Authors' objectives
To examine the effectiveness of the Alcoholics Anonymous (AA) programme.

Searching
The following computerised databases were searched (from 1953-1995): PsycLIT, MEDLINE and Dissertation Abstracts International. In addition the reference sections of key review articles and numerous individual articles were checked for further studies. Both published and unpublished studies were included.

Study selection
Study designs of evaluations included in the review
Randomised and non-randomised controlled studies that examined the treatment of existing alcoholics. Correlational studies, one-group designs and studies that examined the prevention of future alcohol problems were excluded.

Specific interventions included in the review
AA treatments including conventional AA meetings, AA residential treatments (i.e. the Hazelden or Minnesota model) and selected components of AA programmes (e.g. the use of alcoholic counsellors, peer-led self-help therapy groups, an honest inventory and teaching the Twelve-Step process). Comparators included no treatment and alternative treatments such as discussion groups, hypnotherapy, and pharmacotherapies.

Participants included in the review
Individuals with a principal Axis I diagnosis of alcohol misuse or alcohol dependence, or who were clearly identified primarily as alcoholics, alcohol misusers, or problem drinkers. Participants reported in the review had an average age of 39yrs (standard deviation (SD)=4.22, range 28-46yrs, were mainly male (92%), Caucasian (79%), divorced/separated (45%) and lacked a basic high school diploma (56%).

Outcomes assessed in the review
Alcohol-related outcome measures at 12 months (or nearest time point available to 12mths) including abstinence, remission, alcohol-use related arrests and drinking score. When studies used multiple outcomes only one measure was reported using the following order of importance: abstinence, specific drinking behaviour or a global drinking or adjustment measure. The majority of studies reported in the review used abstinence as an outcome measure.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

Assessment of study quality
The main criteria were study design, whether participants volunteered or were coerced into participation, whether the alcohol status was verified by collateral reports, the type of outcome measure and other study limitations/unresolved issues. A narrative description of overall study quality was reported and a summary table of methodological features for the individual studies was presented (study site/setting, data source and study limitations/unresolved issues). Not stated who or how many individuals assessed the studies.

Data extraction
It was not stated who or how many individuals were involved in extracting the data. Data tables reported in the review.
include: bibliographic details, whether participants were coerced or volunteered, the outcome measures, whether the outcome was collateral, length of follow-up, interventions and the number of participants included in each study group at baseline and follow-up. For each study the outcome measures were converted to a standardised mean difference statistic (d) for continuous data or an odds ratio (OR) for dichotomous data (this was subsequently converted to a d statistic to facilitate study pooling).

**Methods of synthesis**

How were the studies combined?
Overall effect sizes with 95% confidence intervals (95% CI) were calculated for by pooling the d statistic values from the individual studies, using a random-effects model. Studies were pooled according to the intervention type (i.e. conventional AA meetings, AA residential treatments (i.e. the Hazelden or Minnesota model) and selected components of AA programmes), study design (i.e. randomised vs. non-randomised designs) and whether studies used collateral reports to check outcome status.

How were differences between studies investigated?
Chi-squared analyses were performed.

**Results of the review**

Twenty-one controlled studies including approximately 7000 participants (10 randomised controlled trials (RCTs) and 11 non-RCTs).

Effect sizes:

1. **RCTs of conventional AA meetings.**
   - Overall (n=5) -0.54 (95% CI: -0.98, -0.11; p<0.05).
   - AA vs. no treatment (n=2) -0.25 (95% CI: -0.54, 0.05).
   - AA vs. alternative treatment (n=3) -0.61 (95% CI: -1.31, 0.10).

2. **Non-randomised studies of conventional AA meetings.**
   - Overall (n=10) 0.40 (95% CI: 0.19, 0.61; p<0.05).
   - Attended vs. not (n=7) 0.39 (95% CI: 0.11, 0.66; p<0.05).
   - Attended more vs. less (n=2) 0.55 (95% CI: 0.27, 0.82; p<0.05).
   - Attended vs attended plus treatment (n=1) 0.27 (95% CI: -0.18, 0.71).

3. **RCTs of AA residential treatments.**
   - Overall (n=2) 0.39 (95% CI: -0.16, 0.95).

4. **Non-randomised studies of AA residential treatments.**
   - Overall (n=2) 1.33 (95% CI: 0.28, 2.39; p<0.05).

5. **RCTs of components of AA programme (i.e. dismantling studies).**
   - Overall (n=5) 0.38 (95% CI: 0.13, 0.63; p<0.05).

Three studies looked at the use of recovered alcoholic counsellors (vs. non-alcoholic counsellors) 0.31 (95% CI: 0.03, 0.59); and two studies at training participants in the AA twelve steps or the AA honest inventory (vs. discussion groups,
hypnotherapy, or pharmacotherapies) 0.54 (95% CI: 0.16, 0.92).

Study quality and methodological issues:

The results from the non-randomised studies (vs. RCTs) of conventional AA meetings showed significantly larger more positive results (chi-squared=14.56, df=1, p=0.0001). Studies that used collateral reports to check outcome status yielded non-significantly smaller effect sizes (0.10, 95% CI: -0.32, 0.53) than when no collateral checks were used (0.49, 95% CI: 0.18, 0.81). However, the pooled effects sizes were not significantly different when the analyses were repeated using only collateral reports. For pooled effects sizes of conventional AA meeting data all of the RCTs used coerced participants while 8/9 of the non-randomised studies used volunteers. Therefore volunteer-coercion status was nearly completely confounded with non-random-random assignment for conventional AA meetings. Some of the other studies reported in the review also used a mixture of volunteers and coerced participants, which may bias their findings.

Authors' conclusions

Given the widespread use of AA as a treatment for alcoholism, the findings from this meta-analysis are noteworthy in two respects. First is the fact that the randomised trials suggest that AA at best does no better than alternatives and in some cases may do significantly worse. Second is the fact that so little good research on AA exists.

CRD commentary

This is a clearly written review which, although it lacks certain methodological detail (e.g. the number of reviewers involved in the selection, assessment and data extraction of studies), presents a discussion of the problems and biases encountered within this field of work. The review is based on a reasonable search of the literature, and includes both published and unpublished work. The possibility of publication bias however still exists as no specific attempts were made to locate unpublished work. The studies were pooled and the level of heterogeneity assessed, although chi-squared results were not presented for all of the group comparisons. Therefore caution is warranted before interpreting the results of the review.

Implications of the review for practice and research

Practice: The authors state that 'the present results lend at least some weak support to AA-based inpatient treatment, although so few randomised studies of such treatment exist that the results are preliminary at best. Results more clearly support some components of AA, including the use of recovered alcoholics as counsellors, and training in specific AA procedures such as the Twelve-Step program and the honest inventory'. The authors also state that from their results 'it is probably a bad idea to coerce individuals to attend conventional AA meetings' as 'coercion apparently yields significantly worse results than treatment alternatives and non-significantly worse than doing nothing at all'.

Research: The authors recommend that more methodologically sound randomised controlled trials need to be carried out in this area, although they acknowledge and discuss the possible ethical problems associated with this type of study design. The authors also state that 'future studies of AA effectiveness will also benefit by using some holistic measures of outcome'.

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