Curbing problem drinking with personalized-feedback interventions: a meta-analysis
Riper H, van Straten A, Keuken M, Smit F, Schippers G, Cuijpers P

CRD summary
The review concluded that single-session personalized-feedback interventions without therapeutic guidance appeared to be a viable and cost-effective intervention for reducing problem drinking in young people and adults. The reliability of the authors’ conclusions is unclear given the potential for reviewer error/bias in quality assessment and data extraction, and lack of supporting economic data for the suggested intervention cost-effectiveness.

Authors’ objectives
To assess the effects of brief, single-session personalized-feedback without therapeutic guidance on problem drinking in young people and adults.

Searching
The following databases were searched without any language restrictions: MEDLINE; PsycINFO; Science Citation Index Expanded; Social Sciences Citation Index; Arts and Humanities Citation Index; CINAHL; EMBASE; the Cochrane Drug and Alcohol Group Specialised Register; the Cochrane Effective Practice and Organisation of Care Group; and the Alcohol and Alcohol Problems Science Database (ETOH). A search filter for randomised controlled trials (RCTs) was used. Search dates varied across sources, spanning 1972 to 2008. Search terms were reported. Reference lists of identified studies, meta-analyses and systematic reviews were handsearched. Attempts were made to search for unpublished papers by scanning Dissertation Abstracts and Digital Dissertations.

Study selection
Randomised controlled trials of individually focused personalized-feedback interventions for problem drinking in young people and adults were eligible for inclusion. Trials had to report adequate data to allow meta-analysis, assess alcohol drinking behaviour as a primary outcome, and deliver the interventions without therapeutic support with a maximum duration of 15 minutes per participant. Eligible comparators were: assessment only and no treatment; waiting-listing; and semi-placebo (alcohol-information brochure).

Most of the trials were conducted in the USA. The duration of follow-up ranged from 1.6 weeks to nine months. Most participants were recruited from non-clinical settings. Evaluated personalized-feedback interventions were delivered in situ (research laboratory, health service clinic or at work), by mail and through the Internet. Trial inclusion criteria were varied and included: binge drinking; drinking in excess of a low-risk drinking guidelines; consumption of more than 40oz ethanol in the past month or at least 40 standard drinks in the past month. Various instruments were used to measure alcohol consumption. Further details were reported in the review. Considered control conditions included assessment only format, waiting-list and psycho-educational leaflet on alcohol use.

Two reviewers independently screened studies for inclusion. Disagreements were resolved through consensus and discussion.

Assessment of study quality
The methodological quality of the included trials was assessed using the following criteria: adequacy of independent participant group allocation; concealment of random allocation process; blinding of outcome assessors; and completeness of follow-up data.

The authors did not report how the validity assessment was performed.

Data extraction
The number of participants in each group with the primary outcome of alcohol consumption at follow-up was extracted from each trial. Means and standard deviations were extracted and used to calculate effect sizes (Cohen's d) and 95% confidence interval (CI) for the primary outcome of alcohol consumption. Effect sizes up to 0.15 were considered as...
small, at 0.45 as moderate, and over 0.45 as large. Where studies used more than one alcohol measure the mean of the
effect sizes was calculated.

The authors did not state how the data were extracted for the review or how many reviewers performed the data
extraction.

**Methods of synthesis**

Pooled effect sizes (ES) and 95% confidence intervals were calculated using the fixed-effect model where there was no
evidence of heterogeneity; otherwise, random-effects model was used. Pooled effect sizes were converted into the
number-needed-to-treat and area under the curve. Effect size was assessed for homogeneity (using Cochran Q) and
heterogeneity (using the $I^2$ statistic) across trials. Meta-regression was used to assess the influence of time and form of
personalised feedback (multi-component versus normative) on effect sizes. Publication bias was assessed using a funnel
plot and by Duval and Tweedie’s trim-and-fill and Orwin’s fail-safe-N analyses.

**Results of the review**

Fourteen RCTs (n=3,682 participants) were included in the review. The number of participants ranged from 11 to 877
per condition per comparison. Trial quality was varied with only three reporting independent participant allocation.
Intention-to-treat analysis was possible in six trials; completers’ only data was used in the remaining eight trials. Losses
to follow-up ranged from 1.1 to 36.7%.

Personalised feedback interventions were associated with a significant reduction in mean alcohol consumption (mean
ES (d) 0.22, 95% CI 0.16 to 0.29). The number-needed-to-treat was 8.06 and the area under the curve was 0.562,
further confirming the intervention’s effectiveness. There was no evidence of statistical heterogeneity (p=0.69, $I^2=0$).

Sensitivity analyses showed that the overall mean effect sizes were robust and did not change with different trial designs
and sample sizes. Similarly, meta-regression analyses showed that effect sizes were robust and not influenced by time
(p=0.12) or form of personalised-feedback intervention (p=0.22).

No evidence of publication bias was found.

**Authors’ conclusions**

Single-session personalised-feedback interventions without therapeutic guidance appeared to be a viable and cost-
effective intervention for reducing problem drinking in young people and adults.

**CRD commentary**

The review addressed a clear question with well defined inclusion criteria. An exhaustive search in relevant databases
for both published and unpublished papers was undertaken without any language restrictions, minimising both
publication and language biases. Steps were taken to minimise potential for reviewer error and bias in study selection,
but not explicitly in the validity assessment and data extraction processes. Validity was assessed using appropriate
criteria and varied according to individual trials. Data were combined using a range of appropriate methods of meta-
analysis and the influence of potential effect modifiers were explored through sensitivity analyses. Statistical
heterogeneity was assessed and results used to inform meta-analyses. The basis of the conclusion on the cost-
effectiveness of evaluated interventions was unclear as no primary economic data were presented. The conclusion on
the effectiveness of evaluated interventions was supported by the presented data. The reliability of the authors’
conclusions is unclear given the potential for reviewer error and bias in quality assessment, data extraction and lack of
supporting economic data.

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

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

**Research:** The authors stated that further studies are needed to assess the effectiveness of personalised-feedback
interventions on long-term outcomes, as the initial step in a stepped-care approach, and in particular sub-groups (e.g.
youth in judicial service programs) and settings (e.g. primary care). Cost-effectiveness studies including assessments of
recruitment strategies for single session personalised-feedback interventions are also needed. Future studies should also assess the effectiveness of personalised-feedback interventions with varied contents (e.g. written versus computer, face-to-face individual versus group, etc), the potential role of single-session personalised-feedback interventions in primary care with or without involvement of the general practitioner, and the use of single session in modifying lifestyle behaviors (e.g. over-eating, depression, etc.).

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.