Are psychoeducational smoking cessation interventions for coronary heart disease patients effective? Meta-analysis of interventions
Huttunen-Lenz M, Song F, Poland F

CRD summary
This review concluded that psychoeducational smoking cessation interventions were associated with increased smoking cessation in people with coronary heart disease; these results may only be generalisable to interventions similar to those in the review. As much of the included data came from lower quality studies and there was evident heterogeneity between studies, the authors' conclusions should be treated with caution.

Authors' objectives
To assess the effectiveness of psychoeducational smoking cessation interventions in people with coronary heart disease.

Searching
Cochrane Central Register of Controlled Trials (CENTRAL), PsycINFO, MEDLINE, CINAHL and DAI were searched from the 1970s. Search terms were reported. Reference lists of previous reviews and retrieved articles were checked. Only studies published in English were eligible.

Study selection
Randomised controlled trials (RCTs) that assessed non-pharmacological interventions for smoking cessation in people with coronary heart disease were eligible for inclusion. Minimum follow-up was six months. The outcomes of interest were point prevalence smoking cessation, continuous smoking cessation and mortality.

Most participants in the included studies were men. Reported mean age ranged from 53 to 59 years. Participants had myocardial infarction (MI), acute coronary syndrome, angina, unstable angina, revascularisation procedures or arteriographically defined coronary artery lesions. Inclusion criteria for smoking status varied and included current smokers and having smoked one or more packets of cigarettes within the previous six months. Some studies required prior participant motivation to stop smoking. Interventions consisted of counselling, education or advice initiated in hospital. Most interventions included a home follow-up. Some studies allowed pharmacotherapy (nicotine replacement therapy or bupropion). Control groups received usual care and/or less intensive advice. Most studies were in UK or North America.

One reviewer selected studies for inclusion. In unclear cases a second reviewer was consulted.

Assessment of study quality
Study quality was assessed on aspects of the randomisation process, intervention and participant descriptions, blinding, outcome verification and completeness of follow-up.

The authors did not state how many reviewers assessed validity.

Data extraction
Data from the longest follow-up in each study was used for the main analyses. Data were extracted on an intention-to-treat basis in order to calculate relative risk (RR) and 95% confidence intervals (CI). Participants lost to follow-up were assumed to have continued to smoke.

Data were extracted to classify interventions in a pre-published framework according to which behavioural determinants were targeted, which techniques were used to change these and whether these were appropriate.

One reviewer extracted and a second checked data. Study authors were contacted for additional information.
**Methods of synthesis**

Pooled relative risks and 95% CI were calculated using a random-effects model. Heterogeneity was assessed using $X^2$ and $I^2$. Sensitivity analyses were undertaken based on the exclusion of outlying studies, studies considered of lower quality and one study where there was uncertainty about the diagnosis of some participants.

Post hoc subgroup analyses were undertaken based on the effects of allowing pharmacotherapy (for all participants and for intervention group only), explicit use of a theory in the intervention planning, intervention intensity and length of follow-up (up to six months, 12 months and 24 months onward).

Peter's method was used to test funnel plot asymmetry for publication bias.

**Results of the review**

Fourteen RCTs (3,558 participants) were included. Study size ranged from 87 to 789 participants. Follow-up ranged from six to 60 months; most studies had a follow-up of 12 months. Tests indicated no publication bias.

Study quality varied. Randomisation methods were appropriate in eight studies, unclear in three studies, two were cluster RCTs and the method was inadequate in one study. Six studies reported adequate allocation concealment. Baseline characteristics and descriptions of intervention and controls were generally comparable in all studies. Blinding was limited to one study with blinding of outcome assessors. Total drop-outs ranged from zero to 66%. Smoking cessation was verified by biological or proxy confirmation in nine studies.

Compared to control, psychoeducational programmes were associated with a higher rate of point prevalence smoking cessation (RR 1.44, 95% CI 1.20 to 1.73, $I^2=73%$; 13 trials) and a higher rate of continuous smoking cessation (RR 1.51, 95% CI 1.18 to 1.93, $I^2=78%$; 10 trials), but no statistically significant difference in total mortality ($I^2=12%$, 10 trials). Sensitivity analyses results were similar to the main analysis.

Subgroup analysis showed that intensive programmes were more effective in continuous smoking cessation than less intensive programmes. When analysed by follow-up time the intervention was effective for smoking cessation at six and 12 months. Data for other time periods showed no statistically significant effects from the limited number of available studies. Other subgroup analyses showed no statistically significant differences between subgroups.

Qualitative analyses suggested that although interventions appeared different to each other, there were fewer than expected variations in techniques (full details were reported).

**Authors' conclusions**

Psychoeducational smoking cessation interventions were associated with increased rates of smoking cessation. Post hoc subgroup analyses suggested that intervention intensity was associated with intervention effectiveness.

**CRD commentary**

The aims of the review were clearly stated in terms of inclusion criteria for participants, intervention and study design. The search covered several relevant sources. The authors stated that none of the identified studies in languages other than English were considered eligible. It was possible that a failure to look for studies in any language resulted in language bias. It was not clear whether unpublished studies were sought and this made it difficult to comment on the likelihood of publication bias, but the authors' tests were negative. The date of search was not given, meaning that the currency of the included data was unclear. Methods designed to reduce reviewer error and bias were used for data extraction but not for study selection; it was unclear whether such methods were employed for validity assessment. Study quality was assessed with appropriate criteria.

The methods of synthesis may not have been appropriate given the evident heterogeneity between studies. Whether appropriate methods were used to include data from cluster RCTs was unclear. The authors attempted to explore heterogeneity in subgroup and sensitivity analyses. It appeared that the authors did not consider possible differences between studies that did and did not verify smoking cessation.

As much of the included data came from lower quality studies and there was evident heterogeneity between studies, the
authors’ conclusions should be treated with caution.

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

**Practice:** The authors stated that the results of the review may only be generalisable to smoking cessation interventions that used similar techniques to those in the review.

**Research:** The authors did not state any implications for research.

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