Motivational interviewing for adolescent substance use: a review of the literature

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CRD summary
The authors concluded that two thirds of the included studies reported statistically significant reductions in adolescent substance use, with motivational interviewing, at follow-up. Further study was needed. The authors’ conclusions reflected the evidence presented, but their reliability is unclear, given the lack of assessment of study quality and concerns about the analysis methods.

Authors’ objectives
To evaluate the effectiveness of motivational interviewing, to treat adolescent substance use, and to explore the impact of different intervention formats and designs, as well as the mechanisms of change, based on theory.

Searching
MEDLINE and PsycINFO were searched to January 2012 for peer-reviewed articles, published in English. Search terms were reported. A motivational interviewing website and the Internet, using Google Scholar, were searched, as were the reference lists of the articles from the website.

Study selection
Experimental and quasi-experimental studies of interventions, based on motivational interviewing techniques, aimed at improving substance use outcomes in participants, with a mean age of less than 18.5 years, were eligible for inclusion. Substance use included alcohol, tobacco, marijuana, “hard” drugs, or any combination.

The included studies were categorised as motivational interviewing only, motivational interviewing with feedback, motivational interviewing with another intervention, and motivational interviewing with feedback and another intervention. Programmes were delivered to groups or individuals, or a combination of these. Formats included face-to-face, telephone, and computer or Internet, alone or in various combinations. Most studies measured substance use by self report; some used a combination of self report and biochemical measures or medical records.

The authors did not state how many reviewers selected studies for inclusion.

Assessment of study quality
The quality assessment criteria included the use of a manual for the intervention; motivational interviewing training or supervision; and coding for how well the intervention was applied. The maximum score was 3 points.

Two reviewers independently assessed study quality. Disagreements were resolved through discussion.

Data extraction
Data were extracted and categorised by intervention design and delivery mode, and whether the effect of the intervention was positive, negative or none, at follow-up.

Two reviewers independently extracted the data. Disagreements were resolved through discussion.

Methods of synthesis
Differences between baseline and follow-up were examined by tabulating the data from each study and counting how many studies showed a beneficial effect. A X² Goodness of Fit analysis was used to determine any significant differences between intervention designs (motivational interviewing only, with feedback, with another intervention, or with feedback and another intervention). Subgroup analyses were conducted by intervention format, treatment modality, intervention adaptation, and theory-based mechanisms.

Results of the review
Thirty-nine studies were included in the review (13,107 participants). Thirty-seven were randomised controlled trials (RCTs) and two were quasi-experimental trials. Sample sizes ranged from 18 to 2,524. Twenty-one studies reported an
intention-to-treat analysis. Three reported all three quality indicators, 15 reported two, 19 reported one, and two reported none. Follow-up ranged from one month to two years.

Twenty-six studies reported statistically significant reductions in some type of substance use, at follow-up, including alcohol (seven studies), tobacco (six studies), marijuana (seven studies), and various combinations of substance use (eight studies).

In the subgroup analyses, there were no significant differences in substance use outcomes, between motivational interviewing with feedback (with or without other interventions), compared with interviewing without feedback (with or without other interventions), and between interviewing with other interventions (with or without feedback), compared with stand-alone interviewing (with or without feedback).

The results comparing different intervention formats, treatment modalities, adaptations, and theory-based mechanisms were reported.

Authors' conclusions
Two thirds of the included studies reported statistically significant reductions in adolescent substance use, at follow-up, with no significant differences between motivational interviewing with feedback and interviewing without, and interviewing with other treatments and interviewing without. Further study was needed.

CRD commentary
The research question was clear, with broadly defined inclusion criteria. Some relevant sources were searched, but inclusion was limited to trials published in English, so some trials may have been missed. The authors conducted a quality assessment, but this was assessed the quality of the intervention process, rather than the study design. Appropriate methods to reduce reviewer error and bias were reported for data extraction and quality assessment, but not for study selection. Most of the data were combined in a narrative synthesis, which was appropriate given the variation between studies. The results were largely reported as a count of studies with significant results, which did not take account of differences between studies and the size of the effects. The review included controlled studies, but it appears that only the motivational interviewing groups were included for most analyses.

The authors’ conclusions reflected the evidence presented, but their reliability is unclear, given the lack of assessment of study quality and concerns about the analysis methods.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.
Research: The authors stated the need for further research into the relationship between design, format and other intervention characteristics. Further development and testing of theory-based models was needed to enhance their effects.

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