A systematic review of the effectiveness of brief interventions with substance using adolescents by type of drug

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CRD summary
This review assessed brief interventions for alcohol, tobacco, or other drug use in adolescents. The authors concluded that brief interventions may slightly reduce alcohol and tobacco consumption, but there is insufficient evidence about multiple substance use. Combining studies with different populations, interventions, outcomes and follow-up may not be appropriate. The findings of the review may not be reliable.

Authors' objectives
To assess the effectiveness of brief interventions (BIs) in reducing alcohol, tobacco, or other drug use in adolescents.

Searching
MEDLINE, PsycINFO, Current Contents, the Cochrane Database of Systematic Reviews, Sociological Abstracts and AUSThealth were searched for studies up to 2002; EMBASE: Pharmacology and Drugs (CD-ROM version; 1993 to 1998) was also searched. The search terms were listed in the paper. In addition, the reference lists in selected studies and reviews were handsearched. Only studies reported in English were included.

Study selection
Study designs of evaluations included in the review
The inclusion criteria were not specified in terms of study design. The included studies were randomised controlled trials (RCTs) or quasi-RCTs, although their designs were unclear. One study randomised study locations.

Specific interventions included in the review
Studies that compared BIs with no advice or usual care, or compared different levels of advice, were eligible for inclusion. The interventions could target specific drugs or multiple substances. The review defined a BI as a maximum of four intervention sessions, including booster or follow-up sessions. Treatment could also use supplementary materials. Studies of school curriculum-based interventions were excluded.

The interventions in the included studies were located in universities, schools, out-patient departments, hospital emergency departments, specialist treatment centres and community-based clinics. The interventions included programmes based on motivational interviewing, the Brief Alcohol Screen and Intervention for College Students (BASICS) programme, personalised health information, and the Start Taking Alcohol Seriously (STARS) programme. Nurses, physicians and the participants' peers delivered the interventions. Most of the included studies were conducted in the USA.

Participants included in the review
Studies of groups with a mean age of less than 20 years were eligible for inclusion. The participants in included studies included substance users, high-risk alcohol users and students.

Outcomes assessed in the review
Studies that only assessed attitudinal outcomes rather than behavioural outcomes were excluded. The duration of follow-up ranged from 6 weeks to 24 months. The included studies assessed alcohol, tobacco and substance use using a variety of outcome measures that were reported in the paper.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.
Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. The extracted data included country, setting, characteristics of the participants and interventions, timing of follow-up, percentage of participants followed up, and results.

For each study and each outcome within each study, Cohen's d effect size (ES) was either calculated using raw data or estimated from inferential statistics. For studies with more than one control group, the ESs were calculated for the BI compared with the least intensive control intervention. The mean ES was calculated for studies reporting more than one measure for an outcome. For outcomes reported as not significant and with insufficient data to calculate the ES, an ES of zero was used.

Methods of synthesis
How were the studies combined?
The studies were grouped according to the substance used (alcohol, tobacco and multiple substances) and combined in a meta-analysis. Pooled ESs and 95% confidence intervals were calculated using a random-effects model.

How were differences between studies investigated?
Statistical heterogeneity was assessed using the Q statistic.

Results of the review
Eleven studies (3,734 adolescents) were included.

The meta-analysis of all studies showed that BIs significantly reduced substance abuse (d=0.126, P<0.001). No statistically significant heterogeneity was detected.

Alcohol (8 studies): the meta-analysis showed that BIs for alcohol significantly reduced substance abuse (d=0.275). No statistically significant heterogeneity was detected.

A subgroup analysis showed that BIs based on motivational interviewing significantly reduced substance abuse (d=0.241). No statistically significant heterogeneity was detected.

Tobacco (2 studies): the meta-analysis showed no significant difference between interventions and control (d=0.037). No statistically significant heterogeneity was detected.

Multiple substances (2 studies): only one study (39 participants) presented sufficient data for the calculation of an ES. This study found that BIs had a medium to large effect (d=0.736).

Authors' conclusions
BIs may slightly reduce alcohol and tobacco consumption. There was limited evidence (based on one study) to suggest that a BI substantially reduced multiple substance use, but these results may not generalise. The authors advised caution in interpreting the review's findings for multiple substance abuse until further research is undertaken.

CRD commentary
The review question was clear in terms of the interventions, and was broadly defined in terms of the participants and outcomes. The inclusion criteria were not defined in terms of the study design. Several relevant sources were searched and the search terms were stated. No attempts to minimise language or publication bias were made. The methods used to select the studies, assess validity and extract the data were not described, so it is not known whether any efforts were made to reduce errors and bias. Validity was not systematically assessed and only the method of treatment allocation...
was briefly discussed. It may not have been appropriate to pool ESs based on different outcomes from clinically heterogeneous studies. Since the studies were predominantly conducted in America, the results may not generalise to other countries. In view of these problems, the review's findings may not be reliable.

**Implications of the review for practice and research**

Practice: The authors did not state any implications for practice.

Research: The authors stated that research is required to determine the relationship between changes in alcohol consumption and reduced morbidity, and that further research should assess the effects of BIs on multiple substance abuse in adolescents.

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