Lifestyle health promotion interventions for the nursing workforce: a systematic review
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CRD summary
The authors concluded that studies indicated workplace-based health promotion interventions had potential to be beneficial and feasible for nurses. They stressed the importance of further research. In light of the scarcity of the evidence, the methodological shortcomings of the trials and the substantial variability between them, this seems appropriate.

Authors' objectives
To evaluate the efficacy of lifestyle health promotion interventions that aimed to improve behavioural health risk factors and/or behavioural or clinical outcomes among nursing staff.

Searching
Seven electronic databases, including Cochrane Central Register of Controlled Trials (CENTRAL), PubMed, CINAHL and PsycINFO, were searched for eligible studies from January 2000 to December 2011. An example search strategy was reported. In addition, one journal was handsearched and reference lists of identified records and relevant reviews were checked. Only studies published in English were eligible for inclusion.

Study selection
Only controlled trials and reviews of controlled trials were eligible for inclusion. Due to the scarcity of the identified evidence, this criterion was relaxed to allow inclusion of un-controlled studies. Studies had to include working-age nurses defined as adults in employment (18 to 65 years of age approximately) holding a recognised recorded nursing qualification. Behavioural interventions that aimed to improve health risk factors and/or related clinical health outcomes were eligible for inclusion. Interventions related to the following were considered: overweight/obesity, diet, physical activity, smoking and hazardous drinking. Studies had to assess outcomes either as changes in risk factor indices or related mortality and morbidity. Eligible risk factor changes and clinical outcomes were specified.

Mean participant age ranged from 31 to 40.6 years of age. Where reported, the percentage of female participants ranged between 97 and 100%. Studies were published between 2001 and 2011 and were conducted in Canada, the USA and Taiwan. Both community and hospital settings were included. Study duration ranged from ten weeks to 12 months. Interventions were varied and included education, group sessions and exercise regimens. Both self-report and objective outcome measures were employed.

Two reviewers independently performed study selection. Agreement was reached through discussion.

Assessment of study quality
Study quality was assessed using the Cochrane risk of bias tool. Risk of selection, performance, detection, attrition and reporting bias were assessed.

Two reviewers independently assessed trial quality. Agreement was reached through discussion.

Data extraction
Participant, intervention, and outcome measurement details were extracted from each study.

Data extraction was performed independently by two reviewers with agreement reached through discussion.

Methods of synthesis
Studies were summarised narratively.

Results of the review
Two controlled trials (148 participants) and one uncontrolled trial (119 participants) were included. Sample sizes ranged from 58 to 119. Some aspects of study quality were reported. None of the trials were blinded and neither of the two...
controlled trials used randomisation or allocation concealment. The uncontrolled trial reported attrition rates of over 50% by the time of the final follow-up. One controlled trial reported minimal attrition, no data were provided for the other. All trials used convenience samples. No trials reported sample size calculation or study power.

All three trials reported some positive effects of their respective interventions. The uncontrolled trial investigated a smoking cessation intervention over 12 months with 26% of participants reporting to have stopped at "some point" during the 12 months; 5% of participants had reportedly stopped smoking at both six and 12 months follow-up. One of the controlled studies investigated a workplace activity intervention. While neither group reported increased activity levels, compared to the control group, the intervention group reported reductions in fat mass, fat index, and percentage fat but no change in lean mass. The final study investigated the effect of the introduction of a running machine to the nurses' work place. After three months, the intervention group performed better across a standardised fitness test after using the equipment, tracking their daily progress, and receiving support from their managers than the control group.

**Authors' conclusions**
The reviewed studies indicated that workplace-based health promotion interventions had potential to be beneficial and feasible for nurses. However, the authors acknowledged that little could be inferred from the included studies due to methodological shortcomings. They stressed the importance of further research.

**CRD commentary**
The review question and inclusion criteria were clear. The relaxation of inclusion criteria in light of very small numbers of eligible studies seems reasonable. Relevant sources were searched. The authors acknowledge the risk of language bias due to the exclusion of non-English language studies. There was potential for publication bias as unpublished studies were excluded. The use of independent and duplicate processes for study selection, quality assessment, and data extraction reduces the potential for reviewer error and bias in these areas.

The use of a narrative approach to summarise studies was appropriate. Authors acknowledged the substantial variability between studies. A thorough quality assessment using a standardised approach was conducted and reported. However, an approach intended for use with randomised controlled trials was used for non-randomised and uncontrolled trials.

The authors drew tentative conclusions on the possible effectiveness of the interventions investigated. In light of the scarcity of the evidence, methodological shortcomings of the trials and substantial variability between them, this seems appropriate. They recommendations for further research also seem justified.

**Implications of the review for practice and research**
**Practice:** The authors recommend nursing managers take the initiative to not only further research on behaviour change interventions but also to assess the health and health risk factors of their workforce. They state that the identified paucity of evidence indicated a gap in occupational health and human resource management in the health care system.

**Research:** The authors stress that further research investigating the effect of lifestyle interventions on individual welfare and well-being as well as sickness absence from work, staff retention and recruitment were urgently needed. They state that the unique working environment and work patterns should be taken into account when designing trials. Also, it was recommended that theoretical approaches underlying behaviour change were investigated within the nursing population. Further recommendations for research were given.

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