of the 75 families allocated to the intervention, 86.7% initiated participation in parenting group sessions. Excluding children (13.3%) who did not have a parent attend a single session, average attendance at group sessions was 54%. Missed sessions for those who initiated treatment made up by home visits by case managers. Average number of case management contacts with families who initiated was 63 over 9 months (range=4 to 291 visits). Case managers conducted average of 17 home visits (range=0 to 39) per family.
While mortality rate in control group was consistent with methadone clients in other studies, the authors expressed concern that a significantly higher proportion of parents assigned to intervention condition died.

Long periods between follow-up assessments make it difficult to assess how the intervention may have reduced the risk of SUDs among males</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention / comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>families with a parent in methadone treatment.

Length of follow up
15 years (maximum).

Source of funding
Paper preparation supported by a NIDA grant. The intervention was conducted by the Social Development Research Group, University of Washington, in cooperation with Therapeutic Health Services of Seattle, Washington.</td>
<td>Mean age 22.0 years (SD 3.8). 29% high school age, 37% aged 19 to 24 years, 34% aged 25 to 29 years.

40% used marijuana in last 30 days, 7% used cocaine in last 30 days, 7% used heroin in lifetime.

Significant different in percent Caucasian. This was not reported at baseline but was 67% in the intervention compared to 48% in the control (p<0.01). Parent sample was blocked by race during the initial randomisation exercise.

Inclusion criteria
Parents had to have been in methadone treatment for a minimum of 90 days and have 1 or more children between the ages of 3 and 14 years residing with them at least 50% of the time.

Exclusion criteria
None stated.</td>
<td></td>
<td>
<table>
<tr><th></th><th>n</th><th>Intervention Females</th><th>Control Females</th><th>Intervention Males</th><th>Control Males</th><th>Total</th></tr>
<tr><td>Any substance§</td><td>87</td><td>16.64 (2.20)</td><td>17.53 (3.29)</td><td>17.26 (3.77)</td><td>15.72 (2.49)</td><td>16.89 (3.18)</td></tr>
<tr><td>Marijuana</td><td>62</td><td>16.75 (3.39)</td><td>17.20 (2.86)</td><td>16.17 (3.77)</td><td>15.67 (2.65)</td><td>16.41 (3.27)</td></tr>
<tr><td>Opiates</td><td>21</td><td>17.33 (4.93)</td><td>18.67 (5.03)</td><td>18.13 (3.04)</td><td>16.50 (1.38)</td><td>17.79 (3.10)</td></tr>
<tr><td>Cocaine/ amphetamines</td><td>34</td><td>17.62 (2.56)</td><td>18.00 (2.45)</td><td>17.50 (3.41)</td><td>18.33 (3.24)</td><td>18.03 (2.89)</td></tr>
</table>
§includes alcohol

Hazard ratios for onset of substance abuse (Post hoc tests):
<table>
<tr><th></th><th>Any substances§</th><th>Marijuana</th><th>Opiates</th><th>Cocaine/ amphetamines</th></tr>
<tr><td>Gender (male)</td><td>1.98**</td><td>2.00*</td><td>2.20</td><td>1.43</td></tr>
<tr><td>Age at baseline</td><td>0.97</td><td>0.96</td><td>0.92</td><td>0.94</td></tr>
<tr><td>Earlier drug use</td><td>1.16</td><td>1.18</td><td>1.41</td><td>2.25^</td></tr>
<tr><td>Death of addicted parent</td><td>0.81</td><td>0.67</td><td>1.17</td><td>0.65</td></tr>
<tr><td>Race (non-white)</td><td>0.86</td><td>0.63</td><td>0.45</td><td>0.72</td></tr>
<tr><td>Intervention</td><td>0.85</td><td>0.72</td><td>0.83</td><td>0.99</td></tr>
</table>
^p<0.10, * p<0.05, ** p<0.001, §includes alcohol

Study authors report there was no evidence that higher levels of exposure to the intervention were related to greater mortality. Those attending 75% or more of the sessions had approximately the same mortality rate as the control condition (13.5% vs. 12.9%, p value not reported, effect size not reported and not calculable given the data reported in the study paper).

Analysis
Cox proportional hazard model used, allowing the hazard to vary with age. Intention-to-treat analyses of intervention versus control differences were conducted, modelling the hazard of onset of any substance use disorder, controlling for child age at baseline, race, gender, death of the addicted parent, and the respondent's substance use reported at baseline. Additional models were estimated on the hazard of developing substance use disorder for individual substances: marijuana, opiates and cocaine/amphetamines.
</td>
<td>but not females. Authors speculate intervention effects may have been greater for males because they were more likely to develop SUDs.

Analysis: Some outcomes reported just for those who completed follow-up and others used intention to treat analysis (if children not interviewed in 2005, data from the 12 or 24 month follow-up was used).177 children in the analysis sample come from 130 families. Because outcomes for siblings may violate assumptions of independence, analyses were repeated using 1 randomly selected child from each family. The results were equivalent to those reported in the main analysis with no changes in the direction or significance of parameters assessing differences between the intervention and control conditions.

Limitations identified by the review team
Some methods are not reported in this paper (e.g. allocation sequence generation, concealment of allocation from those collecting outcome data) [see Catalano et al. (1999) for methods].

There are inconsistencies in reporting of sample size compared to Catalano et al. (1999) and Catalano et al. (2002).

Other comments
Long term follow-up interviews lasted approximately 90 minutes and participants were paid $60.

Alcohol abuse / dependence outcomes are also reported in the paper.</td>
</tr>
</table>

Huang et al. (2014)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention /comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Huang et al. (2014)

Quality score
+

Study type
Secondary data analysis of an existing randomised controlled trial (Prado et al. 2012).

Location
Florida, USA.

Study aims
To provide an applied demonstration of the Complier Average Casual Effect (CACE) analytic approach to evaluate the relative effects of Familias Unidas in preventing/reducing illicit drug use for participants who received the intended intervention.

The CACE method examines causal intervention effects that take non-compliance into account by examining intervention effects only for participants who complied with the intended intervention. See the evidence table for Prado et al. (2012) for the aims of the original randomised controlled trial.

Length of follow up
12 months

Source of funding
None reported for this study. See evidence table for Prado et al. (2012) for funding of the original randomised controlled trial.</td>
<td>Number of participants
n=242 youth and their primary caregivers (120 vs 122)

Participant characteristics
See the evidence table for Prado et al. (2012) for details.

Inclusion criteria
See the evidence table for Prado et al. (2012) for details.

Exclusion criteria
See the evidence table for Prado et al. (2012).</td>
<td>Intervention
Familias Unidas (n=120)

See the evidence table for Prado et al. (2012) for details.

Control
Community Practice (n=122)

See the evidence table for Prado et al. (2012) for details.</td>
<td>Intervention: Familias Unidas
Control: Community Practice

Outcomes
<u>CACE analysis of randomised controlled trial:</u>

Proportion of youth reporting illicit drug use (compliers):
<table>
<tr><td></td><td>Intervention</td><td>Control</td></tr>
<tr><td>Baseline</td><td>33.8%</td><td>33.7%</td></tr>
<tr><td>12 months</td><td>22.1%</td><td>45.5%</td></tr>
</table>
'Initially engaged' participants showed stronger estimates of intervention effects than the ITT analysis (b=1.04, SE=0.53, z=1.97, p=0.05). Effect size not reported and not calculable from the data reported in the paper.

'Overall engaged' participants also showed a significant difference between the groups (b=1.14, SE=0.55, z=2.08, p=0.04). Effect size not reported and not calculable from the data reported in the paper.

The study authors state that, compared to the ITT analysis reported in Prado et al (2012), the observed differences between the groups were more substantial in the CACE analysis.

Analysis
69.2% (83/120) (participants in the intervention group were classified as ‘initially engaged’ (caregiver attended at least 1 of first 3 parent group sessions). 64.8% (79/122) [reported as 79 (65.8% in the paper] participants in the intervention group were classified as ‘overall engaged’ (caregiver attended at least 6 [50%] of intended sessions).</td>
<td>Limitations identified by the author
Exclusion restriction assumption was 'particularly problematic'.

See the evidence table for Prado et al. (2012) for limitations of the original randomised controlled trial.

Limitations identified by the review team
See the evidence table for Prado et al. (2012) for limitations of the original randomised controlled trial.

Other comments
Details on study design and methods are presented in the evidence table for Prado et al. (2012).

Study quality is based on the quality of the original randomised controlled trial (Prado et al. 2012).

For the CACE methodology to be applied correctly, the authors have assumed that there are 'no defiers', that is, that all participants in both groups received only the intervention they were meant to receive. They have also assumed that the intervention effect is zero for non-compliers, but this may not be true.

The compliance status in the control group is unknown and so is treated as missing data - estimated using maximum likelihood estimation via the Expectation-Maximization algorithm.</td>
</tr>
</table>

Kim and Leve (2011)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Author, Year
Kim and Leve (2011)

Quality score
+

Study type
Randomised controlled trial

Location
Pacific Northwest, USA

Study aims
To evaluate the efficacy of the Middle School Success (MSS) intervention for reducing substance use and delinquency among girls in foster care.

Length of follow up
36 months.

Source of funding
This study was supported by the</td>
<td>Number of participants
n=100 (48 vs. 52)

Participant characteristics at baseline
Mean age: 11.48 years (SD 0.51) in intervention group and 11.59 years (SD 0.45) in control group (no p value reported).
Mean age at first placement: 7.32 years (SD 3.44) in intervention and 7.96 years (SD 2.81) in control group (no p value reported).
Ethnicity
<table>
<tr><th></th><th>Intervention (n=48)</th><th>Control (n=52)</th></tr>
<tr><td>Caucasian</td><td>64.6%</td><td>61.5%</td></tr>
<tr><td>African American</td><td>2.1%</td><td>15.4%</td></tr>
<tr><td>Hispanic or Latino</td><td>12.5%</td><td>7.7%</td></tr>
<tr><td>Multi-racial</td><td>14.6%</td><td>13.5%</td></tr>
<tr><td>American Indian or Alaskan native</td><td>6.3%</td><td>1.9%</td></tr>
</table>
Foster care type
<table>
<tr><th></th><th>Intervention (n=48)</th><th>Control (n=52)</th></tr>
<tr><td>Relative</td><td>31.3%</td><td>36.5%</td></tr>
<tr><td>Non-relative</td><td>68.8%</td><td>63.5%</td></tr>
</table>
</td>
<td>Intervention
Middle School Success (n=48)

Designed to prevent problems with delinquency, substance use and related problems. Aims to increase girls' prosocial skills and self-efficacy, increase foster placement stability by improving parenting skills, and decrease girls' internalising/externalising symptoms during early adolescence. Programme deliberately timed to coincide with transition to middle school.

6 group sessions of training for foster parents led by 1 facilitator and 1 co-facilitator. Focus on developing a behavioural reinforcement system to encourage adaptive behaviours across home, school and community settings. Connected curriculum to daily challenges faced by caregivers. Gave weekly home practice assignments to encourage caregivers to apply new skills
6 group sessions for girls led by 1 facilitator & 3 assistants. Focused on strengthening prosocial skills; practicing sharing/cooperating with peers; increasing the accuracy of perceptions about peer norms for abstinence from substance use, sexual activity, and violence; and practicing strategies for meeting new people, dealing with feelings of exclusion, and talking to friends and teachers about life in foster care. Sessions typically involved a short introduction, role plays, and a game or activity during which girls practiced new skills. During the final session, each girl proclaimed and solidified her goals and commitments in a small ceremony</td>
<td>Intervention: Middle School Success
Control: Regular foster care

Outcomes
<table>
<tr><th></th><th>Intervention Mean (SD)</th><th>Control Mean (SD)</th><th>Correlation (p value, d)</th></tr>
<tr><td>Prosocial behaviour (6 and 12 months)</td><td>0.80 (0.12)</td><td>0.74 (0.14)</td><td>+0.22 (<0.05, 0.46)</td></tr>
<tr><td>Marijuana use (36 months)</td><td>1.29 (0.82)</td><td>2.33 (2.43)</td><td>-0.28 (<0.01, 0.57)</td></tr>
</table>
Prosocial behaviour also significantly correlated with internalising/externalising behaviours tobacco use, delinquent behaviour, association with delinquent peers and composite delinquency. Not significantly correlated with placement changes, alcohol use, marijuana use, or composite substance use.

Marijuana use also significantly correlated with placement changes, internalising/externalising behaviours, tobacco use, alcohol use, composite substance use, delinquent behaviour, association with delinquent peers and composite delinquency. Not significantly correlated with prosocial behaviour.

Analysis
Girls and caregivers participated in assessments at baseline, 6 months, 12 months, 24 months and 36 months.

Substance use was measured by asking girls how many times in the past year they had used</td>
<td>Limitations identified by the author
Loss to follow up at 36 months: intervention group: 6.25% (3/48); control group: 13.5% (7/52) (p value not reported).

Recruitment: 145 girls referred to study by child welfare staff members. 18.2% (27/145) refused to participate - either girl, caregiver or caseworker. 12.4% (18/145) girls excluded as eligibility status changed by the time they were recruited (e.g. moved out of state, wrong grade).

Study power: not reported but small sample size specified as a limitation.

Majority of children were ‘European American’ (Caucasian) - affects generalisability.

Many variables relied on single measure,</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>following grants: MH054257, NIMH, U.S. PHS; DA023920, DA024672, and DA027091, NIDA, U.S PHS.</td>
<td>Delinquency
<table>
<tr><th></th><th>Intervention (n=48)</th><th>Control (n=52)</th></tr>
<tr><td>Arrest records</td><td>2.1%</td><td>3.8%</td></tr>
<tr><td>Runaway</td><td>4.2%</td><td>7.7%</td></tr>
<tr><td>History of special services</td><td>46.2%</td><td>36.6%</td></tr>
</table>
Statistically significantly more girls had experienced neglect in the intervention group than the control group (p<0.01). No other significant differences between groups.

Inclusion criteria
• Girls
• 10 to 12 years old
• Final year of elementary school
• In relative or non-relative foster care in 1 of 2 specific counties in the Pacific Northwest, USA

Exclusion criteria
None stated.</td>
<td>Groups met twice weekly for 3 weeks with approximately 7 participants per group.

In addition to the summer group sessions, follow-up intervention services (i.e. ongoing training and support) were provided to the caregivers and girls in the intervention group for 2 hours once a week throughout the first year of middle school.

All group-based intervention sessions were videotaped for the purposes of training and monitoring programme fidelity.

Control
Regular foster care (n=52)

Usual services provided through the child welfare system such as referrals to individual or family therapy, parenting classes for biological parents, and case monitoring.

During the 1st year of middle school:
• 62% of girls received individual counselling
• 22% received group counselling
• 30% received mentoring
• 37% received psychiatric support
• 40% received 'other' counselling or therapy service (e.g. school counselling, academic support)
NB: Many girls received more than 1 service</td>
<td>marijuana with the response scale ranging from 1 (never) to 9 (daily).
Psychosocial adjustment scores at baseline taken from raw scores from caregiver reports on the Achenbach System of Empirically Based Assessment.

Delinquency measured by the Self-Report Delinquency Scale (36 items) and the girls own reported behaviour.

Prosocial behaviour measured with subscale from the Parent Daily Report Checklist (conducted via 10 minute telephone interview with caregivers)

Structural equation modelling conducted. Full information maximum likelihood estimation used for missing data to allow analysis with full ITT sample. Little's MCAR test indicated missing data were completely at random. Some data were transformed to resemble a normal distribution.
Participants completed an average of 5.62 (SD 0.99) of the 6 sessions. Where sessions were missed, facilitators delivered the content via telephone or in person in the families' homes
Caregivers also participated in weekly follow-up sessions during the girls' 1st year in middle school; of the 40 sessions offered, participants attended an average of 20 (SD 10.4) sessions
Participation rates of girls 'mirrored those of the caregivers' (no data reported).</td>
<td>e.g. prosocial limited to home setting as collected from caregivers.

Limitations identified by the review team
Unclear whether allocation was concealed.

No outcome data related to substance use appear to have been collected at baseline or at least this is not reported. As such, the differences in substance use between groups reported at follow-up may need to interpreted with caution as results don't appear to have been adjusted for substance use at baseline.

Other comments
Participants assigned to groups using coin flip.

Other outcomes are reported but not presented here.</td>
</tr>
</table>

Lee et al. (2010)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Lee et al. (2010)

Quality score
+

Study type
Randomised controlled trial

Location
Northwest USA (no further details provided, however, authors are from University of Washington).

Study aims
To evaluate a brief, web-based personalized feedback intervention for at-risk marijuana users transitioning to college.

Length of</td>
<td>Number of participants
n=341

Participant characteristics
Average 18.03 (SD 0.31) years old.

54.55% women.

68.33% Caucasian, 15.54% Asian, 1.47% African American, 6.16% Hispanic, 0.88% Native American, 0.59% Hawaiian/Pacific Islander, and 7.04% 'other' or not indicated.

No statistically significant differences between groups for ethnicity, gender, family history of drug use, baseline marijuana use, consequences or contemplation scores.</td>
<td>Intervention
Web-based feedback (n=171)

Individual personalised feedback provided in a web-based format, based on baseline information. On completion of baseline survey, could immediately view feedback online or print on own printer. Available to view for 3 months. Feedback was primarily text based, but included pictures and graphs.

Feedback included participants' marijuana use (e.g. frequency and quantity of use), perceived and actual descriptive norms for marijuana use (e.g. how frequently they believe the typical student uses marijuana), and perceived pros and cons of using marijuana. Also included self-reported negative consequences, as well as ways in which reducing or eliminating</td>
<td>Intervention: Web-based feedback
Control: Assessment-only

Outcomes
Marijuana use:
<table>
<tr><th></th><th>Feedback Mean (SD)</th><th>Control group Mean (SD)</th><th>Effect size, d</th></tr>
<tr><td>Baseline</td><td>11.03 (16.40)</td><td>11.01 (16.73)</td><td>-</td></tr>
<tr><td>3 months</td><td>9.14 (14.07)</td><td>9.06 (15.78)</td><td>0.005*</td></tr>
<tr><td>6 months</td><td>11.05 (18.71)</td><td>11.94 (19.31)</td><td>-0.047*</td></tr>
</table>
*calculated by the review team

Feedback not associated with reduced use among participants as a whole at 3 or 6 month follow up compared to baseline (p values not reported).

In feedback group, changes in use varied significantly as a function of contemplation scores at baseline (p<0.01, d=032). Marijuana use was significantly reduced from baseline to 3 month follow up among those with higher contemplation (p<0.05, d=0.27). In the control group, changes in use did not differ as a function of contemplation (p<0.07, d=0.21). There was no interaction between contemplation and treatment group at 6 months (p value not reported, effect size not reported or calculable).

At 3 months, the study authors report ‘a marginally significant’ interaction between family history and treatment condition in predicting changes from baseline, however the p value is not significant (p=0.06, d=0.21). At 6 months, association between family history and changes in use was significant for participants in feedback group (p<0.01, d=0.28) but not participants in control group (p not significant, d=0.10).

Marijuana consequences:</td>
<td>Limitations identified by the author
Power: not reported.

Randomisation did not stratify for baseline contemplation or family history of drug use. Measure of contemplation has not been validated in college samples. Alpha levels were not adjusted for multiple tests.

Self-report for marijuana use. Only students who reported using in the last 90 days at baseline were asked about their contemplation of changing their marijuana use. Generalisability from first year students to other populations

No measure of exposure to the outcome.

Some participants may have been using too infrequently to detect change in use.

Limitations identified by the review team
It is not clear if allocation was concealed.

It is unclear whether knowledge of the allocated interventions was adequately prevented during the study.

Other comments
Response rate to mass mailing was 52.4% (n=2123). 370 (17.43%) responders were eligible.

92.5% participants reported receiving emails about feedback, 75.2% reported linking to and viewing feedback, 5.6% reported printing feedback.

324 (95.01%) participants completed assessment at 3 months, 322 (94.42%) at 6 months, and 315 (92.38%) participants provided both. Non-responders at either or both follow ups did not differ in group, ethnicity, gender, family history, marijuana use, consequences or contemplation.</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>follow up
6 months

Source of funding
Supported by National Institute on Drug Abuse Grant DA019257.</td>
<td>Inclusion criteria
Incoming students at a large public university in the northwest USA.

17 to 19 years old.

Any use of marijuana in 3 months prior to screening.

Exclusion criteria
None reported.</td>
<td>use might be associated with reduced social and academic harm, and participants own cost-benefit scale for use.

Skills training tips for avoiding marijuana and making changes in one's use were provided, as well as limited alcohol feedback. Perceived high-risk contexts and alternative activities around campus and in the community were provided.

It is not clear who was delivering the intervention.

Comparator
Assessment-only control condition (n=170)

No feedback or information was given. Participants were asked to complete web-based assessments.</td>
<td>
<table>
<tr><th></th><th>Feedback Mean (SD)</th><th>Control group Mean (SD)</th><th>Effect size, d</th></tr>
<tr><td>Baseline</td><td>2.38 (2.75)</td><td>2.09 (2.26)</td><td>-</td></tr>
<tr><td>3 months</td><td>2.47 (3.77)</td><td>1.99 (2.76)</td><td>0.145*</td></tr>
<tr><td>6 months</td><td>2.59 (3.96)</td><td>2.19 (2.95)</td><td>0.115*</td></tr>
</table>
* calculated by review team

No significant time or time by treatment condition interactions for marijuana consequences from baseline to 3 months or change from baseline to 6 months (p values not reported).

Contemplation did not interact with treatment condition for marijuana-related consequences at 3 months or 6 months (p value and effect size not reported).

Family history did not interact with treatment condition for marijuana consequences at 3 months (p value and effect size not reported), but did at 6 months (p=0.01, d=0.28).

Effectiveness of the intervention did not vary by gender (p value and effect size not reported).

Analysis
ITT analysis used. Pearson's Chi square used for categorical data, and independent t-tests for continuous data. Gender was included as a covariate in the analysis as men used marijuana more often than women at baseline (p<0.05), 3 month follow up (p<0.01) and 6 month follow up (p<0.01).

Intervention effects did not vary by gender at 3 or 6 month follow-up. Repeated measures ANOVA was used to evaluate changes in past 90 day use from baseline to 3 month follow up.

Missing data imputed using expectation maximisation.</td>
<td>Participants were paid $10 for completing screening, $25 at baseline, and $30 for 3 and 6 month follow ups.

Participants were randomly assigned to groups - stratified into quartiles based on frequency of marijuana use in past 3 months at baseline and then randomly assigned using random number generator within each quartile.

Marijuana use was identified by asking ‘On how many days did you use any kind of marijuana or hashish?’ in the last 90 days.

Consequences of marijuana assessed using Rutgers Marijuana Problem Index - from 0 (never) to 4 (more than 10 times) for 18 negative consequences (e.g. 'not able to do your homework or study for a test'. Items were summed.

Contemplation to change marijuana use assessed with 4 items adapted from Readiness to Change Questionnaire - rated how strongly they agreed or disagreed with, e.g. 'I enjoy marijuana, but sometimes I use too much'. Items were averaged to create a continuous score. Not assessed in participants who did not report use in past 90 days at baseline (n=20 in feedback group, n=19 in control group, p=not significant).

Family history of drug problems assessed by asking whether any biological family members might have/had a drug problem that did or should have led to treatment.</td>
</tr>
</table>

Lee et al. (2013)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Lee et al. (2013)

Quality score
+

Study type
RCT

Location
Pacific Northwest, USA

Study aims
To evaluate the efficacy of an in-person brief motivational enhancement intervention for reducing marijuana use and related consequences among frequently-using university students.

Length of follow up
6 months

Source of funding
Study and manuscript preparation supported by an award from the National Institute</td>
<td>Number of participants
n=212
(Intervention: n=106
Control: n=106)

Participant characteristics
Participants were undergraduate students from 2 universities. Mean age was 20.0 years (SD=1.6) and 45.3% were female. 74.8% of sample was Caucasian, 10.5% Asian or Pacific Islander, 5.7% Hispanic and 14.7% ‘other’.
<table>
<tr><th></th><th>Intervention (mean, SD)</th><th>Control (mean, SD)</th></tr>
<tr><td>Days marijuana used in past 30 days</td><td>16.52 (8.2)</td><td>15.64 (8.8)</td></tr>
<tr><td>Joints smoked in typical week</td><td>9.35 (9.8)</td><td>8.29 (9.5)</td></tr>
<tr><td>Marijuana related problems</td><td>10.45 (4.9)</td><td>10.38 (5.9)</td></tr>
</table>
Authors state that groups were comparable at baseline on measured covariates.

Inclusion criteria
• Reported marijuana use on 5 or more days in the past month
•
Exclusion criteria
• None stated</td>
<td>All participants completed a baseline survey assessing their marijuana use and related consequences.

Intervention
A 1 hour face-to-face session designed to discuss participants’ marijuana use and review personalised graphic feedback from the initial baseline assessment. Based on MI principles.

Tailored feedback based on participants’ self-reported:
• patterns of use and comparison to peers
• reasons for use
• social/personal, academic/cognitive, and physical/health consequences of use
• risk factors for abuse/dependence.

Information/feedback provided on:
• estimated annual spending on marijuana
• proportion of disposable income spent on marijuana
• Alternative items that could be purchased with same amount of money.
• perceived costs and benefits of stopping/reducing use
• confidence (or lack thereof) to avoid smoking in certain situations
• family history risk
• alcohol, frequency of other drug use and risk of interaction with other substances

Finally, participants then:
• listed up to 6 people they could count on for support and considered whether these people knew about their marijuana use and how they felt/would</td>
<td>Intervention: 1 hour motivational interviewing based feedback session (n=106)
Control: Assessment only (n=106)

Outcomes
Days used marijuana in past 30 days
<table>
<tr><th></th><th>Rate Ratio</th><th>95% CI</th><th>p</th></tr>
<tr><td>3 months</td><td>0.96</td><td>0.80 to 1.15</td><td>NS</td></tr>
<tr><td>6 months</td><td>1.11</td><td>0.85 to 1.43</td><td>NS</td></tr>
</table>
3 month data: intervention= 14.06 (SD 10.1), control=14.87 (SD 10.8). 6 month data: intervention=13.21 (SD 10.6), control=11.68 (SD 11.1).

Number of joints smoked in a typical week
<table>
<tr><th></th><th>Rate Ratio</th><th>95% CI</th><th>p</th></tr>
<tr><td>3 months</td><td>0.76</td><td>0.60 to 0.96</td><td><0.05</td></tr>
<tr><td>6 months</td><td>1.03</td><td>0.73 to 1.46</td><td>NS</td></tr>
</table>
3 month data: intervention=6.91 (SD 8.2), control=8.45 (SD 9.8). 6 month data: intervention=7.26 (SD 8.4), control=7.47 (SD 10.7).

Number of marijuana related problems
<table>
<tr><th></th><th>Rate Ratio</th><th>95% CI</th><th>p</th></tr>
<tr><td>3 months</td><td>0.90</td><td>0.76 to 1.07</td><td><0.10</td></tr>
<tr><td>6 months</td><td>1.15</td><td>0.90 to 1.47</td><td>NS</td></tr>
</table>
3 month data: intervention=7.84 (SD 5.0), control=6.75 (SD6.5). 6 months data: intervention=6.54 (SD 5.3), control=6.75 (SD6.5).

No statistically significant (p<0.05) intervention effects were found for either 30-day marijuana</td>
<td>Limitations identified by the author
Loss to follow up: 181 (85.4%) participants provided follow-up data at 3 months and 174 (82.5%) at 6 months. 58/106 (54.7%) participants randomised to the intervention actually attended the in-person session. Overall 90/106 (84.9%) received either in-person or mailed feedback. No significant differences were found in baseline marijuana use between those who attended intervention and those who didn’t.

Study power: No power calculation reported.</td>
</tr>
</table>

Study details	Population	Intervention/comparator	Results	Notes
on Drug Abuse.		feel about it • listed 5 most important goals and rated how marijuana use affects goal attainment and how reducing use may positively/negatively affect attainment • asked any questions or discussed goals Delivered by doctoral-level graduate students and professionals who had participated in a 2 day training event, read supplemental materials and attended ongoing supervision sessions Participants who failed to attend the in-person intervention had the option of receiving their personalised feedback via post. **Comparator** Assessment only.	use or the number of marijuana-related consequences at either 3- or 6-month follow-up compared to control. At 3 months, intervention participants reported smoking 24% fewer joints per week than control participants but differences were not statistically significant at 6 months compared to control. Sensitivity analyses were conducted to assess whether treatment effects were stronger for those in the intervention group who actually attended (58/106); results were largely in line with the ITT analyses. No significant differences in baseline marijuana use were found between those in the intervention condition who did and did not attend the face-to-face session. There were also no baseline differences between those electing to receive feedback in the mail and those who did not. **Analysis** 2 measures of marijuana use: • total number of days used marijuana in past 30 days (assessed using a modified timeline follow-back) • number of joints smoked in a typical week (assessed using an adapted version of the Daily Drinking Questionnaire) Marijuana-related consequences assessed with a modified version of the Rutger's Marijuana Problem Index. ITT analyses undertaken using negative binomial regression model. Sensitivity analyses conducted to assess whether treatment effects were stronger for those who actually attended treatment sessions (58/106).	**Limitations identified by the review team** Some evidence of selective outcome reporting. Authors state that intervention participants were sent a satisfaction survey but response rates and results from this survey are not reported. **Other comments** Students were compensated $10 for completing screening, $24 for baseline, $10 for post-intervention assessment and $30 for 3- and 6-month follow-ups.

Lynsky et al. (1999)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference

Lynsky et al. (1999)

Quality score

-

Study type

Uncontrolled before and after study.

Location
San Bernardino, California, USA

Study aims
To evaluate the Youth Alternative Sentencing Program (YASP), an intervention to change adolescent offenders' intention to use alcohol and marijuana by improving their self-efficacy.

Length of follow up
8 weeks</td>
<td>Number of participants
<u>Received the intervention</u>
n= 209

<u>Participated in pre-test evaluation*</u>
n=164 (78%)

<u>Participated in the post-test evaluation*</u>
n=139 (67%)

Evaluations were completed anonymously so it cannot be assumed that the pre- and post-test groups are the same individuals.

Participant characteristics
<u>Participants in pre-test evaluation</u>

Age range12-19 years (M=17); 136 (83%) male

112 (68%) attended regular school, 31 (19%) attended alternative schools for youth with academic or disciplinary difficulties, 21 (13%) did not attend school.

157 (96%) reported ever using marijuana.</td>
<td>Intervention

The Youth Alternative Sentencing Program (YASP) is a court-prescribed alternative to a conviction for offenses such as:
• being under the influence of alcohol or a controlled substance in public
• driving under the influence of alcohol or a controlled substance
• possession of marijuana while driving

YASP is an educational programme with 5 components delivered over 6 to 8 weeks:

<table>
<tr><td>1. Orientation

(BI)HEADS examination to assess suitability for the programme and identify health issues or needs for referrals</td><td>• Expectations
• Contracts
• BI(HEADS) exam
Body
Image
History
Education
Activities/peers
Drugs/alcohol
Sexual activity
Psychologic
Family history</td></tr>
<tr><td>2. Coroner's visit

1 hour visit including morgue tour and graphic presentation of deaths related to drugs, alcohol and violence</td><td>• Slides
• Tour
• Refrigerator
• Debriefing</td></tr>
<tr><td>3. Trauma centre visit

4 hour visit to enable</td><td>• Emergency department
• Intensive care unit
• Rehabilitation</td></tr>
</table>
</td>
<td>Intervention: YASP

Control: N/A

Outcomes
Perception of harm of marijuana at end of 8 week YASP intervention
<table>
<tr><th></th><th>No harm (%)</th><th>Little harm (%)</th><th>Some harm (%)</th><th>Lot of harm (%)</th><th>No answer (%)</th></tr>
<tr><td>Pre-YASP (T1)</td><td>21.3</td><td>28.1</td><td>34.4</td><td>16.3</td><td>0.9</td></tr>
<tr><td>Post-YASP (T2)</td><td>20</td><td>28.9</td><td>31.1</td><td>20</td><td>0</td></tr>
</table>
p value for difference between T1 & T2 not reported, effect sizes not reported and not calculable from the data reported.

Intention to use marijuana at end of 8 week YASP intervention
<table>
<tr><th></th><th>Never used and never will (%)</th><th>Never used but may in future (%)</th><th>Used but don't plan to again (%)</th><th>Used and will probably use again (%)</th><th>No answer (%)</th></tr>
<tr><td>Pre-YASP (T1)</td><td>4.8</td><td>1.8</td><td>26.8</td><td>62.2</td><td>4.3</td></tr>
</table>
</td>
<td>Limitations identified by the author

Loss to follow up: 164/209 (78%) participants provided pre-test data and 139/209 (67%) provided follow-up data. Not possible to calculate loss to follow-up between pre- and post-test as different individuals may have participated at the 2 time points.

Study power: Not calculated.

The long-term aim of YASP was to reduce substance abuse offenses and substance-related injuries and deaths. A much longer follow-up period would be required to measure the programme's effectiveness in</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Source of funding
Not stated.</td>
<td><u>Participants in the post-test evaluation</u>

Not reported

Inclusion criteria

Explicit inclusion criteria not reported. Participants were all adolescents in the county juvenile court system who had been convicted of a civil or criminal offense related to alcohol or controlled substances (e.g. driving under the influence of alcohol or drugs).

Exclusion criteria
None stated.</td>
<td>
<table>
<tr><td>exposure to drug and alcohol related injuries</td><td>unit
• Wheelchair exercises</td></tr>
<tr><td>4. Group workshops

3 workshops covering 12-step programme for drugs or alcohol plus self-efficacy skills e.g. decision making in drug and alcohol-scenarios, coping skills, and goal setting</td><td>• Drug and alcohol education
• Debriefing
• Lifestyle choices
• 12-step meeting</td></tr>
<tr><td>5. Essay

500 words about their own drug or alcohol experience, their conviction, or that of their peers, or the impact YASP</td><td>• 500 words</td></tr>
</table>

This study also included an optional evaluation process whereby willing participants completed pre- and/or post-intervention questionnaires.

It is not clear who delivered the intervention or what their level of training was.

Comparator
N/A</td>
<td>
<table>
<tr><td>Post-YASP (T2)</td><td>3.6</td><td>0.7</td><td>34.5</td><td>59.7</td><td>1.4</td></tr>
</table>
p value for difference between T1 & T2 not reported, effect sizes not reported and not calculable from the data reported.

There was very little change in perceptions of harmfulness of marijuana between pre-programme and post-programme evaluations. The differences between pre- and post-programme responses could not be compared statistically as different individuals may have provided data at the 2 time points.

There was a 7.7% increase between baseline and post-test in the proportion of respondents stating that they did not plan to use marijuana again. There was also a small reduction in the proportion of respondents stating that they would probably use marijuana again. Again, these differences could not be compared statistically so it is not known whether these differences were significant.

Analysis
Data were collected using an instrument designed by the evaluation team. The tool collected demographic information and included questions on frequency of alcohol and marijuana use, and self-efficacy, intention and refusal skills toward alcohol and marijuana use situations. The outcome data reported above were provided in response to 2 questions:

1. ‘How much do you think people harm themselves (body or mind) if they use marijuana?’

2. ‘Which of the statements best describes your marijuana use?’

Descriptive statistics (e.g. means, proportions) were calculated but no further analysis was undertaken to explore differences between pre- and post-test data.</td>
<td>achieving these outcomes.

Evaluation tool ‘did not perform as expected’: requires redesign to increase sensitivity to detect participants’ change in intention.

Limitations identified by the review team
Participants’ responses not coded to allow identification of individuals providing data at both pre-test and post-test.

No statistical analyses undertaken to explore differences between pre- and post-test data.

Other comments
Alcohol outcomes are also included in the paper but are not reported here.</td>
</tr>
</table>

McCambridge et al. (2008)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
McCambridge et al. (2008)

Quality score
++

Study type
RCT

Location
London, UK

Study aims
To test the effectiveness of MI compared with drug information and advice in reducing drug-related risk among young cannabis users not seeking help.

Length of follow up
6 months

Source of funding
The first author (JM) acknowledged a Health Services</td>
<td>Number of participants
n=326
(Intervention: n=164
Control: n=162)

Participant characteristics
Participants were recruited from Further Education colleges.
<table>
<tr><th></th><th>MI</th><th>Control</th></tr>
<tr><td>Male</td><td>68%</td><td>70%</td></tr>
<tr><td>White</td><td>11%</td><td>10%</td></tr>
<tr><td>Black</td><td>53%</td><td>51%</td></tr>
<tr><td>Asian</td><td>20%</td><td>19%</td></tr>
<tr><td>Mixed/other</td><td>16%</td><td>20%</td></tr>
<tr><td>Mean age (years)</td><td>18.0 (1.0)</td><td>17.9 (1.7)</td></tr>
</table>
No significant between-group differences in baseline characteristics.
<table>
<tr><th></th><th>MI</th><th>Control</th></tr>
<tr><td>Prevalence of cannabis use</td><td>100%</td><td>100%</td></tr>
<tr><td>Mean 30 day frequency of cannabis use</td><td>17.3 (9.8)</td><td>18.3 (10.4)</td></tr>
<tr><td>Mean cannabis joints in past week</td><td>10.3 (10.9)</td><td>11.1 (14.7)</td></tr>
<tr><td>Mean cannabis dependence score</td><td>4.1 (2.9)</td><td>4.6 (3.2)</td></tr>
<tr><td>Mean interactional</td><td>1.0 (1.3)</td><td>1.0 (1.2)</td></tr>
</table>
</td>
<td>Intervention
Motivational interviewing (n=164)
A single 1 hour face-to-face MI session involving the following elements:
• Rapport building
• Consideration of the costs and the benefits of drug use
• Discussion of values and goals, risks, problems and concerns
• Decision-making
• Either self-monitoring or change
Majority of sessions delivered by 4 research practitioners. Practitioner 1 (JM) was a study author and academic researcher. Practitioners 2 to 4 were psychology graduates who were employed</td>
<td>Intervention: Motivational interviewing (n=164)
Control: Drugs information and advice (n=162)

Outcomes
Cannabis outcomes at 3 months
<table>
<tr><th></th><th>MI (% or mean [SD])</th><th>Control (% or mean [SD])</th><th>Difference (95% CI)</th><th>P value</th></tr>
<tr><td>Prevalence of use</td><td>79%</td><td>84%</td><td>OR 1.45 (0.65 to 3.21)</td><td>0.362</td></tr>
<tr><td>Mean 30 day frequency</td><td>14.6 (11.7)</td><td>15.9 (11.6)</td><td>MD 0.53 (-1.23 to 2.29)</td><td>0.517</td></tr>
<tr><td>Mean joints in past week</td><td>10.1 (12.4)</td><td>10.1 (12.8)</td><td>MD -0.84 (-2.33 to 0.66)</td><td>0.243</td></tr>
<tr><td>Mean dependence score</td><td>3.4 (3.0)</td><td>3.5 (3.2)</td><td>MD -0.32 (-1.04 to 0.40)</td><td>0.354</td></tr>
<tr><td>Mean interactional problems score</td><td>0.8 (1.3)</td><td>0.8 (1.2)</td><td>MD -0.05 (-0.38 to 0.28)</td><td>0.741</td></tr>
<tr><td>Mean cannabis problems score</td><td>5.0 (4.1)</td><td>5.3 (4.3)</td><td>MD 0.04 (-0.61 to 0.70)</td><td>0.887</td></tr>
</table>
CI Confidence interval, MD Mean difference, OR Odds ratio
No statistically significant between group differences for any outcomes at 3 months.

Cannabis outcomes at 6 months
<table>
<tr><th></th><th>MI (% or mean [SD])</th><th>Control (% or mean [SD])</th><th>Difference (95% CI)</th><th>P value</th></tr>
<tr><td>Prevalence of use</td><td>72%</td><td>78%</td><td>OR 1.48 (0.84 to 2.59)</td><td>0.174</td></tr>
<tr><td>Mean 30 day frequency</td><td>13.8 (11.9)</td><td>14.5 (11.8)</td><td>MD -0.28 (-2.90 to 2.35)</td><td>0.818</td></tr>
<tr><td>Mean joints in past week</td><td>8.5 (11.1)</td><td>10.5 (14.7)</td><td>MD 1.33 (-1.72 to 4.38)</td><td>0.354</td></tr>
<tr><td>Mean dependence score</td><td>3.6 (3.2)</td><td>3.4 (3.2)</td><td>MD -0.61 (-1.35 to 0.12)</td><td>0.093</td></tr>
<tr><td>Mean interactional problems score</td><td>0.6 (1.1)</td><td>0.8 (1.3)</td><td>MD 0.12 (-0.21 to 0.45)</td><td>0.431</td></tr>
<tr><td>Mean cannabis problems score</td><td>4.7 (4.2)</td><td>5.2 (4.5)</td><td>MD 0.23 (-1.11 to 1.58)</td><td>0.708</td></tr>
</table>
CI Confidence interval, MD Mean difference, OR Odds ratio
No statistically significant between group differences for any outcomes at 6 months.</td>
<td>Limitations identified by the author
Loss to follow up: No between-group difference. Attrition significantly higher among males; more frequent cannabis users; those with higher personal incomes; those with lower AUDIT scores; and ethnic group.

Study power: 270 participants (135 per group) required to detect smallest previously obtained drug consumption effect [0.34 (0.1-0.6) for cigarette smoking] with 80% power at the 5% significance level.

Limitations</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Research Fellowship from the Wellcome Trust (071301). Assistance also received from several individuals (see study for full details), the Big Lottery Fund and Action on Addiction.</td>
<td>
<table>
<tr><td>problems score</td><td></td><td></td></tr>
<tr><td>Mean cannabis problems score</td><td>6.5 (4.3)</td><td>7.0 (4.0)</td></tr>
</table>
Inclusion criteria
• Aged 16 to 19 years
• Used cannabis at least weekly
• Literacy sufficient for questionnaire completion
• English language

Exclusion criteria
None stated
</td>
<td>specifically as research practitioners. 8 college-based practitioners also delivered the sessions. College-based practitioners attended a 2 day training workshop and had individual supervision sessions with researchers.

Comparator
Drug information and advice (n=162)

Standardised protocol for youth workers. Consisted of progress through a series of harm reduction information leaflets along with guidance on how to manage discussion with participants.</td>
<td>Significant practitioner effects were reported for cannabis use at 3 months (p=0.0002), cannabis cessation by 3 months (p=0.045), and change in 30 day frequency of cannabis use at 6 months (p=0.0021).

Cannabis outcomes for whole sample
<table>
<tr><th></th><th>Baseline</th><th>3 months</th><th>6 months</th></tr>
<tr><td>Prevalence of cannabis use</td><td>100%</td><td>NR</td><td>NR</td></tr>
<tr><td>Mean 30 day frequency</td><td>17.8 (10.1)</td><td>15.2 (11.6)*</td><td>14.2 (11.8)*</td></tr>
<tr><td>Mean joints in past week</td><td>NR</td><td>NR</td><td>NR</td></tr>
<tr><td>Mean dependence score</td><td>4.4 (3.0)</td><td>3.4 (3.0)*</td><td>3.5 (3.2)*</td></tr>
<tr><td>Mean interactional problems score</td><td>1.0 (1.3)</td><td>0.8 (1.3)**</td><td>0.7 (1.2)*</td></tr>
<tr><td>Mean cannabis problems score</td><td>6.8 (4.2)</td><td>5.1 (4.2)*</td><td>4.9 (4.4)*</td></tr>
</table>
*p<0.0001, **p=0.009, NR Not reported

Odds of cannabis use at 3 months with a particular practitioner (from 2.6 [95% CI 1.6 to 4.1] to 4.3 [95% CI 1.5 to 12.0]; p=0.0002) and change in 30 day frequency of cannabis used at 6 months (from 0.2 [95% CI -4.4 to 4.8] to -3.3 [95% CI -6.9 to 2.6]; p=0.0021) differed significantly with different practitioners.

Analysis
ITT analysis with last observations carried forward for missing data. Paired t-tests used for change over time across whole sample. Logistic and multiple regression models used for binary and continuous data respectively. Huber/White sandwich estimator of variance used to control for effects of clustered recruitment.

Some evidence of a difference in reported drug use between those that consented to provide a saliva sample and those that did not – those who refused to present a saliva sample were excluded from some of the analyses.

Contamination risk not found to be predictive of any cannabis related outcomes (data and p values not reported).

Mean level of empathy in MI intervention ‘similar’ to recommended basic proficiency score. Mean proportion of complex reflections were above the recommended threshold. Following aspects of MI were below recommended basic proficiency score: spirit, reflections in relation to questions, open rather than closed questions, and MI adherent utterances.</td>
<td>identified by the review team
College staff approached students they suspected were eligible, possible selection bias. College practitioners potentially delivered sessions to students they knew.

Other comments
Computerised individual randomisation by local clinical trials unit. Allocation was concealed and stratified by college.
Data also collected for alcohol and nicotine use; not reported here.

Participants paid £10 for each episode of data collection.</td>
</tr>
</table>

Milburn et al. (2012)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Milburn et al. (2012)

Quality score
+

Study type
RCT

Location
Southern California, USA

Study aims
To evaluate the efficacy of a short family intervention in reducing sexual risk behaviour, drug use and delinquent behaviours among newly homeless youth.
Length of follow up
12 months

Source of funding
Study funded by the National Institute of Mental Health</td>
<td>Number of participants
n=151 children plus 1 or both parent/guardians (68 in intervention, 83 in control)

Participant characteristics
Participants were aged between 12 and 17 years (M=14.8; SD=1.4). Majority of sample were Hispanic (61.6%), then African American (20.5%), white (11.3%) and other/mixed (6.6%). The only significant baseline difference between intervention and control groups were in the proportion of females (79.9% vs 56.6%; p<0.01).
Residency status and drug use at baseline
<table>
<tr><th>Longest time ever away, N (%)</th><th>Intervention (n=68)</th><th>Control (n=83)</th><th>Total (n=151)</th></tr>
<tr><td>2 weeks or less</td><td>43 (64.2)</td><td>52 (62.7)</td><td>95 (63.3)</td></tr>
<tr><td>3 weeks to 1 month</td><td>17 (25.4)</td><td>18 (21.7)</td><td>35 (23.3)</td></tr>
<tr><td>2-6 months</td><td>7 (10.4)</td><td>13 (15.7)</td><td>20 (13.3)</td></tr>
<tr><th>Where currently living, N (%)</th><th>Intervention (n=68)</th><th>Control (n=83)</th><th>Total (n=151)</th></tr>
<tr><td>Birth or adoptive family</td><td>53 (77.9)</td><td>55 (66.3)</td><td>108 (71.5)</td></tr>
<tr><td>Other family or friends</td><td>9 (13.2)</td><td>11 (13.3)</td><td>20 (13.2)</td></tr>
<tr><td>Shelter, group home, other</td><td>6 (8.8)</td><td>17 (20.5)</td><td>23 (15.2)</td></tr>
<tr><th>Drug use in 3 months before baseline</th><th>Intervention (n=68)</th><th>Control (n=83)</th><th>Total (n=151)</th></tr>
<tr><td>Used marijuana</td><td>30 (44.1)</td><td>42 (50.6)</td><td>72 (47.7)</td></tr>
</table>
</td>
<td>Intervention
Support to Reunite, Involve and Value Each Other (STRIVE). Intervention based on cognitive-behavioural theories and designed to improve families' problem-solving and conflict resolution skills.
STRIVE comprised 5 sessions delivered to the child and parent(s) together. Sessions were delivered by a trained facilitator (no further information provided) and an intervention manual was created to ensure fidelity. Sessions were conducted once weekly and typically lasted 1.5-2 hours.
<table>
<tr><th></th><th>Description</th></tr>
<tr><td>1</td><td>Create positive family atmosphere
Establish facilitator's credibility
Negotiation modelling
Plan for and identify potential emergencies
Connect feelings to behaviours
Identify outside social supports</td></tr>
<tr><td>2</td><td>Identify and rank problem situations
Relate feeling thermometer to each problem
Assign priorities to each identified family problem
Increase problem-solving abilities
Select a relatively easy family problem and practice problem solving</td></tr>
<tr><td>3</td><td>Analyse a problem of moderate difficulty
Uncover obstacles: rules, roles, assumptions, benefits of keeping</td></tr>
</table>
</td>
<td>Intervention: n=68
Control: n=83
(Not reported how many participants in each group completed follow-up interviews)

Outcomes
<table>
<tr><th>Time</th><th>Participants completing assessment, N (%)</th></tr>
<tr><td>Baseline</td><td>151 (100)</td></tr>
<tr><td>3 months</td><td>107 (71)</td></tr>
<tr><td>6 months</td><td>87 (58)</td></tr>
<tr><td>12 months</td><td>69 (46)</td></tr>
</table>
Baseline characteristics of those who did and did not complete any follow up assessments were compared and no significant differences were found.
NOTE: Outcome data presented graphically, not possible to reproduce or tabulate here.
No intervention effect was found for whether participants used either marijuana or hard drugs.
There were significant differences in the frequency with which substances were used. Intervention participants increased their marijuana use (from 9 to 12 times in the past 3 month period) compared with control group participants who decreased their use (from 13 to 6 times; p<0.001, estimated d=-0.40). Hard drug use reduced in both study arms with those in the intervention reporting greater reductions (2.8 to 0.3 times in last 3 months) than those in the control group (2.7 to 1.2; p<0.001, estimated d=0.13).</td>
<td>Limitations identified by the author
Loss to follow up: 54% between baseline and 12 month follow up (calculated by reviewer, not study authors)

Study power: Power calculation not reported.

Some participants had their first follow-up assessment before the last intervention session had taken place.

Data could not be collected from participants who did not complete recruitment; therefore cannot compare families who didn't provide consent. Possibility that there may be some selection bias with more dysfunctional/ conflicted families failing to complete the intensive recruitment process.

Limitations identified by the review team
Substance use outcomes appear to have been self-reported and not biochemically validated. It is not clear how substance use was measured (e.g. using timeline follow back</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td></td>
<td>
<table>
<tr><td>N (%)</td><td></td><td></td><td></td></tr>
<tr><td>Times used marijuana, mean (SD)</td><td>9.9 (29.0)</td><td>11.6 (25.1)</td><td>10.9 (26.9)</td></tr>
<tr><td>Used hard drugs* N (%)</td><td>14 (20.9)</td><td>22 (26.5)</td><td>36 (24.0)</td></tr>
<tr><td>Times used hard drugs* mean (SD)</td><td>2.5 (9.4)</td><td>2.8 (6.6)</td><td>2.7 (7.9)</td></tr>
</table>
* hard drugs defined as cocaine; crack; amphetamines; smoked speed; heroin; non-prescription methadone; other opiates; narcotics, or painkillers; barbiturates; tranquilizers; inhalers; party drugs, or other drugs.

Inclusion criteria
• Been away from home for at least 2 nights in past 6 months
• Not been away for more than 6 months
• Have the potential to return home

Exclusion criteria
• Current abuse or neglect
• Active psychosis
• Current substance intoxication
</td>
<td>
<table>
<tr><td></td><td>the status quo
Review HIV and street life educational materials</td></tr>
<tr><td>4</td><td>Decide how to cope with the problem (s)
Select a family problem of medium to high difficulty and problem-solve
Learn how to negotiate solutions</td></tr>
<tr><td>5</td><td>Select the family problem of the highest difficulty (i.e. the one with the highest probability of being the main source of family conflict) and practice problem solving
Evaluate solutions and implement them through negotiation
Review family’s own strengths as problem solvers</td></tr>
</table>
Comparator
‘Standard care’ that families were receiving from the agencies that referred them. If they were not actively receiving any type of services, families were given appropriate referrals based on their needs.
</td>
<td>
Analysis
Adolescents completed assessments at baseline and at 3, 6 and 12 months post-baseline. Baseline and outcome data were collected by a trained assessment team using a computerised interview. Sensitive outcome data (not specified) were collected via computer-assisted self-interviews.

Chi-squared and t-tests were performed to compare baseline characteristics between groups.

The impact of STRIVE on adolescents’ risk-taking behaviour was evaluated using intention-to-treat random-intercept regression models. A random intercept was added for each youth to account for repeated measures taken from the same individual. The interaction term captures the impact of the intervention over time i.e. the relative change across assessments for those in the intervention group compared with the control group.
</td>
<td>
(TLFB) techniques).

Other comments
Other outcomes are reported in the paper (e.g. alcohol use, risky sexual behaviour) but are not presented here.

All participating children were paid for completing assessments ($30 at T1, $35 at T2 and $40 at T3)
</td>
</tr>
</table>

Morgenstern et al. (2009)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Morgenstern et al. (2009)

Quality score
+

Study type
Randomised controlled trial

Location
New York, USA

Study aims
To examine the efficacy of 4 sessions of motivational interviewing focused on reducing club drug use and HIV risk behaviours for men who have sex with men who are not currently in substance use disorder treatment.

Length of follow up
12 months

Source of funding</td>
<td>Number of participants
n=150 (70 vs. 80)

Participant characteristics at baseline
<table>
<tr><th></th><th>Total Sample (n=150)</th><th>Intervention (n=70)</th><th>Control (n=80)</th></tr>
<tr><td>Age (mean years, SD)</td><td>37.8 (8.8)</td><td>37.5 (9.1)</td><td>38.1 (8.6)</td></tr>
<tr><td>% unemployed</td><td>56.2%</td><td>58.1%</td><td>54.1%</td></tr>
<tr><td>% who have attended some college or more</td><td>76.7%</td><td>79.1%</td><td>74.3%</td></tr>
<tr><td>% HIV positive</td><td>59.5%</td><td>58%</td><td>61%</td></tr>
</table>
Ethnicity
<table>
<tr><th></th><th>Total Sample (n=150)</th><th>Intervention (n=70)</th><th>Control (n=80)</th></tr>
<tr><td>% White</td><td>36.3%</td><td>31.9%</td><td>40.2%</td></tr>
<tr><td>% African-American</td><td>33.6%</td><td>30.6%</td><td>36.4%</td></tr>
<tr><td>% Hispanic</td><td>14.4%</td><td>15.9%</td><td>13%</td></tr>
<tr><td>% Other</td><td>15.7%</td><td>21.6%</td><td>10.4%</td></tr>
</table>
Mean number of days of club drug use in past 90 days (SD)
<table>
<tr><th></th><th>Total Sample (n=150)</th><th>Intervention (n=70)</th><th>Control (n=80)</th></tr>
<tr><td>Any club drug</td><td>23.4 (16.6)</td><td>22.7 (15.9)</td><td>24.1 (17.3)</td></tr>
<tr><td>Cocaine</td><td>12.8 (16.2)</td><td>12.7 (15.7)</td><td>12.6 (16.8)</td></tr>
<tr><td>Methamphetamine</td><td>9.8 (14.3)</td><td>9.7 (14.4)</td><td>9.8 (14.2)</td></tr>
<tr><td>Ecstasy</td><td>7.1 (11.6)</td><td>6.2 (8.6)</td><td>7.7 (13.7)</td></tr>
<tr><td>Ketamine</td><td>0.9 (3)</td><td>0.4 (1.2)</td><td>1.3 (3.9)</td></tr>
<tr><td>GHB</td><td>1.1 (3.7)</td><td>1.2 (4.5)</td><td>0.9 (2.9)</td></tr>
</table>
Drug dependence / treatment
<table>
<tr><th></th><th>Total Sample</th><th>Intervention</th><th>Control</th></tr>
</table></td>
<td>Intervention
Motivational interviewing (n=70)

4 sessions of 1 hour over 4 to 8 weeks. Individual sessions. Adapted version of Motivation Enhancement Therapy - addressed club drug use and high risk sexual activity but did not incorporate feedback on individual vs. normative data. 6 master/ doctoral-level psychologists provided intervention. Minimum 60 hours training and weekly individual and group supervision.

Control
Educational videos (n=80)

4 x 1-hour</td>
<td>Intervention: motivational interviewing (4 sessions)
Control: educational videos

Outcomes
NOTE: Some outcome data were presented graphically, not possible to reproduce or tabulate here.

Participants in control group used more club drugs than those in intervention group during follow up (p<0.02). Comparisons across the each follow-up period indicate that participants significantly reduced their club drug use across the course of the follow up period in the (3 months, p<0.01; 6 months, p<0.01; 9 months, p<0.02). Effect sizes were not reported and not calculable from the data reported in the study paper.

Participants with more club drug use at baseline or greater drug dependence were more likely to use club drugs during follow-up. People of 'Non-black' ethnicity were associated with less club drug use during follow-up.

Analysis
Drug use collected with Time-Line Follow-Back method. Self-report measures were administered on a computer via Audio Computer Administered Self-Interview. Drug dependence severity score for each club drug in the prior 90 days assessed with Structured Clinical Interview. Blood and urine samples collected at baseline to confirm self-reported drug use.</td>
<td>Limitations identified by the author
Loss to follow up: Total sample: at 3 months: 8.7%; 6 months 9.3%; 9 months 13.3%; 12 months 23.3% (19 participants lost to follow up at 12 months due to 'lack of resources'). No significant differences in loss to follow-up at different time points between groups for all variables (all effect sizes <0.25) except for baseline club drug use at 12 months follow up (p<0.05). Significantly more participants lost to follow up at 12 months reported greater club drug use at baseline than those not lost to follow up at 12 months (no data reported).

Recruitment: 508 screened. 42.7% (217/508) excluded for not meeting inclusion criteria. 48.5% (141/291) of eligible participants refused randomisation. No significant differences in any variables tested between those who accepted / refused (no data reported).

Study power: not described.

Sampling strategies not designed to recruit representative sample of the population or drugs.</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>None stated.</td>
<td>
<table>
<tr><th></th><th>(n=150)</th><th>(n=70)</th><th>(n=80)</th></tr>
<tr><td>Severity score (mean, SD)</td><td>5.44 (4.95)</td><td>6.0 (5.1)</td><td>4.95 (4.8)</td></tr>
<tr><td>Cocaine</td><td>37.7%</td><td>42.9%</td><td>32.5%</td></tr>
<tr><td>Methamphetamine</td><td>31.8%</td><td>38.6%</td><td>26.3%</td></tr>
<tr><td>Ecstasy</td><td>17.2%</td><td>18.6%</td><td>16.3%</td></tr>
<tr><td>Meet diagnostic criteria for dependence on one or more club drug</td><td>60%</td><td>NR</td><td>NR</td></tr>
<tr><td>Ever had substance abuse treatment</td><td>16%</td><td>18.6%</td><td>13.8%</td></tr>
<tr><td>Substance abuse treatment in last 5 years</td><td>11.3%</td><td>14.3%</td><td>8.8%</td></tr>
</table>
Mean number of times marijuana used in past 90 days (SD)
<table>
<tr><th></th><th>Total Sample (n=150)</th><th>Intervention (n=70)</th><th>Control (n=80)</th></tr>
<tr><td>Marijuana</td><td>19.9 (28.1)</td><td>26.9 (32.1)</td><td>13.3 (21.9)</td></tr>
</table>
No significant differences at baseline, except greater marijuana use in intervention group (p values not reported).
Inclusion criteria

Male
18 to 65 years old
At least 5 occasions of club drug use in past 90 days
Sexual contact with non-primary male partner in past 90 days
Not enrolled in drug treatment in prior month
Club drug use at least as significant a problem as alcohol or opiate use
Stably housed
Not repeated enrolees in other HIV research studies.

Exclusion criteria
None stated.
</td>
<td>videos of interviews over 4 to 8 weeks. Videos of gay men who were current or former drug users combined with existing educational videos of dangers of cocaine and club drug use. Covered negative consequences of club drug use, club drug use and risky sex, and role of club drugs in social and sexual lives of gay men. On the videos, ethnically diverse 'hosts' provided introductions and commentary. Aimed to be entertaining and informative.</td>
<td>Graduate and undergraduate students coded interviewers' adherence – scores ranged from 0.620 to 0.977.

Mean number of sessions attended: 1.9 (SD 1.6) in intervention and 2.4 (SD 1.6) in control (p<0.10). Attendance at more sessions did not predict changes in club drug use (p>0.30, effect size not reported).

Generalised Estimating Equations approach used in analysis.

The variables club drug use at baseline and ethnicity were included as covariates in subsequent analyses.</td>
<td>Authors' approach to illustrating results of their model is described in the paper as 'imprecise' and effect sizes should be 'interpreted with caution'.

Limitations identified by the review team
Unclear if assessors were aware of which group participants had been allocated to.

Other comments
Recruitment from March 2004 to December 2006 using direct outreach and print/online advertising.

URN randomisation used (i.e. probability of being assigned to a group decreases if the group is overrepresented and increases if the group is underrepresented), balancing for HIV status and days of club drug use.

Participants informed of assigned group before completing first session. First session given immediately after baseline assessment.</td>
</tr>
</table>

Norberg et al. (2014)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Norberg et al, (2014)

Quality score
+

Study type
RCT

Location
Australia

Study aims
To determine if a single-session of motivational enhancement therapy could instil greater commitment to change and reduce ecstasy use and related problems more so than an education-only intervention and whether motivational enhancement therapy sessions delivered with higher treatment fidelity are associated</td>
<td>Number of participants
n=174

Participant characteristics
<table>
<tr><th></th><th>E-check up</th><th>Control</th></tr>
<tr><td>Mean age</td><td>23.27</td><td>23.99</td></tr>
<tr><td>Male</td><td>63%</td><td>67%</td></tr>
<tr><td>Drinkers</td><td>98%</td><td>99%</td></tr>
<tr><td>Opiate users</td><td>13%</td><td>14%</td></tr>
<tr><td>Cannabis users</td><td>77%</td><td>81%</td></tr>
<tr><td>Cocaine users</td><td>49%</td><td>55%</td></tr>
<tr><td>Stimulant users</td><td>48%</td><td>56%</td></tr>
<tr><td>Sedative users</td><td>26%</td><td>27%</td></tr>
<tr><td>Tobacco users</td><td>68%</td><td>69%</td></tr>
<tr><td>Mean number of ecstasy pills in 90 days</td><td>13.28</td><td>14.93</td></tr>
<tr><td>Mean days of ecstasy use in 90 days</td><td>6.37</td><td>7.19</td></tr>
<tr><td>Mean SDS score</td><td>2.46</td><td>2.46</td></tr>
</table>
Education group had greater proportion of Australian-born and full-time employed participants.</td>
<td>Both intervention and comparator delivered by 1 of 7 individuals – 2 doctoral level clinical psychologists, 3 recently registered psychologists, 2 clinical psychology students. 14 hours of training and fortnightly supervision provided.

Intervention
E Check-up (n=89)

Motivational enhancement therapy. 1 x 50 minute session. Motivational interviewing combined with personalised feedback and education (Motivational enhancement therapy). Goal was to motivate participants to reduce ecstasy use.

Therapists reviewed ‘Ecstasy: Facts and Fiction’ booklet and provided participants with structured feedback to baseline assessment results using a Personal Feedback Report. Booklet covers history and consequences of ecstasy use, methods of harm reduction. Feedback report included problem severity, ecstasy use patterns, motivation to reduce use, risk perception, acknowledging high-risk situations, confidence in resisting use, options for social support for reducing use, psychological distress,</td>
<td>Intervention: E check-up (motivational enhancement therapy) (n=89)
Control: Education only (n=85)

Outcomes
Number of ecstasy pills used
<table>
<tr><th></th><th>Intervention (mean, 95% CI)</th><th>Control (mean, 95% CI)</th></tr>
<tr><td>3 months prior to baseline</td><td>4.29 (3.26 to 5.33)</td><td>4.66 (3.74 to 5.59)</td></tr>
<tr><td>2 months prior to baseline</td><td>4.97 (3.69 to 6.25)</td><td>5.51 (4.17 to 6.86)</td></tr>
<tr><td>1 month prior to baseline</td><td>3.96 (3.20 to 4.71)</td><td>4.88 (3.77 to 5.90)</td></tr>
<tr><td>1 month</td><td>2.75 (1.75 to 3.75)</td><td>3.52 (2.41 to 4.63)</td></tr>
<tr><td>2 months</td><td>1.25 (0.71 to 1.79)</td><td>1.79 (1.16 to 2.42)</td></tr>
<tr><td>3 months</td><td>1.68 (0.93 to 2.44)</td><td>2.40 (1.64 to 3.15)</td></tr>
<tr><td>4 months</td><td>2.34 (1.46 to 3.23)</td><td>2.21 (1.28 to 3.14)</td></tr>
<tr><td>5 months</td><td>1.69 (0.74 to 2.63)</td><td>2.58 (1.52 to 3.64)</td></tr>
<tr><td>6 months</td><td>1.79 (1.01 to 2.58)</td><td>2.39 (1.32 to 3.46)</td></tr>
</table>
p values for differences between groups for specific time points or across time for specific groups not reported.

Number of days ecstasy used
<table>
<tr><th></th><th>Intervention (mean, 95% CI)</th><th>Control (mean, 95% CI)</th></tr>
<tr><td>3 months prior to baseline</td><td>2.10 (1.74 to 2.46)</td><td>2.25 (1.88 to 2.62)</td></tr>
<tr><td>2 months prior to baseline</td><td>2.44 (1.95 to 2.93)</td><td>2.58 (2.11 to 3.05)</td></tr>
<tr><td>1 month prior to baseline</td><td>2.08 (1.77 to 2.39)</td><td>2.29 (1.91 to 2.68)</td></tr>
<tr><td>1 month</td><td>1.28 (1.00 to 1.57)</td><td>1.76 (1.29 to 2.22)</td></tr>
<tr><td>2 months</td><td>0.59 (0.36 to 0.82)</td><td>0.79 (0.51 to 1.06)</td></tr>
<tr><td>3 months</td><td>0.83 (0.53 to 1.13)</td><td>1.08 (0.76 to 1.40)</td></tr>
<tr><td>4 months</td><td>1.18 (0.84 to 1.52)</td><td>1.01 (0.62 to 1.41)</td></tr>
<tr><td>5 months</td><td>1.03 (0.53 to 1.53)</td><td>1.18 (0.71 to 1.64)</td></tr>
<tr><td>6 months</td><td>0.99 (0.68 to 1.29)</td><td>1.18 (0.76 to 1.59)</td></tr>
</table>
</td>
<td>Limitations identified by the author
Loss to follow up: Completed follow up E-check-up= 70/89 at 4 week follow up, 68/89 at 16 weeks follow up, 66/89 at 24 week follow up. Education only= 79/85 at 4 week follow up, 70/85 at 16 week follow up, 68/85 at 24 week follow up. Participants lost to follow up were significantly younger, less educated and more likely to be Australian born. Little’s MCAR test suggests missing follow-up data were missing completely at random.

Study power: 140 participants needed to detect small or medium between-group effects with 80% power.

Limitations identified by the review team
It is unclear how missing data were addressed.

Other comments
When ecstasy was not taken in pill form, assumed following equivalent to 1 pill: 1 capsule, 0.25 grams of</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>with better outcomes. Secondary objective was to assess participants' satisfaction with their assigned interventions.

Length of follow up
24 weeks

Source of funding
Funded by the National Health and Medical Research Council/Project Grant (630570).</td>
<td>Inclusion criteria
Fluent in English

Over 16 years

Used ecstasy at least 3 different times in past 90 days (originally 6 times in 90 days, but updated 7 months into recruitment)

Exclusion criteria
Met criteria for moderate to severe substance dependence for another drug (excluding cannabis and tobacco)

Received substance use treatment in last 90 days

Evidence of obvious medical, cognitive, or psychological impairment that would interfere with participation.</td>
<td>willingness to experience emotional distress, commitment and action. Therapists created change plans with participants who reported interest in reducing ecstasy use. Participants who remained uninterested were encouraged to monitor use to avoid increases.

All participants provided with self-monitoring diary to track use and given booklet and feedback form to take home.

Comparator
MI-informed education only (n=85)

Length of session unclear, possibly 15 minutes.

15-page ecstasy booklet 'Ecstasy: Facts and Fiction' to review with therapist. Questions answered within 15 minutes in an MI-consistent manner. Therapists used core interviewing skills, e.g. open ended questions and using reflection. Therapists developed a strong therapeutic alliance by listening to concerns, avoiding arguments, and prescribing change to clients; encouraged not to evoke change talk or plan for change. Participants allowed to keep booklet.</td>
<td>p values for differences between groups for specific time points or across time for specific groups not reported.

Severity of Dependence Scale score
<table>
<tr><th></th><th>Intervention (mean, 95% CI)</th><th>Control (mean, 95% CI)</th></tr>
<tr><td>Baseline</td><td>2.46 (2.04 to 2.89)</td><td>2.46 (2.02 to 2.91)</td></tr>
<tr><td>4 weeks</td><td>2.10 (1.62 to 2.59)</td><td>2.17 (1.71 to 2.62)</td></tr>
<tr><td>16 weeks</td><td>2.00 (1.53 to 2.47)</td><td>2.26 (1.69 to 2.83)</td></tr>
<tr><td>24 weeks</td><td>1.95 (1.39 to 2.52)</td><td>1.92 (1.37 to 2.47)</td></tr>
</table>
p values for differences between groups for specific time points or across time for specific groups not reported.

No significant interaction between time and group for number of pills used (p=0.70, d=0.15), days of use (p=0.80, d=0.05), or SDS score (p=0.96, d=0.01).

Significant differences across time for whole sample for number of pills used (p<0.0001, d=0.41) and days of use (p<0.0001, d=0.41). No significant differences across time for SDS score (p=0.06, d=0.01). No significant differences between groups across whole time for number of pills used (p=0.33, d=0.21), days of use (p=0.39, d=0.18), or SDS score (p=0.94, d=0.02).

Adherence to and competence in motivational interviewing techniques not related to number of ecstasy pills used (adherence p=0.98, d=0.004; competence p=0.66, d=0.05), days of ecstasy use (adherence p=0.76, d=0.04; competence p=0.75, d=0.04), or severity of dependence scale score (adherence p=0.51, d=0.08; competence p=0.66, d=0.05).

Analysis
Time-line follow back method used.
Generalised estimating equations approach. Poisson models with log link functions used for ecstasy use data, normal model with identity link functions used for severity score data.

66 (74%) E check-up sessions coded by at least 1 rater. Sample of 18 tapes showed excellent level of interrater reliability.</td>
<td>powder, 1.25 lines, and 1 pinch.

Randomised using simple randomisation on a website. Each allocation concealed in a sealed, opaque envelope. Envelopes not opened until baseline assessment was completed. Research assistants were blind to treatment allocation.

Participants received $25, $35, $40 and $40 for baseline, 4, 16, and 24 week follow ups.

Recruitment from Jan 2010 to Oct 2011. Final follow-up assessment in April 2012. Print and online adverts on help-seeking and social networking sites, flyers and brochures in drug, health and mental health organisations and university campuses, pubs, cars, festivals and music venues. Participants asked to recruit up to 3 friends, receiving $25 for each referral who completed baseline assessment.</td>
</tr>
</table>

Nyamathi et al. (2012)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>

Reference
Nyamathi et al. (2012)

Quality score

-

Study type
Randomised controlled trial

Location
California, USA

Study aims
To assess the impact of an intervention focused on decreasing use of drugs and alcohol among a sample of homeless adults visiting a drop-in site.

Length of follow up
6 months

Source of funding
Support provided by Grant

</td>
<td>

Number of participants
n=154 (n randomised to each group not reported)

Participant characteristics

Age

Years	Total	HHP	AM
18-20	39 (39.0%)	18 (38.2%)	21 (39.6%)
21-23	39 (39.0%)	17 (36.2%)	22 (41.5%)
24-25	22 (22.0%)	12 (25.5%)	10 (18.9%)

Mean age 21.2 years (SD 2.4 years)

Male: total=70 (70%), HHP=30 (63.8%), AM=40 (75.5%)

Ethnicity

Ethnicity	Total	HHP	AM
African American	11 (11%)	7 (14.9%)	4 (7.6%)
White	58 (58.0%)	25 (53.2%)	33 (62.3%)
Hispanic	9 (9.0%)	6 (12.8%)	3 (5.7%)
Mixed	11 (11.0%)	4 (8.5%)	7 (13.2%)

</td>
<td>

Intervention

Hepatitis Health Promotion (HHP) program

Led by 1 nurse. Details of training not provided.

3 group sessions of 45 minutes. Interactive, discussion format. Youth shared experiences of integrating health promotion strategies in their lives and asked questions about content.

Sessions covered: hepatitis and HIV infections and prevention strategies; training in self-management and communication skills; reducing drug use behaviour; development of relationships, activities and social networks.

Comparator
Art Messaging (AM) program

Led by 2 artists (faculty members of the California Institute of the Arts). Details of training not provided.

3 to 4 group sessions,

</td>
<td>

Intervention: Hepatitis Health Promotion (HHP) program (n=47)

Control: Art Messaging (AM) program (n=53)

Outcomes
Paper reported no significant differences in drug use between HHP and AM groups (p value and effect size not reported, effect size not calculable based on data reported in the study paper). Significant differences reported between baseline and 6 months within each group (see tables below).

Drug use in past 6 months, intervention group (n=41)

Drug	Baseline	6 months	P value
Crack	3 (7.3%)	3 (7.3%)	Not significant
Marijuana	36 (87.8%)	30 (73.2%)	<0.10*
Cocaine	7 (17.1%)	1 (2.4%)	<0.05
Methamphetamine	17 (41.5%)	10 (24.4%)	<0.05
Hallucinogens	11 (26.8%)	3 (7.3%)	<0.05
Heroin	5 (12.2%)	4 (9.8%)	Not significant
Sedatives	3 (7.3%)	0 (0%)	Not significant

*reported as significant in the study paper
Effect sizes not reported and not calculable based on the data reported in the paper.

Drug use in past 6 months, control group (n=44)

Drug	Baseline	6 months	P value
Crack	5 (11.5%)	2 (4.6%)	Not significant

</td>
<td>

Limitations identified by the author

Loss to follow up: authors report 100 (65%) completed 6 month follow up, however, 6 month data only presented for 85 participants.

Participants lost to follow up more likely to be African American or Hispanic (p<0.05), have no intimate partners (p<0.05), and be cocaine users (p value not reported).

Study power: not reported. Authors state 'small sample size' as a limitation.

Convenience sample.

Self-report data.

Limitations identified by the review team

Method of randomisation not reported. Not clear how many participants were randomised to each group.

</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>DA023532 from the National Institute on Drug Abuse to Dr Nyamathi.</td>
<td>
<table>
<tr><td>‘Other’</td><td>11 (11.0%)</td><td>5 (10.6%)</td><td>6 (11.3%)</td></tr>
</table>

Homeless for 1 year or more: total=51 (51.0%), HHP=26 (55.3%), AM=25 (47.2%).

Ever used injection drugs: total=28 (28.0%), HHP=12 (25.5%), AM=16 (30.2%)

Authors report no group differences in depressive symptoms but do not state whether there are differences in other baseline characteristics.

Inclusion criteria

Homeless (defined as spent the previous night in a shelter, hotel, motel, car or abandoned building)

15 to 25 years old

‘Actively engaged’ in drug use for last 6 months (not defined)

Exclusion criteria
None stated.
</td>
<td>each 2 to 3 hours long.

One session focused on hepatitis and vaccines. Included a 1 hour session on basic facts around HIV/AIDS and hepatitis. Content of other sessions not reported.

Youth empowered by faculty to share their life stories through photography, drawing and documentaries. Participants encouraged to create messages to influence other drug using youths.

Facilitators used poetry, video, art and pictures to explore thoughts and feelings, concerns about drug use, and goals for the future. Encouraged conversations about good health by raising questions about risky behaviours an ways to stay safe.</td>
<td>
<table>
<tr><td>Marijuana</td><td>42 (95.5%)</td><td>34 (88.3%)</td><td><0.01</td></tr>
<tr><td>Cocaine</td><td>9 (20.5%)</td><td>6 (13.6%)</td><td>Not significant</td></tr>
<tr><td>Methamphetamine</td><td>16 (36.4%)</td><td>11 (25.0%)</td><td>Not significant</td></tr>
<tr><td>Hallucinogens</td><td>12 (27.3%)</td><td>9 (20.5%)</td><td>Not significant</td></tr>
<tr><td>Heroin</td><td>5 (11.4%)</td><td>4 (9.1%)</td><td>Not significant</td></tr>
<tr><td>Sedatives</td><td>1 (2.3%)</td><td>0 (0%)</td><td>Not significant</td></tr>
</table>
Effect sizes not reported and not calculable based on the data reported in the paper.

From logistic regression analysis, no significant association at 6 months between AM program and methamphetamine use (60.0% of 25 methamphetamine users in AM program vs. 51.4% of 75 non-users; adjusted OR 1.95 [95% CI 0.62 to 6.13, p=0.253]).

Results for alcohol also reported but not presented here.

Analysis
Drug and alcohol use measured using the Texas Christian University Drug History Form.

Depressive symptoms measured with 20-item Centre for Epidemiologic Studies Depression Scale.
Emotional well-being measured with 5-item Mental Health Index.
Coping with Recent Stressful Events scale also used.

McNemar’s test of symmetry used for change over time in dichotomous measures. T-tests used for continuous measures. ANOVA used for comparing groups.
</td>
<td>Not clear if participants or assessors were blind to allocation.

Missing outcome data were not addressed.

Other comments
Randomised to 1 of 2 groups.

Peer designed flyers used to recruit.

Paid $10 for completing screening and baseline questionnaire.</td>
</tr>
</table>

Orte et al. (2008)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Orte et al. (2008)

Quality score
+

Study type
Non-randomised, unmatched controlled before and after study.

Location
Spain (Balearic Islands)

Study aims
To assess the impact of the Family Competence Programme, an intervention which aims to increase family competence and prevent possible negative behaviour in children of drug users undergoing treatment.

Length of follow up
Unclear - states ‘post treatment’

Source of funding
Funded by the Spanish Ministry of</td>
<td>Number of participants
n=93 families

Participant characteristics
All parents had children in their care and had been in treatment for a minimum of 1 year for cocaine or cannabis addiction problems.

Average parental age 39 years; average children's age 10.6 years.

No significant differences in outcome measures between groups at baseline.

Unclear if any difference in other baseline characteristics. Authors state sample characteristics 'have previously been described' but no further details are reported.

Inclusion criteria
Parents:
• Diagnosis of addiction in 1 parent
• Undergoing treatment
• Children aged between 6 and 14 years in their care
• Motivated to join group
• Reasonable levels of attention and cooperation</td>
<td>Intervention
Family Competence Programme (n=18 families [32 adults, 22 children])

Spanish adaptation of Strengthening Families Programme. Comprises 3 courses:
• social and life skills for children & young people
• parental skills training
• a family-centred course that integrates the skills learned by children and parents

14 sessions, each 2 hours in length. Parents and children received sessions separately in first hour and then together in the second hour in which they practised the skills learnt in the first session:
<table>
<tr><th></th><th>Parents</th><th>Children</th><th>Families</th></tr>
<tr><td>1</td><td>Introduction</td><td>Welcome and rules</td><td>Introduction</td></tr>
<tr><td>2</td><td>Expectations, development and stress management</td><td>Active listening</td><td>The Children's Game</td></tr>
<tr><td>3</td><td>Rewards</td><td>Conversation</td><td>The Children's Game</td></tr>
<tr><td>4</td><td>Objectives and goals</td><td>Learning good behaviour</td><td>Objectives and goals</td></tr>
<tr><td>5</td><td>Paying attention</td><td>Saying 'no' and staying out of trouble</td><td>Differential attention</td></tr>
<tr><td>6</td><td>Improving relationships</td><td>Improving relationships</td><td>The Family Game</td></tr>
<tr><td>7</td><td>Family meetings</td><td>Family meetings</td><td>The Family Game</td></tr>
<tr><td>8</td><td>Drugs and the family</td><td>Alcohol and drugs</td><td>Learning from parents</td></tr>
<tr><td>9</td><td>Solving</td><td>Solving</td><td>Solving</td></tr>
</table>
</td>
<td>Intervention: Family Competence Programme
Control: unclear – no details provided

Outcomes
Improvements reported in all outcomes in intervention and post-intervention groups.

Child outcomes
<table>
<tr><th></th><th>Intervention vs. control</th><th colspan="2">Pre-intervention vs. post-intervention</th></tr>
<tr><th></th><th>p value</th><th>p value</th><th>Effect size (d)</th></tr>
<tr><td>Adaptive skills rated by teachers</td><td>0.014</td><td>0.50*</td><td>0.501</td></tr>
<tr><td>Adaptive skills rated by parents</td><td>0.011</td><td>0.050</td><td>0.544</td></tr>
<tr><td>Aggression</td><td>0.023</td><td><0.001</td><td>0.722</td></tr>
<tr><td>Arguments with parents</td><td>0.009</td><td>0.004</td><td>0.7288</td></tr>
<tr><td>Impulsive behaviour</td><td>0.001</td><td>0.002</td><td>0.655</td></tr>
<tr><td>Lying to parents or teachers</td><td><0.001</td><td>0.001</td><td>0.884</td></tr>
<tr><td>Breaking things</td><td>0.017</td><td>0.002</td><td>0.701</td></tr>
<tr><td>Withdrawal</td><td>0.007</td><td>0.039**</td><td>0.663</td></tr>
<tr><td>Crying at home</td><td>0.001</td><td><0.001</td><td>1.009</td></tr>
<tr><td>Sleep problems</td><td>0.002</td><td>0.021</td><td>0.499</td></tr>
<tr><td>Self esteem</td><td>0.002</td><td>0.022</td><td>0.501</td></tr>
<tr><td>Helplessness</td><td>0.040</td><td>0.05</td><td>0.456</td></tr>
</table>
</td>
<td>Limitations identified by the author
Loss to follow up at post treatment: intervention group: 16.7% (3/18) families [12.5% (4/32) adults and 13.6% (3/22) children]; control group: none.

Study power: not reported.

No explicit limitations identified.

Limitations identified by the review team
Unclear if assessors were blinded to allocation.</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Science and Technology, the Spanish Ministry of Health and Consumer Affairs, FEDER and the Balearic Ministry of the Economy, the Treasury and Innovation, and the Balearic Ministry of Health and Consumer Affairs.</td>
<td>
• Capable of participating constructively once a week for 14 weeks

Children:
• Aged 6 to 14 years
• Parent participating in the psycho-educational parental group

Exclusion criteria
Parents:
• Severe drug dependency
• Rejection of program
• Unstable mental symptomatology
• Severe attention deficit or mental impairment

Children:
Severe drug dependency
• Rejection of the programme
• Existence of unstable mental symptomatology
• Evidence of mental impairment
• Severe attention deficit
• Severe behaviour problems
</td>
<td>
<table>
<tr><td></td><td>problems and giving instructions</td><td>problems</td><td>problems and giving instructions</td></tr>
<tr><td>10</td><td>Re-channelling bad behaviour</td><td>Introduction to the Parents' Game</td><td>The Parents' Game</td></tr>
<tr><td>11</td><td>Setting limits</td><td>Understanding feelings</td><td>The Parents' Game</td></tr>
<tr><td>12</td><td>Solving behaviour problems</td><td>Coping with criticism</td><td>The Parents' Game</td></tr>
<tr><td>13</td><td>Behaviour programmes</td><td>Anger management</td><td>Recap</td></tr>
<tr><td>14</td><td>Maintaining good behaviour</td><td>Graduation, resources and revision</td><td>End of programme graduation</td></tr>
</table>
Aims to improve family relationships, parenting skills, children's behaviour and social skills, reducing/preventing drug and alcohol abuse.

Sessions including revising homework, presentations, short readings, discussions, interactive exercises, modelling and role play.

Group leaders were therapists with long standing experience in handling groups and working with populations undergoing treatment. They were specifically trained by the authors to deliver the intervention.

Control
(n=16 families [30 adults, 16 children])

No further details reported.
</td>
<td>
<table>
<tr><td>General concentration</td><td><0.001</td><td><0.001</td><td>1.001</td></tr>
<tr><td>Able to limit distractions</td><td>0.014</td><td>0.006</td><td>0.811</td></tr>
<tr><td>Social skills</td><td>0.002</td><td>0.006</td><td>0.844</td></tr>
<tr><td>Adaptive skills</td><td>0.008</td><td>0.05</td><td>0.466</td></tr>
<tr><td>School work</td><td>0.035</td><td>0.041</td><td>0.459</td></tr>
<tr><td>Make new friends</td><td>0.022</td><td><0.001</td><td>0.878</td></tr>
<tr><td>Solve problems</td><td>0.004</td><td><0.001</td><td>0.733</td></tr>
<tr><td>Criticise in friendly manner</td><td>0.001</td><td><0.001</td><td>0.833</td></tr>
<tr><td>Talk to adults</td><td>0.014</td><td>0.001</td><td>0.550</td></tr>
<tr><td>Say what one means</td><td>0.017</td><td>0.041</td><td>0.622</td></tr>
<tr><td>Understand other's feelings</td><td><0.001</td><td><0.001</td><td>1.193</td></tr>
</table>
*reported as 0.50 in paper, but described as ‘significant’ and all other results reported to 3 decimal places
**reported as 't' in paper, but 't' also reported as 2.141 for same outcome

Study authors state that there are no significant differences in before and after results for control group (p values and effect sizes not reported and not calculable).

Analysis
Validated evaluation tools for child outcomes: SFP-K ‘Evaluation battery’ and BASC (no further details given). ANOVA and post-hoc contrasts using Tukey-b test, t-tests, effect sizes.
</td>
<td>Participants were not randomised to groups - allocated according to place of residence.

Other comments

Outcomes for parents were also reported but are not presented here.</td>
</tr>
</table>

Parsons et al. (2014)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Parsons et al. (2014)

Quality score
+

Study type
Randomised controlled trial

Location
New York, USA

Study aims
To reduced substance use and unprotected anal intercourse among non-treatment seeking young gay and bisexual men using a brief motivational interviewing intervention.

Length of follow up
12 months</td>
<td>Number of participants
n=143 (73 in intervention, 70 in control)

Participant characteristics
Ethnicity
<table>
<tr><th></th><th>MI</th><th>Education</th><th>Total</th></tr>
<tr><td>White</td><td>30 (41.1%)</td><td>23 (32.9%)</td><td>53 (37.1%)</td></tr>
<tr><td>Latino</td><td>18 (24.7%)</td><td>23 (32.9%)</td><td>41 (28.7%)</td></tr>
<tr><td>Black</td><td>17 (23.3%)</td><td>13 (18.6%)</td><td>30 (21.0%)</td></tr>
<tr><td>‘Other’/ mixed</td><td>8 (10.1%)</td><td>11 (15.7%)</td><td>19 (13.3%)</td></tr>
</table>
Sexual orientation
<table>
<tr><th></th><th>MI</th><th>Education</th><th>Total</th></tr>
<tr><td>Gay</td><td>67 (91.8 %)</td><td>64 (91.4%)</td><td>131 (91.6 %)</td></tr>
<tr><td>Bisexual</td><td>6 (8.2 %)</td><td>6 (8.6%)</td><td>12 (8.4%)</td></tr>
</table>
Substance use in 30 days prior to baseline
<table>
<tr><th></th><th>MI</th><th>Education</th><th>Total</th></tr>
<tr><td>Cocaine</td><td>48 (65.8%)</td><td>49 (70.0%)</td><td>97 (67.8%)</td></tr>
<tr><td>Ecstasy</td><td>22 (30.1%)</td><td>22 (31.4%)</td><td>44 (30.7%)</td></tr>
<tr><td>Meth*</td><td>13 (17.8%)</td><td>11 (15.7%)</td><td>24 (16.7%)</td></tr>
<tr><td>GHB</td><td>8 (11.0%)</td><td>7 (10.0%)</td><td>15 (10.4%)</td></tr>
<tr><td>Keta-mine</td><td>7 (9.6%)</td><td>6 (8.7%)</td><td>13 (9.1%)</td></tr>
</table>
*Methamphetamine
Average age not reported.</td>
<td>Intervention
4 x 1 hour long sessions over 12 weeks.
Delivered by masters or doctoral level therapists (received 3 day MI training and weekly individual and group supervision throughout project). Therapists matched targeted information to clients’ motivation for change.

Session 1 (immediately after baseline): readiness to change, values activity. Focus on sexual behaviour or drug use. Motivational interviewing. Commitment and plan for change, including goals and barriers.
Session 2: as per session 1 but for other target behaviour, structured personalised feedback on both behaviours, pros and cons of behaviours.
Session 3: progress on readiness to change, motivation, affirmed gains and commitment, revisited pros and cons.</td>
<td>Intervention: Motivational interviewing
Control: Educational control

Outcomes
Any drug use in previous 30 days
<table>
<tr><th></th><th>Intervention</th><th>Control</th></tr>
<tr><td>Baseline</td><td>60/73 (82.2%)</td><td>56/70 (80.0%)</td></tr>
<tr><td>3 months</td><td>41/61 (68.9%)*</td><td>44/62 (71.0%)</td></tr>
<tr><td>6 months</td><td>34/54 (63.0%)**</td><td>41/55 (71.0%)</td></tr>
<tr><td>9 months</td><td>56/55 (52.7%)*</td><td>35/57 (61.4%)</td></tr>
<tr><td>12 months</td><td>33/59 (55.9%)</td><td>33/54 (61.1%)</td></tr>
</table>
*Inconsistency between data and percentage. Presented here as reported in the paper
**As reported in table 2 in the paper. Reported in figure 2 as 63.3%.
P values and effect sizes not reported for each follow up time point.

Using any drug over 12 month follow up:
Intervention: OR 0.33, 95% CI 0.17 to 0.63, p≤0.0001
Control: OR 0.51, 95% CI 0.27 to 0.98, p=0.042
Reduction in odds significantly greater in intervention than control – intervention participants 18% less likely to report drug use on any given day of follow-up compared to control participants (OR 0.82, 95% CI 0.75 to 0.89, p≤0.001).

Cocaine use in previous 30 days
<table>
<tr><th></th><th>Intervention</th><th>Control</th></tr>
<tr><td>Baseline</td><td>48/73 (65.8%)</td><td>49/70 (70.0%)</td></tr>
<tr><td>3 months</td><td>35/61 (57.4%)</td><td>33/62 (53.2%)</td></tr>
<tr><td>6 months</td><td>28/54 (51.9%)</td><td>31/55 (56.4%)</td></tr>
<tr><td>9 months</td><td>49/55 (45.5%)*</td><td>24/57 (42.1%)</td></tr>
<tr><td>12 months</td><td>28/59 (47.5%)</td><td>24/54 (44.4%)</td></tr>
</table>
*Inconsistency between data and percentage. Presented</td>
<td>Limitations identified by the author
Loss to follow up: at 12 months, 80.8% retained in intervention group, 77.1% retained in control group.

Study power: not reported.

Substance use data only available for 30 days prior to assessment, but inclusion criteria was drug use in last 90 days. Reductions in behaviour may have been underestimated.

Reliance on self-report data.

Limitations identified by the review team
Unclear how allocation sequence was generated and whether it was concealed.

Unclear how missing data were accounted for.

Unclear if knowledge of allocated intervention hidden from assessors.

Other comments
Recruited from Sep 2007 to Aug 2010. 71% from active recruitment (e.g. recruiters visited bars), 12% passive recruitment (e.g. flyers), 9% through internet (chat rooms, banner ads), 8% through friend</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Source of funding
Supported by a grant from the National Institute on Drug Abuse (R01-DA020366) to the principle investigator.</td>
<td>No significant differences in type of drug use, overall drug use, or total number of days drugs were used at baseline.
No significant differences between groups for any characteristics, including ethnicity, sexual orientation, education and income.
Inclusion criteria
Male.
Resided in New York City.
18 to 29 years old.
Negative or unknown HIV status.
At least 5 days of drug use (cocaine, methamphetamine, gamma hydroxybutyrate, ecstasy, ketamine or poppers) in the last 90 days.
At least 1 incident of unprotected anal intercourse with a high-risk male partner (HIV positive or unknown-status main partner, or a casual partner of any HIV status) in the last 90 days.
Exclusion criteria
None stated.</td>
<td>Session 4: review of goals and change plan, self-efficacy for goals. Community resources and support services, relapse prevention.
Control
4 x 1 hour long educational sessions over 12 weeks. Delivered by research assistant trained in content and delivery (mock sessions, regular supervision meetings and feedback provided on 80% of sessions).

Focus on factual information. Included. educational video on standard HIV risk reduction, effects of club drugs, link between club drug use and high-risk sex. Structured discussions.</td>
<td>here as reported in the paper.
P values and effect sizes not reported.

Ecstasy use in previous 30 days
<table>
<tr><th></th><th>Intervention</th><th>Control</th></tr>
<tr><td>Baseline</td><td>22/73 (30.1%)</td><td>22/70 (31.4%)</td></tr>
<tr><td>3 months</td><td>12/61 (19.7%)</td><td>16/62 (25.8%)</td></tr>
<tr><td>6 months</td><td>7/54 (13.0%)</td><td>9/55 (16.4%)</td></tr>
<tr><td>9 months</td><td>22/55 (16.4%*)</td><td>9/57 (15.8%)</td></tr>
<tr><td>12 months</td><td>11/59 (18.6%)</td><td>11/54 (20.4%)</td></tr>
</table>
*Inconsistency between data and percentage. Presented here as reported in the paper.
P values and effect sizes not reported.
Outcomes also reported for methamphetamine, GHB, and ketamine use, but are not presented here. Significance and effect sizes of differences between groups for these drugs were not reported.

Analysis
Audio computer-assisted self-interview software used for participant characteristics. Interviewer-administered timeline follow-back calendar used for substance abuse and sexual behaviours for past 30 days.

Post-hoc analysis showed no statistically significant differences in outcome by therapist assignment. All intervention sessions were videotaped (aimed visually at therapist, audio for both therapist and participants recorded). 80% of sessions reviewed by clinical psychologist. Intraclass correlation highly reliable.

Generalised estimating equation modelling techniques used to assess change in aggregated days of drug use and acts of unprotected anal intercourse.</td>
<td>referrals.

Different staff members performed baseline assessments to those that delivered intervention/control.

$40 payment for baseline, increased by $5 for each subsequent follow-up.

1282 eligible screenings, 266 provided consent, 143 randomised (66 ineligible, 57 refused randomisation after baseline assessment). No significant differences between those that agreed and those that did not.

Urn randomisation used.

Specifically targeted non-treatment seeking young gay and bisexual men.

Outcomes for unprotected anal intercourse are also reported but are not presented here.</td>
</tr>
</table>

Peterson et al. (2006)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Peterson et al. (2006)

Quality score
+

Study type
Randomised controlled trial

Location
Seattle, USA.

Study aims
To test a brief feedback and motivational intervention for substance use among homeless adolescents.

Length of follow up
3 months

Source of funding
Supported by National Institute on</td>
<td>Number of participants
n=285

Participant characteristics
Mean age 17.4 years (SD 1.54, range 14 to 19).

54.7% male.

72.3% Caucasian, 15.9% mixed race, 3.2% African American, 3.2% Native American, 3.2% Hispanic or Latino, 1% Asian or Pacific Islander or 'other'.

Mean age first left home=12.7 years. Mean time away from home=2.5 years. 21% had stayed with their parents at least once in the past 30 days (but average length staying there was less than 2 days).

51% had history of injection drug use.

75% met criteria for substance abuse or dependence using Structured Clinical Interview for DSM-IV - 58% for alcohol, 56% for marijuana, 38% for amphetamines or cocaine, 18% for heroin.

48% had been in alcohol or drug treatment at some point, 69.4% had received mental health treatment.

Percentage of participants reporting substance use
<table>
<tr><th></th><th>Lifetime</th><th>Past year</th><th>Past month</th></tr>
<tr><td>Tobacco</td><td>98.5%</td><td>95.0%</td><td>92.6%</td></tr>
<tr><td>Alcohol</td><td>98.1%</td><td>94.7%</td><td>86.8%</td></tr>
</table>
</td>
<td>Intervention
Brief motivational intervention (n=92)

Feedback on patterns and risks of use, frequency and perceived norms, symptoms of dependence, personal goals, motivation for change.

Participants could choose order. Respectful and non-confrontational style using motivational interviewing techniques. Advice given only with participant's permission.

Conducted by master's level counsellors. Trained and supervised by</td>
<td>Intervention: Brief motivational intervention (BMI)
Comparator: Assessment only (AO) and Assessment at follow-up only (AFO)

Outcomes
<u>Marijuana use (mean, SD):</u>
<table>
<tr><th></th><th>Baseline</th><th>1 month</th><th>3 months</th></tr>
<tr><td>Intervention (n=69)</td><td>15.77 (11.05)</td><td>13.61 (11.33)</td><td>11.83 (11.74)</td></tr>
<tr><td>Control (AO) (n=77)</td><td>16.58 (11.83)</td><td>14.81 (12.80)</td><td>12.14 (12.08)</td></tr>
<tr><td>Control (AFO) (n=58)</td><td>-</td><td>14.15 (11.70)</td><td>13.07 (12.33)</td></tr>
</table>
No significant group x time interaction ($p<0.90$, $\eta^2=0.001$ for intervention and 2 control groups; $p<0.24$, $\eta^2=0.02$ for control group and intervention group split into low and high engagement).

<u>Number of days other illicit drug used in last 30 days (not alcohol, tobacco or marijuana;</u> mean, SD<u>):</u>
<table>
<tr><th></th><th>Baseline</th><th>1 month</th><th>3 months</th></tr>
<tr><td>Intervention (n=57)</td><td>9.28 (10.67)</td><td>7.86 (10.32)</td><td>7.91 (10.31)</td></tr>
<tr><td>Control (AO) (n=67)</td><td>8.19 (11.02)</td><td>7.99 (10.43)</td><td>6.39 (9.31)</td></tr>
<tr><td>Control (AFO) (n=58)</td><td>-</td><td>7.48 (9.84)</td><td>7.90 (10.85)</td></tr>
</table>
No significant group x time interaction using 3 groups (intervention, AO and AFO) 1-way ANOVA (p value not reported, $\eta^2=0.007$). Significant group (AO, intervention low engagement, intervention high engagement) x time (baseline, 1 month, 3 months) interaction ($p<0.02$, $\eta^2=0.07$). At 1 month, high engagement group had significantly greater reduction in drug use than AO ($p<0.01$, effect size not reported) and low engagement group ($p<0.01$, effect size not reported). No significant differences</td>
<td>Limitations identified by the author
Power: not reported.

Loss to follow up: 234 (82%) completed 1 month assessment, 227 (80%) completed 3 months assessment, with 212 (74.4%) providing data across all assessments. Retention did not differ across groups.

Authors state significant findings for illicit drug use should be interpreted with caution.

Not clear if sample truly representative of homeless adolescents.

Baseline and 1 month follow up assessments done by different interviewers. Follow-up interviewers not blind to allocated group.

Measure of engagement is limited.

Limitations identified by the review team
Incomplete outcome data not addressed.
Other comments
Recruited from agencies</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Alcohol Abuse and Alcoholism Grant RO1 AA12167 and National Institute on Drug Abuse Grant R01 DA015751.</td>
<td>
<table>
<tr><td>Marijuana</td><td>98.9%</td><td>95.4%</td><td>94.2%</td></tr>
<tr><td>Cocaine-crack</td><td>68.9%</td><td>49.2%</td><td>27.9%</td></tr>
<tr><td>Amphetamines</td><td>83.0%</td><td>70.3%</td><td>52.6%</td></tr>
<tr><td>Hallucinogens</td><td>85.2%</td><td>68.4%</td><td>36.3%</td></tr>
<tr><td>Heroin</td><td>47.2%</td><td>35.5%</td><td>27.0%</td></tr>
<tr><td>Other opiates</td><td>66.0%</td><td>54.4%</td><td>26.3%</td></tr>
<tr><td>Tranquilisers</td><td>48.9%</td><td>31.6%</td><td>10.0%</td></tr>
<tr><td>Barbiturates</td><td>35.2%</td><td>21.7%</td><td>6.8%</td></tr>
<tr><td>Inhalants</td><td>58.3%</td><td>2.8%</td><td>7.4%</td></tr>
<tr><td>Over-the-counter drugs</td><td>56.6%</td><td>31.6%</td><td>9.5%</td></tr>
</table>
No group differences on demographic characteristics.

Inclusion criteria
• 13 to 19 years old
• Unstable housing
• At least 1 binge drinking episode (4+ drinks for women, 5+ drinks for men) or illicit street drugs at least 4 times in past 30 days
• Not received drug or alcohol treatment in 30 days prior (except Alcoholics Anonymous or Narcotics Anonymous)

Exclusion criteria
• Minors who had recent contact with parents (later changed to allow participation if parental consent was obtained).
• In Seattle for less than a week prior to study starting.
• Specific plans to leave Seattle in the next month.
• Not fluent in English.
</td>
<td>1 study author. Sessions audiotaped and reviewed during weekly group supervision.

Comparator
Two comparator groups:

Assessment only (AO, n=99) – baseline, 1 month and 3 month assessments. No intervention.

Assessment at follow-up only (AFO, n=94) – 1 month and 3 month assessments. No intervention.</td>
<td>remained at 3 months (p values and effect sizes not reported).

<u>Number of times other illicit drugs used in last 30 days (</u>mean, SD<u>):</u>
<table>
<tr><th></th><th>Baseline</th><th>1 month</th><th>3 months</th></tr>
<tr><td>Intervention (n=69)</td><td>12.72 (16.72)</td><td>9.78 (13.83)</td><td>8.19 (12.27)</td></tr>
<tr><td>Control (AO) (n=77)</td><td>11.56 (17.49)</td><td>11.90 (17.22)</td><td>10.56 (16.63)</td></tr>
<tr><td>Control (AFO) (n=65)</td><td>-</td><td>11.17 (15.61)</td><td>10.08 (15.26)</td></tr>
</table>
Significant group (intervention and AO) x time (baseline, 1 month, 3 months) interaction ($p<0.05$, $\eta^2=0.020$). Remained significant when age, gender, ethnicity controlled. Greater reduction for intervention group than for AO group from baseline to 1 month follow-up ($p<0.03$, effect size not reported and not calculable from reported data), but group x time interaction at 3 month follow up not significant ($p<0.30$, effect size not reported and not calculable from reported data).
Significant group (AO, intervention low engagement, intervention high engagement) x time (baseline, 1 month, 3 months) interaction ($p<0.04$, $\eta^2=0.05$). At 1 month, high engagement group had significantly greater reduction than AO ($p<0.01$, effect size not reported and not calculable from reported data) and low engagement group ($p<0.01$, effect size not reported and not calculable from reported data). No significant differences remained at 3 months (p values and effect sizes not reported and not calculable from reported data).

<u>Drug use consequences</u>
Group (intervention and AO) x time (baseline and 3 months) interaction showed no change (p value and effect size not reported or calculable from reported data).

Analysis
1 participant reported no drug use but had positive urine test, 38 reported drug use and had negative urine tests.
Log transformed variables used for other illicit drug use.</td>
<td>serving homeless youths (58%), street intercept locations (34%), and work of mouth/flyers (8%). No difference in recruitment methods between groups.

88% of those screened began baseline interview.

Participants randomly assigned to group at central location using blocked 2-step URN procedure, grouping on gender and ethnicity (non-minority vs. minority). Interviewers blind to condition during baseline interview.

Participants paid up to $90 for attending each interview and providing a urine sample.

Drug use reported using modified time line follow back interview procedure. 3 days recorded on calendar, direct recall of number of days for other drugs was obtained.

Rutgers Alcohol Problem Index used for drug use consequences.</td>
</tr>
</table>

Prado et al. (2012)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Prado et al. (2012)

Quality score
+

Study type
Randomised controlled trial

Location
Florida, USA.

Study aims
To explore the effects of Familias Unidas in reducing alcohol and drug use and whether the efficacy of Familias Unidas is moderated by environmental context (e.g. parental stress and social support for parents).

(See Huang 2014 for additional analysis)

Length of follow up
12 months

Source of funding
Study was supported by grant # R01DA025894 from the National Institute on Drug Abuse awarded to</td>
<td>Number of participants
n=242 youth and their primary caregivers (120 vs 122)

Participant characteristics
Hispanic delinquent adolescents and their primary caregivers recruited through the Miami-Dade County's Department of Juvenile Services and the Miami-Dade County Public School system.

<table>
<tr><th></th><th>Intervention (n=120)</th><th>Control (n=122)</th><th>Total sample (n=242)</th></tr>
<tr><td>% Male (n)</td><td>66.7% (80)</td><td>62.3% (76)</td><td>64.5% (156)</td></tr>
<tr><td>Mean age in years (SD)</td><td>14.8 (1.36)</td><td>14.6 (1.41)</td><td>14.7 (1.38)</td></tr>
<tr><td>% Illicit drug use in past 90 days (n)</td><td>29.1% (34)</td><td>23.1% (28)</td><td>25.6% (62)</td></tr>
<tr><td>% diagnosed with marijuana dependence</td><td>20.0% (24)</td><td>14.0% (17)</td><td>16.9% (41)</td></tr>
</table>
No significant differences in any demographic characteristics, past 90 days substance use, or dependence between groups at baseline. However, higher proportion of youth in the intervention group diagnosed with alcohol dependence (19 [15.8%] vs. 8 [6.6%]).

Total sample – other characteristics:
Place of birth: 65% born in the USA - 136 second generation and 22 third generation. Of those born outside USA, 70% had lived in USA for less than 10 years. Primarily from Cuba (25.0%), Honduras (15.5%), Nicaragua (9.5%), Puerto Rico (8.3%) and</td>
<td>Intervention
Familias Unidas (n=120)

"Hispanic-specific", family-based. Designed to prevent substance use and unsafe sexual behaviour. Guided by ecodevelopmental theory, a risk and protective factors, social-ecological model. Makes parents experts of their adolescents' needs and development.

12 week period - 8 X 2-hour group session for parents and 4 X 1-hour family visits.

Group parent sessions aimed to establish parental investment, increase parental support, and provide context for parent participation in a conjoint skills learning process.

Focus on:
• building parental investment in the adolescents' worlds
• enhancing communication skills
• improving family support
• increasing parental investment in the school world
• increasing monitoring of the peer world
• preventing and reducing adolescent substance use</td>
<td>Intervention: Familias Unidas
Control: Community Practice

Outcomes
Illicit drug use %
<table>
<tr><th></th><th>Intervention</th><th>Control</th></tr>
<tr><td>Baseline</td><td>29.1%</td><td>23.1%</td></tr>
<tr><td>12 months</td><td>22.5%</td><td>31.3%</td></tr>
</table>
Significant difference in past 90-day illicit drug use between 2 groups (b=-0.72, p=0.04, d=0.79).

For proportion of youth with a marijuana dependence, trend favoured the intervention group but no significant intervention effects were found (b=-0.33, p=0.25, d=0.93).

Outcomes for alcohol use and risky sexual behaviour are also reported but are not presented here.

Analysis
Mean number of attended sessions=6.88 (SD 4.05). Among those that attended at least 1 session, mean=7.9 (SD 3.2).

Surveys were completed using the audio-CASI system (an audio-enhanced computer-assisted self-interviewing program) in either English or Spanish.

Substance use was assessed by asking adolescents whether they had drank alcohol or used an illicit substance in the 90 days prior to assessment.</td>
<td>Limitations identified by the author
Loss to follow up:
Intervention: 5.8% (7/120) (3 declined to continue at 6 months, 4 declined to continue at 12 months)
Control: 4.9% (6/122) (2 declined to continue at 6 months, 4 declined to continue at 12 months); p value not reported.

No significant differences between those lost to follow up and those who completed assessments.

Study power: not reported.

Recruitment: 446 people screened - 136 not eligible (8 not Hispanic, 53 moving out of area, 25 not correct age, 50 not delinquent) and 68 were eligible but refused to participate.

Not representative of US Hispanic population or Hispanic delinquent youth - findings may not be generalisable.

Self-report measures of</td>
</tr>
</table>

Study details	Population	Intervention/comparator	Results	Notes
Guillermo Prado, Ph.D.	Dominican Republic (7.1%). Median household income $15,000 to $19,999. Language: 23% spoke mainly English at home, 42% mainly Spanish, 35% both. 108 (46%) reported being assimilated, 112 (48%) bicultural. **Inclusion criteria** • Have been identified as delinquent youth by research staff. Delinquency defined as having been arrested or as having committed at least 1 "level 3 behaviour problem" (assault/threat against non-staff member, breaking and entering/burglary, fighting [serious], hazing, possession or use of alcohol and/or controlled substances, possession of simulated weapons, trespassing and vandalism. • Self-identified as Hispanic or Latino. • 12 to 17 years old. • Planned to remain in South Florida for the duration of the study. **Exclusion criteria** None reported.	by enhancing communication skills around drug use • preventing and reducing adolescent risky sexual behaviour by enhancing communication skills around risky sexual behaviour • prevention as a continuous and ongoing process Family visits were for parents to practice skills learnt in group session. Aimed to develop more nurturing and supportive relationships and increase parent-child communication. Parents centred intervention - adolescents only participated in family visits. **Control** Community Practice (n=122) Standard care services, including referrals to community-based organisations offering several therapeutic modalities, including individual and family therapy, and address multiple problem behaviours, such as alcohol and drug use.	Dependence was assessed using adolescent reported on the Diagnostic Interview Schedule for Children predictive scales. Chi-square tests, ANOVA, growth curve analysis, and growth curve modelling used. Baseline difference in alcohol dependence controlled for in growth curve analysis.	substance use. In-depth data on families who did not participate was not collected. Did not collect data on what community practice services were actually received by participants in Community Practice condition. **Limitations identified by the review team** Method of randomisation not reported. Authors reported allocation was concealed, but no further details are provided. Not clear whether knowledge of allocated interventions was prevented during the study. **Other comments** Families were compensated for completing assessments - $60 at baseline, $70 at 6 months and $80 at 12 months.

Rhoades et al. (2014)

Study details	Population	Intervention/comparator	Results	Notes
Author, Year Rhoades et al. (2014) **Quality score** - **Study type** Randomised controlled trial and follow up interviews **Location** Oregon, USA. **Study aims** To examine 1) the course of drug use during young adulthood in a sample of women with prior juvenile-justice system involvement; 2) effects of Multidimensional Treatment Foster Care delivered during adolescence on drug use trajectories in young adulthood (age 16 to 29 at firs young adult assessment); and 3) associations and interactions between	**Number of participants** *Randomised controlled trial* n=166 (81 vs. 85) *Follow-up interviews* n=152 (76 vs 76) **Participant characteristics at baseline** *Randomised controlled trial:* Not reported *Follow-up interviews* Average age at first young adult follow-up interview=22.29 years (SD 3.1, range 16-29). 68.1% Caucasian, 1.8% African-American, 11.4% Hispanic, 0.6% Native American, 0.6% Asian, 16.9% mixed ethnic heritage, 0.6% other or unknown ethnicity. **Inclusion criteria** *Randomised controlled trial* • Girls court mandated to community-based, out-of-home care because of problems with chronic delinquency. • 13-17 years of age • At least 1 criminal referral in past 12 months • Not currently pregnant • Placed in out-of-home care within 12 months	**Intervention** Multidimensional Treatment Foster Care (n=81) Participants placed into 1 of 22 highly trained and supervised homes with state certified foster parents. Experienced program supervisors with small caseloads (e.g. 10 families) supervised clinical staff and coordinated care. Interventions were individualised, but included daily telephone contact with foster parents to monitor case progress and program adherence; weekly group supervision and support meetings for foster parents; an in-home, daily point-and-level behaviour management program and individual therapy for girls; weekly meetings with behavioural support specialists in community settings; family therapy for the aftercare placement family focused on parent management strategies, close monitoring of school attendance, performance, and homework completion; case management to coordinate interventions; 24 hour on-call staff support for foster and aftercare parents; and psychiatric consultation if needed. A second cohort of participants (no further details provided) also received components specifically targeting substance abuse (e.g. motivational interviewing and	**Intervention:** Multidimensional Treatment Foster Care **Control:** Treatment as usual (standard community based programme) **Outcomes** Significant negative association between intervention group and drug use at interview 5 (approximately 9 years after baseline) (p<0.001, effect size not reported*). Effect size for difference between the groups at interview 5 (approx. 9 years after baseline), d=0.45 (p value not reported). No other statistically significant (p<0.05) associations between participants' drug use and any other control variables or any mean differences by ethnicity or cohort (effect sizes not reported*). Participants in intervention group reported decreased drug use from interview 1 (approx. 7 years after baseline) to interview 5 (approx. 9 years after baseline) (p<0.05, effect size not reported*), those in usual care group did not (p=0.18, effect size not reported). Effect size for difference in change between groups from interview 1 (approx. 7 years after baseline) to interview 5 (approx. 9 years), d=0.39 (p value not reported). Participant age was significantly negatively associated with drug use at interview 4 (approx. 8.5 years after baseline) and with length of time in intervention/comparator. Average number of days spent in placement: intervention group=196 days (SD 158.20), control group=153 days (SD 131.86), no statistically significant difference (p=0.07). Significant association between baseline drug use and length of time in intervention/comparator. Direction of effect not reported. *denotes effect sizes that could not be calculated from data in study paper.	**Limitations identified by the author** Loss to follow up (did not complete any of the 5 follow up interviews): Intervention group: 6.2% (5/81); control group: 12.9% (11/85) (no p value reported). Participation: Original participants assessed at each interview: interview 1 83%, interview 2 83%, interview 3 81%, interview 4 82%, interview 5 85%. Number of interviews participated in: all 5 interviews 63%, 4 interviews 16%, 3 interviews 7%, 2 interviews 4%, 1 interview 2%. Study power: not reported but the authors' state that "we should interpret these findings with caution until replicated, given relatively small sample". Reliance on self-report of drug use and partner's drug use. Not possible to determine which component of the intervention had significant effect on drug use over time. **Limitations identified by the review team**

Study details	Population	Intervention/comparator	Results	Notes
participants' and romantic partners' drug use over time. **Length of follow up** 6.96 years (mean). **Source of funding** Support provided by the Oregon Youth Authority and the following grants: DA015208, DA024672, and DA023920, NIDA, U.S. PHS; and MH054257, NIMH, U.S. PHS.	following referral (Recruitment: 1997-2006) *Follow-up interviews* Young women who had participated in the original randomised controlled trial. No significant difference in baseline drug use, days in treatment, intervention assignment, cohort, or ethnicity between participants and non-participants. **Exclusion criteria** None reported.	incentives for clean urinalysis) and risky sexual behaviour (e.g. information on sexual behaviour norms and education and instruction about strategies for being sexually responsible). **Control** Treatment as usual (n=85) Participants placed in 1 of 35 community-based programs representing typical services for girls referred to out-of-home care by the juvenile justice system. Majority were group care facilities. 61.5% of program philosophies were eclectic and 38.5% were behavioural. 80% of facilities provided weekly therapeutic services. **Follow-up interviews** At each of the 5 follow up interviews, participants were asked to report the frequency with which they used each class of illicit drugs, including stimulants, hallucinogens, opiates, inhalants, depressants and club drugs in the past 6 months. Overall use was calculated by summing across all drug classes. Total was placed on a Likert-type scale - 1 (never, zero times in last 6 months), 2 (once or twice in past six months), 3 (not defined in paper), 4 (not defined in paper) or 5 (1 or more times per day [180+ times]).	**Analysis** First follow-up interview done average of 6.96 years (SD 2.93 years) post-baseline. Subsequent follow-up interviews performed approximately every 6 months, over 2 years. This study uses data from the first 5, completed, interviews for each participant. Full information maximum likelihood was used to estimate missing data. Little's test indicated missing data were missing completely at random. Unconditional latent growth curve models were fitted for participants' drug use. Multigroup analyses of the curve split by intervention assignment were performed to test for intervention effects. To assess whether the initial values and change over time in the 2 groups were significantly different, curves were fit for freely estimated parameters and for where the initial values (intercepts) and change over time (slopes) were assumed to be equal. Models where associations with control variables (were assumed to be zero were also fit. There was no significant difference between the models that included all control variables and the models that did not - paper reports results for model without control variables (participant age at interview 1, ethnicity [Caucasian or not Caucasian], cohort [1 or 2], baseline/pre-treatment drug use, age at first reported use of any illicit drug, and days spent in randomised intervention condition) (results for model with control variables available on request).	Participants were randomly assigned by project coordinator. No further details on methods of randomisation given -unclear how the allocation sequence was generated. Allocation was not adequately concealed and knowledge of allocated interventions was not adequately prevented during the study. Baseline characteristics / outcomes not reported for the randomised controlled trial. **Other comments** Romantic partners' drug use was also reported but is not presented here.

Schwinn et al. (2015)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Schwinn et al. (2015)

Quality score
+

Study type
Randomised controlled trial

Location
USA

Study aims
To test 1) the efficacy of tailored intervention content on drug use and associated risk factors among sexual-minority youths; 2) the feasibility of Internet recruitment procedures; and 3) the feasibility of collecting data across</td>
<td>Number of participants
n=236 (119 vs. 117)

Participant characteristics at baseline
Ethnicity
<table>
<tr><th></th><th>Intervention (n=119)</th><th>Control (n=117)</th><th>p value</th></tr>
<tr><td>White</td><td>66.1%</td><td>58.1%</td><td rowspan="5">0.7</td></tr>
<tr><td>Hispanic</td><td>12.8%</td><td>13.7%</td></tr>
<tr><td>Black</td><td>7.3%</td><td>12.0%</td></tr>
<tr><td>Asian</td><td>6.4%</td><td>8.5%</td></tr>
<tr><td>'Other'</td><td>7.4%</td><td>7.7%</td></tr>
</table>
Gender
<table>
<tr><th></th><th>Intervention (n=119)</th><th>Control (n=117)</th><th>p value</th></tr>
<tr><td>Male</td><td>32.1%</td><td>33.3%</td><td rowspan="3">0.74</td></tr>
<tr><td>Female</td><td>49.6%</td><td>52.2%</td></tr>
<tr><td>Queer, fluid or ‘other’</td><td>18.3%</td><td>14.5%</td></tr>
</table>
Attracted to
<table>
<tr><th></th><th>Intervention (n=119)</th><th>Control (n=117)</th><th>p value</th></tr>
<tr><td>Same sex</td><td>39.4%</td><td>37.9%</td><td rowspan="4">0.97</td></tr>
<tr><td>Both sexes</td><td>49.5%</td><td>49.1%</td></tr>
<tr><td>Opposite sex</td><td>5.5%</td><td>6.9%</td></tr>
<tr><td>Not sure</td><td>5.6%</td><td>6.1%</td></tr>
</table>
Age and geographical location</td>
<td>Intervention
Tailored web based drug abuse prevention programme (n=119)

3 web based sessions (approximately 14 minutes each) guided by social competency skill-building strategy and minority stress theory.

Session 1 - skills for identifying and managing stress. Session 2 - five-step guide for making decisions. Session 3 - drug use rates and refusal skills.

Participants received a link in an email to begin the prevention program.

Animated young adult narrator led participants through tailored content and practice scenarios</td>
<td>Intervention: Tailored web based drug abuse prevention programme
Control: unknown

Outcomes
Mean 30-day marijuana use [scored from 0 to 8 times] (SE):
<table>
<tr><th></th><th>n</th><th>Intervention</th><th>n</th><th>Control</th><th>p value</th></tr>
<tr><td>Baseline</td><td>119</td><td>1.72 (1.81)</td><td>117</td><td>1.88 (1.96)</td><td>0.51</td></tr>
<tr><td>3 months</td><td>97</td><td>1.63 (1.64)</td><td>103</td><td>1.74 (1.98)</td><td>NS (>0.05)</td></tr>
</table>
At 3 months, d=0.006 [calculated by review team]

Mean 30-day 'other' drug use [from 0 to 3 times; includes inhalants, club drugs, steroids, cocaine, methamphetamines, prescription drugs, or heroin] (SE):
<table>
<tr><th></th><th>n</th><th>Intervention</th><th>n</th><th>Control</th><th>p value</th></tr>
<tr><td>Baseline</td><td>119</td><td>1.15 (0.41)</td><td>117</td><td>1.23 (0.94)</td><td>0.38</td></tr>
<tr><td>3 months</td><td>97</td><td>1.03 (0.12)</td><td>103</td><td>1.09 (0.22)</td><td><0.05</td></tr>
</table>
At 3 months, d=0.34

Mean coping skill scores [range 1 to 4, higher scores better] (SE):
<table>
<tr><th></th><th>n</th><th>Intervention</th><th>n</th><th>Control</th><th>p value</th></tr>
<tr><td>Baseline</td><td>119</td><td>2.23 (0.59)</td><td>117</td><td>2.11 (0.54)</td><td>0.11</td></tr>
<tr><td>3 months</td><td>97</td><td>2.77 (0.62)</td><td>103</td><td>2.58 (2.04)</td><td><0.05</td></tr>
</table>
At 3 months, d=0.32

Mean problem solving skill scores [range 1 to 4, higher scores better] (SE):
<table>
<tr><th></th><th>n</th><th>Intervention</th><th>n</th><th>Control</th><th>p value</th></tr>
<tr><td>Baseline</td><td>119</td><td>2.07 (0.50)</td><td>117</td><td>2.16 (0.50)</td><td>0.19</td></tr>
<tr><td>3 months</td><td>97</td><td>2.94 (0.52)</td><td>103</td><td>2.77 (0.54)</td><td><0.05</td></tr>
</table></td>
<td>Limitations identified by the author
Loss to follow up: total sample: 15.3% (36/236); intervention group: 18.5% (22/119); control group: 12.0% (14/117) (p=0.164).

Study power: although adequately powered to detect changes between study arms, the small sample size precluded analysis by gender, sexual preference and other covariates.

Small program effects.

Short follow-up.

Brief intervention.

Self-report drug measures.

Limitations identified by the review team
Participants were assigned 'randomly' to intervention or control. No further details of randomisation were given.

It is unclear how the allocation sequence was generated and whether it</td>
</tr>
</table>

<table>
<tr>
<th>Study details</th>
<th>Population</th>
<th>Intervention/ comparator</th>
<th>Results</th>
<th>Notes</th>
</tr>
<tr>
<td>multiple time points and maintaining an adequate study sample with minimal participant contact information.

Length of follow up
3 months

Source of funding
Internal funds from Columbia University School of Social Work.</td>
<td>
<table>
<tr><th></th><th>Total sample (n=236)</th><th>Intervention (n=119)</th><th>Control (n=117)</th><th>p value</th></tr>
<tr><td>Mean age in years (SD)</td><td>16.08 (0.58)</td><td>16.05 (0.58)</td><td>16.10 (0.58)</td><td>0.5</td></tr>
<tr><td>Urban</td><td>NR</td><td>26.7%</td><td>32.2%</td><td rowspan="3">0.5</td></tr>
<tr><td>Suburban</td><td>NR</td><td>48.6%</td><td>40.8%</td></tr>
<tr><td>Rural</td><td>NR</td><td>24.7%</td><td>27.0%</td></tr>
</table>
Characteristics of whole sample not reported (except for age).

Inclusion criteria
• 15 or 16 years old.
• US resident.
• Access to personal computer.
• Identify as gay, lesbian, bisexual, transgender or questioning.
• Correctly answer 5 item quiz on study procedures.

Exclusion criteria
None stated.
</td>
<td>(including interactive games, role-playing and writing activities).

A review quiz concluded each session.

Control
(n=117)
No details provided.</td>
<td>At 3 months, d=0.32

Mean drug refusal skill scores [range 1 to 5, higher scores better] (SE):
<table>
<tr><th></th><th>n</th><th>Intervention</th><th>n</th><th>Control</th><th>p value</th></tr>
<tr><td>Baseline</td><td>119</td><td>2.45 (0.88)</td><td>117</td><td>2.51 (0.87)</td><td>0.63</td></tr>
<tr><td>3 months</td><td>97</td><td>2.72 (0.87)</td><td>103</td><td>2.42 (1.01)</td><td><0.05</td></tr>
</table>
At 3 months, d=0.32

Mean peer drug use scores [range 1 to 3, lower scores better] (SE):
<table>
<tr><th></th><th>n</th><th>Intervention</th><th>n</th><th>Control</th><th>p value</th></tr>
<tr><td>Baseline</td><td>119</td><td>1.52 (0.48)</td><td>117</td><td>1.56 (0.47)</td><td>0.5</td></tr>
<tr><td>3 months</td><td>97</td><td>1.37 (0.41)</td><td>103</td><td>1.52 (0.55)</td><td><0.05</td></tr>
</table>
At 3 months, d=0.31

Analysis
Pre-test given before intervention. After intervention, participants completed follow-up 1 month after pre-test (‘post-test’) and 4.5 months after pre-test (‘3 month follow-up’).

Pre-test, post-test and 3 month follow-up included questions on gender identity; sexual orientation; self-esteem; perceived stress; coping; problem-solving skills; general self-efficacy; drug refusal skills; peer drug use; and past 30 day use of alcohol, cigarettes, marijuana, and other drugs (inhalants, club drugs, steroids, cocaine, methamphetamines, prescription drugs and heroin).

Chi square and t-tests used.

Participants answered an average of 96% questions correctly.</td>
<td>was concealed from participants and/or investigators.

Incomplete outcome data were not addressed in the analysis.

Other comments
Participants were recruited across the United States through Facebook adverts posted to the pages of 15 and 16 year old for 9 days in spring of 2014.

Participants received online gift cards of $25, $30 and $45 for pre-test, post-test and 3 month follow-up respectively.

Perceived stress, coping skills, problem-solving skills, 30 day alcohol use and 30 day cigarette use are also reported in the paper but are not presented here.

Parental consent not required to take part in the study.</td>
</tr>
</table>

Shrier et al. (2014)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Shrier et al. (2014)

Quality score
+

Study type
Uncontrolled before and after study

Location
Northeast USA

Study aims
To evaluate the feasibility and acceptability of the MOMENT intervention among youth who use marijuana frequently and to explore efficacy of the MOMENT intervention to reduce</td>
<td>Number of participants
n=22

Participant characteristics
19 (70%) females.
Median age 19 years (range 15 to 24).

12 (44%) black ethnicity.

10 (37%) Hispanic ethnicity.

22 (82%) in school.

Median age at first marijuana use=14 years (range 4 to 17).

Median age began using marijuana at least once a week=15 years (range 4 to 18).

Median age began using marijuana at least 3 times a</td>
<td>Intervention
Ecological momentary approach with text messages. 6 clinic visits and 3 periods of mobile momentary reports and daily diaries.
Motivational sessions by trained counsellor.

Participants given personal digital assistant (PDA) to complete momentary reports (prompted by PDA) about current desire to use marijuana, companionship, location, affective states, and use of marijuana since previous signal 4-6 times a day at random times. PDA also promoted daily diary completion on (marijuana use in previous 24 hours and motivation to reduce marijuana use. PDA delivered messages during weeks 2 to 4 if reported top 3 trigger for use in momentary report or in daily diaries. Messages used empathetic language with input from motivational interviewing counsellors

Baseline (weeks 0 to 1)
• Week 0 - Visit 1 –computer based assessment and timeline follow-back calendar).
• Weeks 0 to 1 - Daily diaries and momentary reports.</td>
<td>Intervention: MOMENT (Ecological momentary approach with text messages) (n=22)
Control: None

Outcomes
Desire to use marijuana score (mean, SD):
<table>
<tr><th></th><th>Baseline (n=518)</th><th>4 weeks (n=677)</th><th>3 months (n=377)</th></tr>
<tr><td>Desire</td><td>3.23 (1.75)</td><td>2.53 (1.98)</td><td>1.32 (1.50)</td></tr>
</table>
Desire to use marijuana score (β, SE):
<table>
<tr><th></th><th>4 weeks vs. baseline</th><th>3 months vs. 4 weeks</th><th>3 months vs. baseline</th></tr>
<tr><td>In top 3 trigger contexts</td><td>-0.22 (0.32)
p=0.48</td><td>-1.36 (0.37)
p=0.0002</td><td>-1.59 (0.33)
p<0.0001</td></tr>
<tr><td>In other contexts</td><td>-0.53 (0.31)
p=0.08</td><td>-0.63 (0.27)
p=0.02</td><td>-1.16 (0.28)
p<0.0001</td></tr>
</table>
Effect sizes not reported and not calculable from data reported in study.

Use reported after context exposure (mean proportion of reports, SD):
<table>
<tr><th></th><th>Baseline (n=518)</th><th>4 weeks (n=677)</th><th>3 months (n=377)</th></tr>
<tr><td>Reported use</td><td>0.28 (0.17)</td><td>0.26 (0.19)</td><td>0.19 (0.17)</td></tr>
</table>
Use reported after context exposure (OR, 95% CI):
<table>
<tr><th></th><th>4 weeks vs. baseline</th><th>3 months vs. 4 weeks</th><th>3 months vs. baseline</th></tr>
<tr><td>In top 3 trigger contexts</td><td>0.85
(0.60 to 1.20)
p=0.35</td><td>0.64
(0.35 to 1.17)
p=0.14</td><td>0.54
(0.31 to 0.95)
p=0.03</td></tr>
<tr><td>In other</td><td>0.85</td><td>0.83</td><td>0.70</td></tr>
</table>
</td>
<td>Limitations identified by the author
No comparator group.

Small number of participants.

Loss to follow up: attrition occurred early in the study – 8 (36%) participants dropped out between baseline and 4 weeks, only 14 (63%) completed study.

Not clear if sample is representative of other populations.

Study power: not reported but authors mention ‘small number of participants’.

Limitations identified by the review team
27 youth enrolled during recruitment phase yet only 22 participants completed the visit and mobile baseline assessments – not clear why attrition occurred at this stage or if the 5 lost participants differed from those who did undertake the baseline assessment.

Other comments
Patients referred from adolescent clinics, self-referred, or contacted for having previously expressed an interest in participating in clinical research. Participants compensated for travel and up to $280 in gift cards based on proportion of activities completed.

Assessment questions
<table>
<tr><th>Question</th><th>Score</th></tr>
<tr><td>"At the time of the</td><td>0 (no desire)</td></tr>
</table>
</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>marijuana use.

Length of follow up
17 weeks

Source of funding
Funded by a Boston Children's Hospital Clinical Research Program grant to lead author.</td>
<td>week=16 years (range 5 to 20).

Median current marijuana use per week=6 (range 3 to 100).

21 (78%) tried to stop using marijuana.

4 (15%) treated for alcohol or drug problem.

Inclusion criteria
15 to 24 years old.
Using marijuana 3 times a week or more.

Exclusion criteria
None stated.</td>
<td>Intervention (weeks 1 to 4)
• Week 1 - Visit 2 – 1 hour motivational therapy (marijuana use history, discrepancies between use and goals, motivation for reducing use, social and emotional triggers and managing triggers) and feedback.
• Week 2 - Visit 3 – 1 hour motivational therapy (plan for reducing use, self-efficacy, coping strategies) and personalised feedback.
• Weeks 2 to 4 - Daily diaries, momentary reports and messages.
• Week 4 - Visit 4 - timeline follow-back calendar and feedback.
Follow-up (weeks 16 to 17)
• Week 16 - Visit 5 - computer based assessment and timeline follow-back calendar.
• Weeks 16 to 17 - Daily diaries and momentary reports.
• Week 17 - Visit 6 – feedback.

Comparator
No comparator.</td>
<td>
<table>
<tr><td>contexts</td><td>(0.58 to 1.25)
p=0.41</td><td>(0.46 to 1.49)
p=0.53</td><td>(0.42 to 1.17)
p=0.17</td></tr>
</table>
Daily outcomes (mean, SD):
<table>
<tr><th></th><th>Baseline (n=68)</th><th>4 weeks (n=106)</th><th>3 months (n=50)</th></tr>
<tr><td>Use events per day</td><td>1.00 (0.61)</td><td>0.80 (0.66)</td><td>0.73 (0.72)</td></tr>
</table>
Daily outcomes – use events per day (RR, 95% CI):
<table>
<tr><th></th><th>4 weeks vs. baseline</th><th>3 months vs. 4 weeks</th><th>3 months vs. baseline</th></tr>
<tr><td>Use</td><td>0.78
(0.60 to 1.02)
p=0.07</td><td>0.93
(0.59 to 1.46)
p=0.76</td><td>0.73
(0.49 to 1.08)
p=0.11</td></tr>
</table>
Individual outcomes (mean, SD):
<table>
<tr><th></th><th>Baseline (n=2)</th><th>3 months (n=15)</th><th>3 months vs. baseline (β, SE)</th></tr>
<tr><td>Percent days abstinent last 30 days</td><td>37.9 (27.8)</td><td>47.3 (28.5)</td><td>27 (NR)
p=0.13*</td></tr>
<tr><td>Problem score</td><td>5.67 (4.40)</td><td>3.93 (4.00)</td><td>-15.5 (NR)
p=0.16</td></tr>
</table>
NR Not reported . Effect sizes not reported and not calculable from data reported in study. *p value reported for baseline vs. 4 weeks, however, data reported elsewhere in the paper for baseline vs. 3 months.

Participants reported they read mobile messages and messages motivated them not to use.

Analysis
Generalised estimating equations used for analysis.
</td>
<td>
<table>
<tr><td>signal, how strong was your desire to use marijuana?"</td><td>to 9 (strong desire)</td></tr>
<tr><td>"Since the last signal you answered, have you used marijuana?"</td><td>Not applicable</td></tr>
<tr><td>"How ready do you feel to reduce your marijuana use?"</td><td>0 (not ready) to 9 (very ready)</td></tr>
<tr><td>"How important is it to you that you reduce your marijuana use?"</td><td>0 (not important) to 9 (very important)</td></tr>
<tr><td>"How confident are you that you can reduce your marijuana use?"</td><td>0 (not confident to 9 (very confident)</td></tr>
</table>
Problem marijuana use assessed with Problem Orientated Screening Instrument for Teenagers Substance Use/Abuse (score 0 to 17).

Feedback on study burden and usefulness reported but not presented here.

No differences between those that completed and those that dropped out in age, sex, baseline diagnosis of marijuana dependence, marijuana use, abstinent days or problem marijuana use score (p>0.05 for all).
</td>
</tr>
</table>

Smith et al. (2010)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Smith et al. (2010)

Quality score
+

Study type
Randomised controlled trial

Location
Oregon, USA.

Study aims
To examine substance use outcomes in boys receiving Multidimensional Treatment Foster Care.

Length of follow up
18 months

Source of funding
Support provided by the following grants: MH070684, MH059127, MH065553, NIMH, U.S. PHS; DA015208 and DA017592, NIDA, U.S. PHS.</td>
<td>Number of participants
n=79 (37 vs 42)

Participant characteristics at baseline for total sample (n=79)
Mean age: 14.9 years (SD 1.3).

Mean age of first criminal referral: 12.6 years (SD 1.82).

Mean of 13.5 prior criminal referrals (SD 8.8) and more than 4 felonies each.

Mean of 76 days spent in detention prior to study.

Ethnicity: 67 (85%) Caucasian, 5 (6%) African American, 2 (3%) Native American, 5 (6%) Latino.

44 (56%) from single parent households. 55 (70%) had at least 1 parent who had been convicted of a crime.

70% had at least 1 prior out of home placement.

Reported any substance use at baseline=71 (90%)

54 (68%) reported at baseline having used</td>
<td>Intervention
Multidimensional Treatment Foster Care (MTFC) (n=37)

MTFC parents completed 20 hour pre-service training with MTFC program supervisor. Training based on social learning and behavioural model - taught to provide youth with frequent reinforcement and clear and consistent limits. Ongoing support and supervision provided via weekly foster parents meetings and daily phone calls.

Parents implemented daily behaviour management systems tailored to each youth - provided feedback on daily expectations, e.g. getting up on time. Youths earned points for positive behaviours and lost points for negative, undesirable or maladaptive behaviours. Points were exchanged for privileges that increased as youths progressed through the program. Rule violations and minor behaviour problems led to privilege removal or work chores - typically removed for short durations to teach and encourage youths to recover from negative instances and quickly resume positive and adaptive behaviours.

Urinalysis performed by MTFC program supervisor or probation officer if substance use suspected. If results were positive, youth lost a privilege or was given a work chore. Daily point levels were reported to the program supervisor via telephone interview using the Parent Daily Report Checklist.</td>
<td>Intervention: Multidimensional Treatment Foster Care (MTFC)
Control: Group Care (GC)

Outcomes
Marijuana use
<table>
<tr><th></th><th colspan="2">Intervention</th><th colspan="2">Control</th><th>Effect size, d</th></tr>
<tr><th></th><th>Mean (SD)</th><th>n</th><th>Mean (SD)</th><th>n</th><th></th></tr>
<tr><td>Baseline</td><td>2.46 (1.33)</td><td>37</td><td>2.64 (1.45)</td><td>42</td><td>-</td></tr>
<tr><td>12 months</td><td>1.57 (1.07)</td><td>37</td><td>1.90 (1.27)</td><td>39</td><td>-0.28</td></tr>
<tr><td>18 months</td><td>1.50 (1.02)</td><td>32</td><td>2.34 (1.48)</td><td>38</td><td>-0.65</td></tr>
</table>
Effect sizes calculated by review team. P values and effect sizes not reported.

SEM model results for marijuana use
At 12 months, no significant difference in the use of marijuana between the groups (β=-0.10, p>0.05, effect size not reported and not calculable from data reported in study paper). The model explained 2% of the variance in marijuana use.

At 18 months, participants in the intervention group showed a significantly lower use of marijuana than participants in the control group (β=-0.31*, p<0.01, effect size not reported and not calculable from data reported in study paper). The model explained 9% of the variance in marijuana use.
*Reported as -0.30 in SEM model and -0.31 in text. p value not affected.

'Other drug' use (not tobacco, alcohol or marijuana):</td>
<td>Limitations identified by the author
Loss to follow up at 18 months: intervention: 13.5% (5/37); control: 9.5% (4/42). In addition, 85 boys were originally randomised (40 to intervention and 45 to control). After randomisation but before starting the trial, the parents of 3 boys assigned to each group declined to give consent.

Study power: not reported.

Self-reported drug use may not be reliable.

Lack of ethnic diversity in participant sample may affect generalisability.

Limitations identified by the review team
Participants were assigned randomly but no further information on method of randomisation given. Unclear if participants were aware of which group they were allocated to.

Baseline characteristics of participants in the 2 groups were not compared, but authors report there was no significant treatment condition differences on baseline levels of substance</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td></td>
<td>marijuana. 32 (41%) of users reported daily or weekly use.

40 (51%) reported at baseline having used 'other drugs' (not tobacco, alcohol or marijuana). 23 (57%) of users reported at least occasional use.

Inclusion criteria
• 12 to 17 years old.
• Male.
• Serious and chronic delinquency problems.
• Referred to Multidimensional Treatment Foster Care by juvenile justice system between 1991 and 1995.

Exclusion criteria
None reported.</td>
<td>Participants closely supervised, received consistent limit setting and contingency management and positive adult mentoring. Families received weekly family therapy based on Parent Management Training treatment model and on-call support focused on improving parenting skills.

Treatment integrity monitored via daily Parent Daily Report Checklist calls and via weekly training and supervision meetings.

Control
Group Care (GC) (n=42)

11 community based-group care programs throughout Oregon state. Staff worked in shifts. 6 to 15 youths in residence. 7 (66%) programs used positive peer culture (aims to improve behaviour using group format, focus on increasing conformity to prosocial norms, relies on youth and group culture to influence positive behaviour change) and 4 (33%) programs used theoretically based therapies (reality, eclectic and behaviour management, and cognitive).

32 (77%) participants provided with group therapy and 28 (67%) with individual therapy. 23 (55%) families provided with family therapy.

35 (83%) attended school within the GC facility.

If substance use suspected during group care, participants subjected to urinalyses and any associated sanctions (e.g. parole/probation violation) by program staff and/or parole officer.</td>
<td>
<table>
<tr><th></th><th colspan="2">Intervention</th><th colspan="2">Control</th><th>Effect size, d</th></tr>
<tr><th></th><th>Mean (SD)</th><th>n</th><th>Mean (SD)</th><th>n</th><th></th></tr>
<tr><td>Baseline</td><td>1.78 (1.02)</td><td>36</td><td>1.88 (1.02)</td><td>40</td><td>-</td></tr>
<tr><td>12 months</td><td>1.24 (0.55)</td><td>37</td><td>1.59 (1.12)</td><td>39</td><td>-0.39</td></tr>
<tr><td>18 months</td><td>1.19 (0.54)</td><td>32</td><td>1.61 (1.13)</td><td>38</td><td>-0.46</td></tr>
</table>
Effect sizes calculated by review team. P values and effect sizes not reported.

SEM model results for 'other drug' use
At 12 months, intervention participants had significantly lower levels of other drug use compared to control participants (β=-0.26, p<0.05, effect size not reported and not calculable from data reported in study paper). The model explained 7% of the variance in other drug use.

At 18 months, intervention participants had significantly lower levels of other drug use compared to control participants (β=-0.24, p<0.05, effect size not reported and not calculable from data reported in study paper). The model explained 6% of the variance in other drug use.

Analysis
Self-reported substance use reported for tobacco, alcohol, marijuana, and other drugs (i.e. cocaine, speed, LSD, heroin, mushrooms, PCP, morphine and inhalants). Assessed on a Likert scale: 1 (never) to 5 (used 1 or more times per day). (Other points on the scale not defined).</td>
<td>use.

Other comments
Participants were referred to the study by the local county juvenile court screening committee after being mandated to out-of-home placement by the juvenile court judge.

Assessors were blind to participants' intervention conditions and collected outcome data using questionnaires during standardised interviews.

Handling of missing data: Missing data: Regression models calculated, using full information maximum likelihood for missing data. Little's test indicated data met assumptions for missing completely at random.

Handling of age in the analysis: age included as a covariate to control for age variation.

.</td>
</tr>
</table>

Tait et al. (2015)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Tait et al. (2015)

Quality score
+

Study type
RCT

Location
Australia

Study aims
To evaluate the effectiveness of ‘breakingtheice’, a web-delivered intervention for users of amphetamine type stimulants (ATS)

Length of follow up
6 months

Source of funding
Study funded by The Commonwealth of Australia, Department of Health and Ageing. First author (RT) funded by A Curtin University Research</td>
<td>Number of participants
n=160
(Intervention: n=81
Control: n=79)

Participant characteristics
121 (75.6%) participants were male, mean age was 22.4 years (SD=6.3).

18 (11.3%) participants reported using ATS daily or almost daily. 15 (9.4%) participants reported previous treatment for ATS use; 23 (14.4%) reported ever injecting drugs.

Baseline characteristics were similar on all measures except for ‘actual help seeking’ in which the intervention group had significantly lower levels than the control group (mean 0.3 vs 0.8).

Inclusion criteria
• Resident in Australia</td>
<td>All participants were screened and enrolled via the free study website.

Intervention
The intervention consisted of 3 web-delivered, fully automated modules based on motivational interviewing and cognitive behaviour therapy. Time needed/taken to complete modules not reported. Based on MI and CBT principles and adapted from a face-to-face intervention evaluated in amphetamine users.

Module 1: key problem areas ATS use impacts on – relationships, health, finances, work/study, legal issues, mental health. Feature 4 characters with different storylines. Participants generate maps of interconnections between problems. [information from Tait, 2012, as cited in Tait 2015]</td>
<td>Intervention: Web delivered intervention (n=81)
Control: Waiting list (n=79)

Outcomes
Amphetamine-type stimulant use
<table>
<tr><th></th><th colspan="2">Control</th><th colspan="2">Intervention</th></tr>
<tr><th>Use in past 3 months</th><th>Baseline</th><th>6 months</th><th>Baseline</th><th>6 months</th></tr>
<tr><td>Never</td><td>-</td><td>8 (20%)</td><td>-</td><td>5 (13%)</td></tr>
<tr><td>1-2 times</td><td>27 (34%)</td><td>12 (29%)</td><td>20 (25%)</td><td>14 (37%)</td></tr>
<tr><td>Monthly</td><td>18 (23%)</td><td>9 (22%)</td><td>33 (41%)</td><td>9 (24%)</td></tr>
<tr><td>Weekly</td><td>23 (29%)</td><td>10 (24%)</td><td>21 (26%)</td><td>6 (16%)</td></tr>
<tr><td>Daily/almost daily</td><td>11 (14%)</td><td>2 (5%)</td><td>7 (9%)</td><td>4 (11%)</td></tr>
</table>
P values and effect sizes not reported between groups or time points*.

No significant group x time (p=0.85), group x 3 months (p=0.95) or group x 6 months interactions (p=0.65) (effect sizes not reported*).
Both groups reduced use by 6 months (b=-2.59, SD 0.98, p=0.008, effect size not reported), but no significant between-group differences in ATS use at either 3 month (p=0.95) or 6 month (p=0.65) follow-up (effect sizes not reported*).

Amphetamine-type stimulant score
<table>
<tr><th></th><th>Control</th><th></th><th>Intervention</th><th></th></tr>
<tr><th></th><th>Baseline</th><th>6 months</th><th>Baseline</th><th>6 months</th></tr>
<tr><td>Score (mean, SD)</td><td>16.8 (11.1)</td><td>12.8 (11.1)</td><td>17.0 (10.1)</td><td>13.8 (9.6)</td></tr>
</table>
Effect size d=0.07 (favours control group) from 0 to 6 months. Effect size d=0.10 (favours control group) between groups at 6 months.

Polydrug use
No significant group x time (p=0.23), group x 3 months (p=0.08) or group x 6 months (p=0.68) interactions (effect sizes not reported*). Study authors state there was no evidence use of other drugs was reduced by intervention.

Quality of life
No significant group x time (p=0.55), group x 3 months (p=0.43) or group x 6 months (p=0.69) interactions (effect sizes not reported*). Study authors state there was no evidence quality of life was improved by intervention.
*denotes effect sizes not calculable from data reported in study paper.</td>
<td>Limitations identified by the author
Loss to follow up: 38/81 (47%) intervention participants and 41/79 (52%) control participants completed follow-up surveys at 6 months. Retention was not significantly associated with group allocation. A substantial minority (37%) in the intervention group failed to complete even the first module.

Study power: Authors determined sample size of 60 people required to evaluate ATS use at a power of 0.8 to detect a medium effect size (e.g. d=0.5). 80 people per group were recruited to allow for 20% attrition.

Participants required to have internet access so</td>
</tr>
</table>

Study details	Population	Intervention/ comparator	Results	Notes
Fellowship; 3 other authors (HC, KG, FK-L) funded by NHMRC Fellowships. None of the funders had any role in study design, data collection, analysis and interpretation, or in report preparation and submission for publication.	• Aged 18 or older • Reported use of ATS (meth/ amphetamine, ecstasy, non-medical use of prescription stimulants)in the past 3 months • Internet access **Exclusion criteria** • Currently receiving any treatment for stimulant abuse/ dependence or methadone, naltrexone or buprenorphine for a substance use disorder • Those who reported that a doctor had ever diagnosed them as having schizophrenia, schizoaffective, or bipolar disorder	Module 2: pros and cons of use, rating importance on a 1-10 scale using a 'decisional balance approach'. Participants anticipate good and bad outcomes from changing use. [information from Tait, 2012, as cited in Tait 2015] Module 3: behavioural change including setting goals, actions on specific dates, strategies to help with cravings, refusal skills, managing a 'slip' and an action plan for high risk situations. [information from Tait, 2012, as cited in Tait 2015] **Comparator** Those in the waitlist control group underwent the same assessments as the intervention group but could not access the intervention for 6 months.	*Other outcomes* There were some intervention effects detected for secondary outcomes such as actual help seeking (RR=2.16, 95% CI=1.14 to 4.10, p=0.02), intended help seeking (RR=1.17, 95% CI=1.05 to 1.31, p value not reported) and transition to the action stage (OR=4.13, 95% CI=1.03 to 16.58, p value not reported). **Analysis** Outcome data were self-reported at 3 and 6 months. Primary outcome: ATS use (assessed with the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)). Poly drug used assessed using ASSIST which appraises lifetime and past 3-month use of 9 classes of drug (tobacco, alcohol, cannabis, cocaine, ATS, inhalants, sedatives, hallucinogens, opioids, and other). The standard ASSIST scoring algorithm was used to calculate a score for ATS use in the past 3 months providing a score in the range 0-49. Secondary outcomes of relevance were assessed as follows: • Help-seeking intentions - General Help-Seeking Questionnaire • Actual help-seeking behaviour - Actual Help-Seeking Questionnaire • Quality of life - European Health Interview Survey Quality of Life scale (EUROHIS) • Readiness to change - Readiness to Change Questionnaire (RTCQ) The primary analysis used an ITT approach to assess the effect of the intervention on each outcome using a time x group interaction. Analyses controlled for actual help seeking at baseline (as there were significant baseline differences between groups) as well as baseline substance dependency scores. A multilevel mixed-effects regression model was used to analyse correlated data arising from repeated measures. Among the intervention group, 30/81 (37%) people did not start or complete the first module, 6/81 (7%) completed 1 module only, 6/81 (7%) completed 2 modules only, and 39/81 (48%) completed all 3 modules.	may have excluded the most severely disadvantaged ATS users. Analyses did not correct for multiple statistic testing, particularly for secondary outcome measures – finding should thus be interpreted with caution. **Limitations identified by the review team** As above **Other comments** Participants received AU$20 in vouchers for each baseline and follow-up assessment.

Walker et al. (2011)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Walker et al. (2011)

Quality score
+

Study type
RCT

Location
USA

Study aims
To compare the effects of a brief motivational intervention for cannabis use with a brief educational feedback control and a no-assessment control.

Length of follow up
12 months

Source of</td>
<td>Number of participants
n=310

Participant characteristics
Mean age 15.97 (SD 1.24) years.
Mean age at first use of marijuana 13.06 (SD 1.66) years.

60.6% (n=188) male.
Caucasian=203 (65.5%)
African American=10%
‘Multiracial’=13%
Asian and Pacific Islander=3%
‘Other’=5%
9th or 10th grade=161 (52%)
11th or 12th grade=149 (48%)
Average cannabis use= 39 days out of previous 60 days.

State of change:
Pre-contemplation=39%
Contemplation=30%
Preparation, action or maintenance=31%
No significant differences in baseline characteristics</td>
<td>Intervention
Motivational Enhancement Therapy (n=103)

2 sessions of 45-50 minutes, 1 and 2 weeks after baseline assessment. Delivered by around 10 bachelor’s and master’s level counsellors. MI techniques used throughout.
• Session1: Discussion of cannabis use, concerns about use, role of cannabis in life currently and in future, pros and cons, and self-efficacy.
• Session 2: Review of personal feedback based on baseline assessment.

Comparator 1
Educational feedback (n=102)

2 sessions of 45-50 minutes, 1 and 2 weeks after baseline assessment. Delivered by around 10 bachelor’s and master’s level counsellors. PowerPoint presentations on current research and facts about cannabis. Counsellors avoided MI techniques.
• Session 1: Presentations on cannabis basics, cannabis and the brain, and cannabis and the</td>
<td>Intervention: Motivational enhancement therapy (MET, n=103)
Control 1: Educational control (n=102) Control 2: Delayed feedback (n=105)

Outcomes
Days of cannabis use in previous 60 days (mean, SD)
<table>
<tr><th></th><th>Intervention</th><th>Education control</th><th>Delayed feedback control</th></tr>
<tr><td>Baseline</td><td>40.23 (14.28)</td><td>37.69 (16.06)</td><td>N/A</td></tr>
<tr><td>3 months</td><td>31.80 (19.67)</td><td>34.53 (19.78)</td><td>37.46 (18.99)</td></tr>
<tr><td>12 months</td><td>33.71 (22.27)</td><td>34.24 (21.08)</td><td>N/A</td></tr>
</table>
Significantly fewer days of cannabis use after MET vs. delayed feedback (p<0.05, d=-0.293) but not after education control vs. delayed feedback (p>0.05, d=-0.151) at 3 months. No significant difference in frequency of cannabis use between MET and education groups at 3 months (p>0.05, d=-0.138) or 12 months (p>0.05, d=-0.024).

Attendance at cognitive behavioural sessions significantly associated with reduced cannabis use at 3 months (p<0.05, effect size not reported and not calculable from data reported in study paper) and 12 months (p<0.05, effect size not reported and not calculable from data reported in study paper).

Number of dependence symptoms (mean, SD)
<table>
<tr><th></th><th>Intervention</th><th>Education control</th><th>Delayed feedback control</th></tr>
<tr><td>Baseline</td><td>3.37 (2.07)</td><td>3.45 (2.09)</td><td>N/A</td></tr>
<tr><td>3 months</td><td>2.70 (2.01)</td><td>3.02 (2.00)</td><td>3.77 (1.95)</td></tr>
<tr><td>12 months</td><td>2.74 (1.99)</td><td>2.92 (2.11)</td><td>N/A</td></tr>
</table>
Significant difference at 3 months between motivational enhancement therapy and delayed feedback control (p<0.05, d=-0.540) and between education control and delayed feedback control (p<0.05, d=-0.380). No significant difference between motivational enhancement therapy and education control at 3 months (p>0.05, d=-0.160) or 12 months (p>0.05, d=-0.088).

Number of abuse symptoms (mean, SD)
<table>
<tr><th></th><th>Intervention</th><th>Education control</th><th>Delayed feedback control</th></tr>
<tr><td>Baseline</td><td>1.38 (1.16)</td><td>1.59 (1.11)</td><td>N/A</td></tr>
<tr><td>3 months</td><td>1.05 (1.04)</td><td>1.30 (1.04)</td><td>1.52 (1.07)</td></tr>
</table>
</td>
<td>Limitations identified by the author
Loss to follow up: 98% follow up at 3 months and 91% follow up at 12 months. No significant differences in those lost to follow up and those not.

Study power: target sample size 300 for interaction at 3 months with eta-squared effect size of 0.045 and power of 0.80, assuming up to 10% attrition.

Limitations identified by the review team
Unclear whether allocation was concealed, and whether knowledge of allocated intervention was prevented during study.

Other comments
619 screened, 299 ineligible, 10 chose not to participate. Recruited from 6</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>funding
Supported by a grant from the National Institute on Drug Abuse (ROIDA014296).</td>
<td>between groups (including cannabis use), except significantly more females in delayed feedback group (p<0.01) and significantly less other drug use in motivational enhancement group (p<0.05).

Inclusion criteria
• Aged 14 to 19 years.
• In grade 9th to 12th.
• Smoked cannabis 9 or more days in the past 30 days.

Exclusion criteria
• Not fluent in English.
• Thought disorder that precluded full participation.
• Refused randomisation.</td>
<td>lungs.
• Session 2: Presentations on sex and pregnancy, cannabis and driving, the heart.

Participants could choose additional presentations.

NOTE: After the 2 motivational enhancement therapy or education control sessions, option of 4 one to one cognitive behaviour therapy sessions, each 50 minutes long, on setting goals, cannabis refusal skills, enhancing social support and increasing pleasant activities, planning for emergencies and coping with relapse. Delivered by different counsellors to the one who performed the first 2 sessions.

Participants left their classrooms to take part in the interventions.

Comparator 2
Delayed feedback (n=105)

No baseline assessment. After 3 months, could choose between intervention or education control, but were not followed thereafter.</td>
<td>
<table>
<tr><td>12 months</td><td>1.10 (0.95)</td><td>1.14 (1.03)</td><td>N/A</td></tr>
</table>
Significant difference between motivational enhancement therapy and delayed feedback control at 3 months (p<0.05, d=-0.445). No significant difference between education and delayed feedback control at 3 months (p>0.05, d=-0.209). No significant difference between motivational enhancement therapy and education at 3 months (p>0.05, d=0.874) or 12 months (p>0.05, d=-0.040).
Number of cannabis problems (mean, SD)
<table>
<tr><th></th><th>Intervention</th><th>Education control</th><th>Delayed feedback control</th></tr>
<tr><td>Baseline</td><td>18.47 (13.47)</td><td>19.13 (12.31)</td><td>N/A</td></tr>
<tr><td>3 months</td><td>14.68 (10.39)</td><td>14.24 (10.18)</td><td>21.58 (12.95)</td></tr>
<tr><td>12 months</td><td>13.08 (10.35)</td><td>14.14 (10.32)</td><td>N/A</td></tr>
</table>
Significant difference at 3 months between motivational enhancement therapy and delayed feedback control (p<0.05, d=-0.587) and between education control and delayed feedback control (p<0.05, d=-0.629). No significant difference between motivational enhancement therapy and education at 3 months (p>0.05, d=0.043) or at 12 months (p>0.05, d=-0.103).

Other outcomes
No significant difference between groups in abstinence rates at 3 months (4% in MET, 2% in education group and 1% in delayed feedback group [p>0.05]) or 12 months (12% in MET, 5% in education group [p>0.05], effect sizes not calculable from data reported in study paper).

No significant difference in other drug use at 3 months or 12 months (data not reported, p values not reported, effect sizes not reported and not calculable).

Analysis
Counsellors trained by authors. Weekly meetings to review audiotapes of sessions, reinforce skills, discuss cases. Random review of tapes from 60 participants by 4 research assistants – MI delivered with high degree of fidelity and skill. CBT sessions taped and supervised, but behaviour not coded. ITT analysis with missing data replaced using multiple expected maximization procedure. Between subjects general linear model analyses. Gender, other drug use and frequency of cannabis use covariates.
</td>
<td>schools from presentations in class (37%), lunchtime recruitment tables (34%), flyers, referrals from school staff (6%), referrals by friends (19%), and adverts (3%).

Randomisation by stage of change and grade using tables of randomly permutated blocks. Separate randomisation tables constructed for each school.

$15 gift cards after 2 feedback sessions, $20 at 3 month follow up and $40 at 12 month follow up. 12 participants completed 12 month follow up online.

13 (13%) intervention and 10 (10%) control participants attended CBT sessions (p>0.05).</td>
</tr>
</table>

Walton et al. (2013)

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Reference
Walton et al. (2013)

Quality score
++

Study type
RCT

Location
Midwest of USA

Study aims
To describe outcomes from a randomised controlled trial examining the efficacy of brief interventions delivered by a computer or therapist among adolescents in urban primary care clinics.

Length of follow up
12 months</td>
<td>Number of participants
n=328

Participant characteristics
<table>
<tr><th></th><th>TBI</th><th>CBI</th><th>Control</th></tr>
<tr><td>Male</td><td>36.4%</td><td>33.0%</td><td>30.9%</td></tr>
<tr><td>African-American</td><td>65.3%</td><td>61.0%</td><td>55.5%</td></tr>
<tr><td>Hispanic</td><td>6.8%</td><td>16.2%</td><td>10.9%</td></tr>
<tr><td>Age (years)</td><td>16.3 (SD 1.4)</td><td>16.4 (SD 1.6)</td><td>16.2 (SD 1.7)</td></tr>
</table>
Drug use in past 3 months
All participants had used cannabis in the past 3 months. No significant differences in characteristics across intervention and control groups
<table>
<tr><th></th><th>TBI</th><th>CBI</th><th>Control</th></tr>
<tr><td>Cannabis freq</td><td>3.1 (SD 1.9)</td><td>3.1 (SD 1.9)</td><td>3.2 (SD 1.9)</td></tr>
<tr><td>Cannabis conse-quences</td><td>91.5%</td><td>95.0%</td><td>93.6%</td></tr>
<tr><td>Number of cannabis conse-quences</td><td>14.2 (SD 15.2)</td><td>14.3 (SD 15.5)</td><td>13.9 (SD 15.0)</td></tr>
<tr><td>Other drug use</td><td>15.3%</td><td>23.0%</td><td>26.4%</td></tr>
<tr><td>Other drug freq</td><td>0.5 (SD 1.3)</td><td>0.9 (SD 3.0)</td><td>1.2 (SD 2.7)</td></tr>
<tr><td>Alcohol use</td><td>48.3%</td><td>53.0%</td><td>58.2%</td></tr>
<tr><td>Alcohol freq</td><td>0.7 (SD 0.9)</td><td>0.9 (SD 1.1)</td><td>1.0 (SD 1.1)</td></tr>
</table>
</td>
<td>Intervention
Therapist-based brief intervention (TBI)

Research therapists trained in motivational interviewing, facilitated by computer to prompt content. Tailored feedback, summaries and open-ended questions to evoke change talk.

Computer-based brief intervention (CBI)

Interactive animated program with touch screens. Virtual buddy guided participants and provided audio feedback. Participants watched animated role-plays and asked to make a behavioural</td>
<td>Intervention 1: Therapist-based brief intervention [TBI] (n=118)
Intervention 2: Computer-based brief intervention [CBI] (n=100)
Control: Enhanced usual care (n=110)

Outcomes
Frequency of cannabis use (mean, SD)
<table>
<tr><th></th><th>TBI</th><th>CBI</th><th>Control</th></tr>
<tr><td>Baseline</td><td>3.14 (1.86)</td><td>3.06 (1.90)</td><td>3.25 (1.87)</td></tr>
<tr><td>3 months</td><td>2.37** (2.13)</td><td>2.05** (2.25)</td><td>2.09** (2.06)</td></tr>
<tr><td>6 months</td><td>2.40** (2.11)</td><td>1.96** (2.05)</td><td>2.04** (2.10)</td></tr>
<tr><td>12 months</td><td>2.63* (2.20)</td><td>2.04** (2.20)</td><td>2.14** (2.21)</td></tr>
</table>
*p≤0.05 vs. baseline, **p≤0.01 vs. baseline, ***p≤0.001 vs. baseline
No significant group (control, CBI) x time interactions. No significant group (control, TBI) x time interactions. No significant group (CBI, TBI) x time interactions. Effect sizes for within group differences not calculable.

Frequency of cannabis use (effect sizes as calculated by review team)
<table>
<tr><th></th><th>TBI vs. CBI</th><th>TBI vs. control</th><th>CBI vs. control</th></tr>
<tr><td>3 months</td><td>d=0.146</td><td>d=0.134</td><td>d=-0.019</td></tr>
<tr><td>6 months</td><td>d=0.211</td><td>d=0.171</td><td>d=-0.039</td></tr>
<tr><td>12 months</td><td>d=0.268</td><td>d=0.222</td><td>d=-0.045</td></tr>
</table>
Frequency of driving under the influence of cannabis (mean, SD)
<table>
<tr><th></th><th>TBI</th><th>CBI</th><th>Control</th></tr>
<tr><td>Baseline</td><td>0.40 (0.93)</td><td>0.48 (1.06)</td><td>0.26 (0.66)</td></tr>
<tr><td>3 months</td><td>0.20* (0.65)</td><td>0.37 (0.94)</td><td>0.32 (0.83)</td></tr>
<tr><td>6 months</td><td>0.26 (0.79)</td><td>0.46 (1.05)</td><td>0.37 (0.90)</td></tr>
<tr><td>12 months</td><td>0.33 (0.90)</td><td>0.45 (0.99)</td><td>0.25 (0.85)</td></tr>
</table>
*p≤0.05 vs baseline.
Significant difference between TBI and control at 3 months (p<0.01, effect size not reported). No other significant group x time interactions. Effect sizes for within group differences not calculable.

Frequency of driving under the influence of cannabis (effect sizes as calculated by review team)
<table>
<tr><th></th><th>TBI vs. CBI</th><th>TBI vs. control</th><th>CBI vs. control</th></tr>
</table>
</td>
<td>Limitations identified by the author
Loss to follow up: 279 (85.1%) completed 3 month follow-up, 278 (84.8%) completed 6 month follow-up, 275 (83.8%) completed 12 month follow-up. African Americans less likely to drop out. Drop outs at 6 months had more cannabis consequences at baseline than completers (p<0.01). Drop outs at 12 months had greater baseline other drug use (p≤0.01), alcohol use (p<0.05) and cannabis consequences (p<0.01).

Study power: 95 needed per group to achieve 80% power and detect a 15% difference in outcomes between TBI/CBI and control. Sample size of 199 needed to detect 10% difference in outcomes between TBI and CBI.

Computer used by therapists could have been distracting.

Limitations identified by the review team
Unclear if allocation adequately concealed.</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Source of funding
Supported by a grant (#DA020075) from the National Institute on Drug Abuse.</td>
<td>
<table>
<tr><td>Cannabis DUI</td><td>21.2%</td><td>24.0%</td><td>18.2%</td></tr>
<tr><td>Cannabis DUI freq</td><td>0.4 (SD 0.9)</td><td>0.5 (SD 1.1)</td><td>0.3 (SD 0.7)</td></tr>
</table>
DUI= driving under influence
Inclusion criteria
Aged 12 to 18 years

Reporting past-year cannabis use

Exclusion criteria
No parent or guardian

Insufficient cognitive orientation to give consent

Sibling in same household in study

Did not return within 2 weeks
</td>
<td>choice. If participants chose a negative behaviour, they were asked to consider the consequences in relation to their goals. Role-plays showed progression in consequences for animated characters.

Comparator
‘Enhanced usual care’ control

Brochure of warning signs of cannabis problems, resources (treatment, suicide hotlines, employment services, leisure activities), and cannabis information websites.</td>
<td>
<table>
<tr><td>3 months</td><td>d=-0.214</td><td>d=-0.162</td><td>d=-0.057</td></tr>
<tr><td>6 months</td><td>d=-0.218</td><td>d=-0.130</td><td>d=0.092</td></tr>
<tr><td>12 months</td><td>d=-0.127</td><td>d=0.091</td><td>d=0.210</td></tr>
</table>
Number of cannabis consequences (mean, SD)
<table>
<tr><th></th><th>TBI</th><th>CBI</th><th>Control</th></tr>
<tr><td>Baseline</td><td>14.2 (15.3)</td><td>14.3 (15.5)</td><td>14.0 (15.0)</td></tr>
<tr><td>3 months</td><td>12.5 (12.5)</td><td>11.5** (15.0)</td><td>13.6 (15.1)</td></tr>
<tr><td>6 months</td><td>11.3* (12.9)</td><td>10.5** (13.6)</td><td>11.0 (13.6)</td></tr>
<tr><td>12 months</td><td>11.1* (13.0)</td><td>12.7 (13.8)</td><td>11.5 (14.4)</td></tr>
</table>
*p≤0.05 vs. baseline, **p≤0.01 vs. baseline, ***p≤0.001 vs. baseline
Significant group (control, CBI) x time interaction at 3 months (p<0.05), but not 6 or 12 months. No significant group (control, TBI) x time interactions. No signification group (CBI, TBI) x time interactions. Effect sizes for within group differences not calculable.

Number of cannabis consequences (effect size)
<table>
<tr><th></th><th>TBI vs. CBI</th><th>TBI vs. control</th><th>CBI vs. control</th></tr>
<tr><td>3 months</td><td>d=0.073</td><td>d=-0.080</td><td>d=-0.140</td></tr>
<tr><td>6 months</td><td>d=0.061</td><td>d=0.023</td><td>d=-0.037</td></tr>
<tr><td>12 months</td><td>d=-0.120</td><td>d=-0.029</td><td>d=0.085</td></tr>
</table>
Frequency of other drug use (mean, SD)
<table>
<tr><th></th><th>TBI</th><th>CBI</th><th>Control</th></tr>
<tr><td>Baseline</td><td>0.47 (1.29)</td><td>0.86 (3.01)</td><td>1.16 (2.71)</td></tr>
<tr><td>3 months</td><td>0.26* (0.92)</td><td>0.16* (0.62)</td><td>1.18 (4.13)</td></tr>
<tr><td>6 months</td><td>0.26* (0.93)</td><td>0.11* (0.45)</td><td>1.19 (4.64)</td></tr>
<tr><td>12 months</td><td>0.38 (1.70)</td><td>0.48 (2.13)</td><td>0.64 (2.12)</td></tr>
</table>
*p≤0.05 vs. baseline, **p≤0.01 vs. baseline, ***p≤0.001 vs. baseline
Significant group (control, CBI) x time interaction at 3 months (p<0.01) and 6 months (p<0.01), but not 12 months. No significant group (control, TBI) x time interactions. No significant group (CBI, TBI) x time interactions. Effect sizes for within group differences not calculable.

Frequency of other drug use (effect size)
<table>
<tr><th></th><th>TBI vs. CBI</th><th>TBI vs. control</th><th>CBI vs. control</th></tr>
<tr><td>3 months</td><td>0.126</td><td>-0.313</td><td>-0.338</td></tr>
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</td>
<td>Other comments
Recruited April 2007 to December 2009.

Self-administered 10 min screening survey ($1 compensation). Those with cannabis use did another 25 minute baseline survey ($20 compensation). Follow-ups self-administered in community locations (i.e. clinics, restaurants, home) with $25, $30 and $35 remuneration, and $5 for urine sample.

Randomly assigned using computerised algorithm. Follow-up staff blinded to group.

1416 adolescents screened for this and another study. 248 (14.9%) refused randomisation: males more likely to refuse (p<0.01), Caucasians more likely to refuse than African-Americans and other races (p<0.001). 366 (25.8%) reported past year cannabis use, 328 (89.6%) enrolled in this RCT.</td>
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<tr><th>Study details</th><th>Population</th><th>Intervention/ comparator</th><th>Results</th><th>Notes</th></tr>
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<tr><td>6 months</td><td>0.200</td><td>-0.283</td><td>-0.320</td></tr>
<tr><td>12 months</td><td>0.199</td><td>-0.136</td><td>-0.075</td></tr>
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Other outcomes
Perceived risk significantly higher after TBI (baseline mean 1.56 [SD 1.02] vs. post-test mean 1.72 [SD 0.95], p≤0.01, effect size not calculable) and after CBI (baseline mean 1.50 [SD 0.97] vs. post-test mean 2.09 [SD 0.88], p≤0.001, effect size not calculable).

Self-efficacy significantly higher after TBI (baseline mean 3.43 [SD 1.46] vs. post-test mean 3.67 [SD 1.46], p≤0.01, effect size not calculable) and after CBI (baseline mean 3.50 [SD 1.40] vs. post-test mean 3.85 [SD 1.40], p≤0.01, effect size not calculable).

Intention to use significantly lower after TBI (baseline mean 2.41 [SD 1.07] vs. post-test mean 2.13 [SD 0.90], p≤0.001, effect size not calculable) and after CBI (baseline mean 2.36 [SD 1.22] vs. post-test mean 1.95 [SD 0.89], p≤0.001, effect size not calculable).

Other outcomes not reported for control group.

Analysis
328 randomised, 309 received the assigned intervention/control. ITT approach used by using available pairs to estimated working correlation parameters for entire sample. Urine samples provided by 284 (86.7%) participants (some did not provide sample because of relocation). 100% concordance with self-reported drug use at baseline, 96.1% at 3 months, 96.8% at 6 months, 98.5% at 12 months. TBI and CBI audiotaped and reviewed during individual/group supervision by post-doctoral fellows, supervised by investigator. Generalised estimating equations used.
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