Effectiveness of opportunistic brief interventions for problem drinking in a general hospital setting: systematic review

Maria J Emmen, Gerard M Schippers, Gijs Bleijenberg, Hub Wollersheim

Abstract

Objective To determine the effectiveness of opportunistic brief interventions for problem drinking in a general hospital setting.

Design Systematic review.

Data sources Medline, PsychInfo, Cochrane Library, reference lists from identified studies and review articles, and contact with experts.

Main outcome measure Change in alcohol consumption.

Results Eight studies were retrieved. Most had methodological weaknesses. Only one study, with a relatively intensive intervention and a short follow-up period, showed a significantly large reduction in alcohol consumption in the intervention group.

Conclusion Evidence for the effectiveness of opportunistic brief interventions in a general hospital setting for problem drinkers is still inconclusive.

Introduction

Evidence of excessive alcohol consumption is common among patients admitted to hospital for reasons other than drinking. Brief psychosocial interventions in general health care, either within or out of hospital, can help patients to reduce problem drinking at an early stage. These interventions are often opportunistic and most comprise assessment, advice, and counselling with educational elements and possibly written information. Professionals other than specialists in substance misuse may deliver the interventions, most of which are aimed at moderate or harm-free drinking as opposed to total abstinence. The interventions may target drinkers who consume hazardous amounts of alcohol or those who exceed the guidelines for safe drinking and are not reached by conventional treatment services.

Various reviews and meta-analyses have shown the effectiveness of brief interventions for problem drinking. The most influential study is the World Health Organization randomised clinical trial of brief interventions in primary health care. Simple advice and brief counselling reduced hazardous and harmful alcohol consumption by both men and women in various healthcare settings and from different cultures.

In all but one review the results from primary healthcare settings and general hospital settings are pooled. In most European countries, however, these settings are structurally different and the effectiveness of alcohol intervention can therefore differ. We focused on the general hospital setting.

We identified and summarised the results of all randomised controlled trials and other well controlled trials that evaluated an opportunistic brief intervention for problem drinking in a general hospital setting to determine whether it reduced alcohol consumption.

Methods

We searched Medline and PsychInfo databases for articles published between 1966 and 2001 (see bmj.com for search terms). We also searched the reference lists of relevant reviews, contacted experts by email, and searched the Current Contents database and the Cochrane Library.

Articles were retrieved if they were individually randomised, cluster randomised, or quasi-randomised trials and non-randomised trials with equivalent groups at baseline; they focused on an opportunistic brief intervention for problem drinking; they had a control group receiving no intervention; they were set in a hospital or specialist outpatient clinic; they had a psychosocial (cognitive or behavioural) intervention; and alcohol consumption was an outcome measure.

Validity assessment and data abstraction

For each trial we assessed randomisation status, the blinding of those assessing outcomes, and the loss to follow up. Corresponding authors were asked to comment on our assessment, and all but one replied.

For each controlled trial, information about the type of intervention and duration, the quality criteria, and the outcome measures was extracted using a

References w1-w8 are on bmj.com

This is the abridged version of an article that was posted on bmj.com on 16 January 2004: http://bmj.com/cgi/doi/10.1136/bmj.37956.562130.EE
### Outcome results for included studies

<table>
<thead>
<tr>
<th>Trial</th>
<th>Intervention</th>
<th>Change (SD) in consumption from baseline (g/week)</th>
<th>Mean (95% CI) difference from baseline (g/week)</th>
<th>Alcohol related problems</th>
<th>Significant changes in laboratory values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elvy et al**</td>
<td>Confrontational interview by psychologist about self reported drinking problems, and attempt at referral</td>
<td>Intervention group: −284 (276) Control group: 25 (250)</td>
<td>Intervention group: −309 (−470 to −146) Control group: −44 (−60 to −28)</td>
<td>Intervention group improved significantly more than control group</td>
<td>No significant difference</td>
</tr>
<tr>
<td>Maheswaran et al**</td>
<td>Brief advice (10-15 minutes) by clinic physician about risks from consumption and benefits from reduction (better control over blood pressure) and four follow up sessions</td>
<td>−82 (113)</td>
<td>−24 (−150 to 100)</td>
<td>Reduced: intervention group 41%; control group 14%</td>
<td>γ-glutamyltransferase reduced, intervention group 21%; control group 0%; significant difference, aspartate aminotransferase, mean cell volume: no significant difference</td>
</tr>
<tr>
<td>Persson and Magnusson**</td>
<td>Biofeedback on laboratory tests monthly by nurse and every third month by doctor for 12 months</td>
<td>−96 (not available)</td>
<td>−72.50 (not available)</td>
<td>Reduced: intervention group 41%; control group 14%</td>
<td>No significant difference</td>
</tr>
<tr>
<td>Chik et al***</td>
<td>Counselling (60 minutes): booklet and discussion with experienced nurse</td>
<td>−120 (530)</td>
<td>−147 (414)</td>
<td>Not available</td>
<td>No significant difference</td>
</tr>
<tr>
<td>Rowland and Maynard**</td>
<td>Audiovisual presentation of information on alcohol by nurse and discussion with experienced nurse</td>
<td>−127 (268)</td>
<td>−147 (414)</td>
<td>−92 (−161 to 213) No significant difference</td>
<td>Reduced health problems: intervention group 31%; control group 24%</td>
</tr>
<tr>
<td>Watson**</td>
<td>Provided by nurse in general hospital: booklet; brief advice (10-15 minutes); booklet and brief advice (10-15 minutes)</td>
<td>−206 (296)</td>
<td>−147 (414)</td>
<td>−92 (−215 to 31) No significant difference</td>
<td>Not available</td>
</tr>
<tr>
<td>Heather et al**</td>
<td>Provided by psychologist or experienced nurse: skills based counseling (30-40 minutes); brief motivational intervention (30-40 minutes)</td>
<td>−186 (255)</td>
<td>−127 (280)</td>
<td>−92 (−181 to 63) Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Skills based counselling</td>
<td>Brief motivational interview</td>
<td>−219 (270)</td>
<td>−127 (280)</td>
<td>−92 (−215 to 31) Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Welte et al**</td>
<td>Risk reduction intervention: factual information on risks of alcohol use and suggestions to reduce intake by intervention team specially trained nurse</td>
<td>−139 (327)</td>
<td>−119 (545)</td>
<td>−20 (−132 to 92) No significant difference</td>
<td>Not available</td>
</tr>
</tbody>
</table>

*Investigation of drinking pattern, recommended limits and alcohol effects; instruction on self monitoring, tips for reduction, instruction on how to identify and cope with high risk situations; discussion of alternative activities to change drinking; booklet.
†Assessment of recent drinking; exploration of positive and negative aspects of heavy drinking; information on effects of alcohol; exploration of patient concerns.

### Quantitative data analysis

We calculated the mean difference (95% confidence interval) in alcohol consumption as the difference in outcome between the intervention and control groups. Alcohol consumption at follow up was not taken as outcome but rather the difference between consumption at baseline and follow up. This corrected for the relatively large individual differences at baseline and the non-randomisation of some of the study designs. We used the standard deviations of consumption at baseline and follow up and the correlation between consumption at these two time points to calculate the standard deviation of change in consumption from baseline. If the correlation was not provided, we estimated it based on studies that provided one. The study designs and outcomes were too heterogeneous to allow pooling of data.

### Results

Overall, 481 articles were identified. After exclusions, eight articles remained for analysis (see bmj.com). The trials varied in methodological quality, population, intervention, people performing the intervention, and follow up periods. A total of 1597 problem drinkers were allocated to an opportunistic intervention or usual care. The number of patients per trial ranged from 45 to 428.

Three of the trials randomised individuals and four randomised clusters of consecutive patients to avoid contamination. One non-randomised, large multicentre study compared patients from four intervention hospitals with those from three matched control hospitals. Three studies reported blind assessment of outcome. Loss to follow up ranged from 9% to 50%, with all of the studies excluding these patients from further analysis.

Inclusion criteria were weekly alcohol consumption, problems related to alcohol, evidence of alcohol on screening, a medical record showing a history of...
alcohol misuse, and an increased concentration of γ-glutamyltransferase. All of the trials excluded patients with serious medical or psychiatric disorders. Five studies also excluded patients with a history of advice or treatment for drinking problems or severe alcohol dependency.

Poikolainen made a distinction between very brief interventions (5–20 minutes) and extended brief interventions (several visits).¹ Three trials examined the effects of very brief interventions involving advice or education on sensible drinking and the health risks associated with heavy drinking. In two of these interventions a booklet was also distributed. The extended brief interventions lasted from 30 to 75 minutes and mostly consisted of a single counselling session by a professional experienced in the treatment of alcoholism, or brief alcohol related medical advice from the physician, with several follow up sessions.

The interventions were performed by nurses, psychologists, physicians, combinations of these, or an intervention team specialised in substance misuse. Trial duration varied from eight weeks to 18 months. In addition to change in alcohol consumption, outcome measures were self reported problems related to alcohol and laboratory variables.

**Quantitative data analysis**

We linearly transformed data on alcohol intake into grams a week. The table presents the change in consumption for the study groups and the mean differences. One study gave the correlation between baseline and follow up consumption ($r = 0.40$). We used this as the estimate for the other studies. Differences in effects across the studies did not seem to depend on baseline variables.

One study showed a significantly larger reduction in weekly alcohol consumption in the intervention group (mean difference $\pm 309$ g, $\pm 470$ g to $\pm 148$ g). The other studies found no significant effects.

**Discussion**

Evidence for the effectiveness of opportunistic brief interventions in a general hospital setting for problem drinkers is still inconclusive. One strength of our review is that we considered one outcome measure—change in alcohol consumption. The methodological quality of the selected trials was reasonable, although most showed a relatively large loss to follow up. This can lead to attrition bias but is often unavoidable in addiction research.

The small number of studies precluded the exploration of reasons for heterogeneity. Only two of the trials were conducted on outpatients, and one produced clearly positive results. Except for one trial, all of those in which an experienced nurse presented the intervention produced only small effects. The two trials involving a doctor or a psychologist during intervention produced larger effects. We tried to include unpublished work by contacting the experts but cannot be sure we identified all trials.

Our results do not concur with the mostly positive results reported elsewhere for brief alcohol interventions in general health care.¹⁴ ¹⁶ ¹⁷ Such results may be partly due to the pooling of data from hospital and primary healthcare settings. A review of brief interventions in only primary care did not show strong evidence of an effect.⁷

The large treatment effect in the study reporting positive results can be explained in two ways. Firstly, a relatively intensive intervention was conducted in male outpatients with hypertension in which during every visit the physician emphasised the importance of lowering alcohol consumption to control blood pressure. Secondly, the control group was told to continue with their usual consumption of alcohol, which was not the case in the other studies.

The other trials found a significant reduction in alcohol consumption in the control groups. Comparable reductions have been observed in the control groups of other alcohol intervention studies.⁴ ⁷ ¹⁸ The reason for this is unclear. This finding can be expected as a consequence of regression to the mean, but may also reflect a reactive effect of the assessment.⁵ ⁶ ¹¹ Assessment may make patients more aware of the potentially harmful effects of alcohol consumption.

We thank RJPM Scholten for advice on the data analysis. Contributors: See bmj.com Funding: Netherlands Organisation for Health Research and Development. Competing interests: None declared. Ethical approval: Not required.

---


doi 10.1136/bmj.37956.562150.EE