Workplace health promotion: a meta-analysis of effectiveness
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CRD summary
This review found that the effectiveness of workplace health promotion programmes depended on various study, intervention and population characteristics. High-quality trials tended to report smaller effects than low-quality trials. The authors’ conclusions appear to be reliable, but the review is likely to be more relevant to researchers than to decision-makers.

Authors’ objectives
To investigate the influence of population, study and intervention characteristics and study quality on the effectiveness of workplace health promotion programmes.

Searching
PubMed, EMBASE and Web of Science were searched to June 2012. Search terms were reported in an appendix. Only English-language studies were included in the review.

Study selection
Randomised controlled trials (RCTs) of workplace programmes of physical activity, healthy diet, weight loss or smoking cessation were eligible for inclusion. Trials had to describe the population and intervention in detail. The outcomes of interest were self-perceived health, productivity at work, sickness absence and work ability.

The programmes in the included trials aimed to improve physical activity, weight or a combination of lifestyle factors. The trials were conducted in various settings, mainly in Europe or the USA. Trial duration ranged from nine weeks to two years. The number of contacts and sessions varied between trials.

The process of study selection was not reported, but the authors stated that in cases of doubt, a discussion was held among them.

Assessment of study quality
Quality was assessed using criteria based on the Cochrane risk of bias tool and another published checklist (details in the paper). Trials were scored on a scale from 0 to 9, and rated as excellent (8 to 9), good (4.5 to 7.5), fair (3 to 4), or poor (0 to 2.5).

The authors did not explicitly state how many reviewers assessed quality.

Data extraction
For each outcome, the data were extracted to calculate the effect size (mean difference) between intervention and control groups, and its associated 95% confidence interval. Two reviewers extracted the data; disagreements were resolved by discussion.

Methods of synthesis
The effect sizes, across all outcomes and for individual outcomes, were pooled using random-effects models. An effect size of 0.2 was considered to be small, 0.5 was moderate, and 0.8 or more was large. Stratified meta-analyses and meta-regressions were performed to assess the influence of population, intervention and methodological quality criteria on the effect size. Measures of statistical heterogeneity were not reported.

Results of the review
Eighteen RCTs, describing 21 interventions, were included. Sample sizes ranged from 40 to 924 participants, where reported. Ten trials were rated as good quality, seven were fair, and one was poor.

Across all outcomes, workplace programmes were associated with a small statistically significant improvement (ES 0.24, 95% CI 0.14 to 0.34). Similar pooled effect sizes were found for individual outcomes (details in the paper), but
the effect for work ability was not statistically significant.

Effect sizes were higher for trials of poor or fair quality than for those of good quality. Correct and clear description of randomisation, blinding of participants, use of intention-to-treat analysis, control for confounders, and longer follow-up were associated with lower effect sizes. The features associated with larger effect sizes were: younger participants (≤40 years), cluster randomisation, no intervention in the control group, low participation rates, high frequency of contact, and an educational component to the intervention.

**Authors' conclusions**
The effectiveness of workplace health promotion programmes, as measured in intervention trials, depended not only on the type and content of the intervention, but also on the studied population, study characteristics and methodological quality. High-quality trials reported smaller effects.

**CRD commentary**
The review objectives and inclusion criteria were clear. The search covered three relevant sources. The limitation to trials reported in English, and the lack of attempts to locate unpublished trials, mean that some relevant trials could have been overlooked. It was unclear whether the review processes (except data extraction) were performed by two reviewers to minimise errors and bias. Quality was assessed using relevant criteria, but the use of a numeric score was not ideal.

The meta-analyses pooled data from trials that were highly diverse and the results were reported without any assessment of statistical heterogeneity. This made it difficult to assess if the methods were appropriate. The finding of a small positive effect of health promotion programmes was in line with the findings of other similar reviews. The findings about the effects of study population and methodology reflect the evidence presented, but it should be borne in mind that with a large number of analyses some significant results may occur by chance.

The authors' conclusions appear to be reliable. The review is likely to be more relevant to researchers than to decision-makers.

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

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

**Research:** The authors stated that it was important that workplace health promotion programmes should be evaluated in high-quality trials. These trials and systematic reviews should take account of the possible influence of factors other than the intervention itself.

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Record Status
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.