

A systematic review of the effectiveness of health promotion interventions in the workplace

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The aim of this study was to identify and critically review evaluations of the effectiveness of health promotion programmes in the workplace. In line with guidelines for 'good practice' within the literature on workplace health promotion, this study aimed to assess the extent to which evaluated interventions considered employees' expressed needs or involved employee-employer partnerships. Overall, 110 outcome evaluations were located. Only a quarter of these reported that interventions were implemented in response to the explicit needs and/or views of the employees and very few involved partnerships. Most of the programmes targeted individual behaviour and supportive organizational change was limited. The majority of the outcome evaluations were not sufficiently rigorous to make a strong case for the effectiveness of workplace health promotion. However, some pointers to success were identified. It was concluded that there seems to be a wide disparity between what counts as 'good practice' within workplace health promotion and what is reported in the evaluation of effectiveness literature. This is not to say that 'good practice' does not exist, but that either such programmes are not rigorously evaluated for their effectiveness and/or that many of the evaluation findings remain outside the public domain.

Key words: Effectiveness; health promotion; needs assessment; outcome evaluation; partnerships; process evaluation; systematic review; workplace.

Occup. Med. Vol. 49, 540–548, 1999

Received 30 March 1999; accepted in final form 6 July 1999

This review was funded by the Health Education Authority (HEA), England. The Department of Health (DH) funds a programme of work at the EPI-Centre which supports a research team and the development of a specialized database (EPIC) compiling the results of systematically reviewing evaluations of health promotion interventions. The views expressed in this publication are those of the authors and not necessarily those of the HEA or DH.

INTRODUCTION

Health promotion has become a central feature of health policy in many countries due to the epidemic in chronic diseases, the ageing population and the widening social class gradient in health.^{1–5} With a high proportion of the adult population in employment and with workplace accidents and illness resulting in a considerable economic burden, the workplace has been recognized both as an important target^{6,7} and a determinant of health.⁸ The workplace is considered to be an ideal setting for health promotion initiatives: it provides easy and

regular access to a large number of people who make up a relatively stable population and it may encourage sustained peer support and positive peer pressure.^{8–10}

In the USA, the number of workplace health promotion programmes has grown exponentially since 1980, with 81% of workplaces offering some kind of health promotion programme.⁷ In the UK, however, only 40% of workplaces in 1992 undertook at least one major health-related activity.¹¹ Such a comparison suggests that while employers may endorse occupational health and health promotion in principle, few transfer this support into practice in the UK. Surveys of public and private sector employers and trade unions in the UK have shown that although health promotion programmes are receiving increasing attention, they are by no means universal, especially in small- to medium-sized workplaces where

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there are financial and human resource barriers.^{12,13} These findings have led to several recent policy initiatives in the UK which have targeted the workplace as an important arena for developing health promotion interventions.^{10,14,15} For example, the recent government green paper on health emphasizes support for healthy workplaces¹⁴ and a Department of Health Workplace Health Advisory Team has recently been launched.¹⁵

Workplace health promotion has been associated with a reduction in health risks and promotion of healthy lifestyles and with improvements in economic and productivity factors including medical costs, compensation benefits, employee absenteeism and job satisfaction.^{16–19} However, to serve disease prevention purposes effectively, workplace health promotion programmes need to attract a large proportion of employees. Although overall participation estimates range from 20–60%, employees who are at risk for adverse health outcomes such as smokers, employees with elevated blood pressure and/or cholesterol levels and those who lead sedentary lifestyles are less likely to participate.²⁰ Participants are more likely to be younger, well-educated, female, non-smokers and white collar workers^{16,21–27} and health promotion initiatives are less likely to reach low earners and those who are intermittently employed.⁸

This variation in participation rates suggests that workplace health promotion programmes are not appealing, acceptable and/or relevant to all employees. Recent guidelines for workplace health promotion have suggested several essential elements which could help to overcome some of these problems. The starting point for workplace health promotion should include a thorough needs assessment amongst the target population, followed by a formal planning stage which actively involves all the major stakeholders including managers, union representatives and employees in the workplace.^{6,9,28,29} The use of such partnerships has been advocated within community empowerment approaches to health promotion.^{30–32} Major objectives of such partnerships are to ensure that an intervention is both relevant and acceptable, and to encourage employee ownership of the programmes which boosts sustained participation.

Workplace health promotion guidelines suggest that programmes need to feed into different levels to facilitate sustained behaviour change. At the individual level, a programme should incorporate a range of education strategies; at the organizational level, support mechanisms throughout the organization should reinforce and encourage positive health actions (*e.g.*, providing healthy food options in the canteen). Finally, at the community level, workplace health promotion should have the potential to be actively disseminated by employees to their families and social networks.^{7,8}

The aim of the study reported in this paper was to identify and critically review evaluations of the effectiveness of health promotion interventions in the workplace. In line with current guidelines for good practice in workplace health promotion, the study aimed to assess the extent to which these outcome evaluations evaluated interventions developed in response to employees' needs, in partnership with employees, and/or reported process

evaluations carried out to examine employee views on the programme. Outcome evaluations which evaluated interventions displaying these characteristics were further assessed for their methodological quality. Those deemed to have sufficient methodological rigour, enabling reliable conclusions about the impact of health promotion in the workplace to be made, were summarized.

MATERIALS AND METHODS

The study was conducted in four stages.

Identification of outcome evaluations

The aim was to locate available outcome evaluations of health promotion interventions in the workplace (*i.e.*, studies assessing the impact of health promotion programmes on a range of health-related outcomes). The review updated an earlier one by France-Dawson *et al.* which included studies up to early 1994.³³ Hence, the searches for the update were limited to finding more recent studies (1994–97). These were sought by systematic searching of key journals; electronic database searching on EMBASE, ERIC, Medline, PsycLIT and the Social Science Citation Index; through personal contacts and by scanning the reference lists of already identified outcome evaluation studies. The full search strategies are reported elsewhere.³⁴

Classification of relevant studies

Full reports of all relevant outcome evaluations were obtained and classified according to: the country where the study was carried out; the health focus; the type of intervention and the extent of involvement of the target population in the planning and implementation of the intervention.

Studies with an exclusive focus on smoking prevention/cessation were excluded from further analysis as they are the subject of systematic reviews by the Review Group on Tobacco Control of the Cochrane Collaboration and are included in a recent cancer health promotion review carried out for the Health Education Authority.³⁵ Details of completed and ongoing systematic reviews of the effectiveness of different smoking prevention/cessation interventions are available on *The Cochrane Library*.³⁶

Assessment of the methodological quality of outcome evaluations

Outcome evaluations reporting interventions which had been developed in response to needs or views expressed by the employees, or in partnership with them; or those that also included at least one process measure (other than programme reach or monitoring of intervention implementation), were further assessed for their methodological quality in order to identify those from which reliable conclusions could be drawn about the impact of workplace health promotion programmes. Outcome evaluations were classified as 'sound' if they employed a

control or comparison group equivalent to the intervention group in terms of sociodemographic characteristics and baseline outcome variables and reported both pre and post-intervention data for each group on all outcomes targeted. This classification has been informed by criteria used to appraise evidence within evidence-based medicine and the principles for reviewing health care interventions established in the Cochrane Collaboration,³⁷ and the work of other reviewers in the health, education and social welfare fields.^{38–46}

A standardized data extraction framework was used, developed by the Centre for the Evaluation of Social and Health Promotion Interventions (EPI-Centre) at the Social Science Research Unit, Institute of Education.⁴⁷ Two reviewers, chosen for their similar experience in health promotion research, independently assessed each study and any disagreements were discussed and resolved, if necessary, with a third reviewer. High levels of concordance were achieved between the reviewers. Out of the 78 questions asked of each study, on average the reviewers' answers showed an agreement level of 80.1% (range: 68–94%). In the main, disagreements arose as a result of differences in reviewers' interpretations of information provided in the study or as a result of one reviewer missing some of the detail from the study, rather than from disagreements about methodological quality. In these cases, differences in interpretation were discussed and a common interpretation agreed upon.

Description of 'sound' outcome evaluations

Those interventions which had been soundly evaluated were described according to key features of the intervention and in terms of the impact on health-related outcomes. Particular attention was given to describing the features of any attempt to develop interventions in partnership with employees and to the findings of any process evaluation.

RESULTS

Search results

The searches identified 100 relevant outcome evaluations published between 1994 and 1997. Electronic searching located 83% of the relevant studies; hand searching 41%; 5% were obtained through personal contacts and 1% by scanning bibliographies (there was some overlap in outcome evaluations identified by different methods). Of the 100 newly-identified outcome evaluations, 84 were obtained as full reports within the time available for conducting this review. This included two longer-term follow-up reports of studies included in the previous review;²⁸ hence, reports of a total of 82 separate outcome evaluations were obtained. Combined with the outcome evaluations of the earlier review,³³ a total of 139 separate outcome evaluations were assessed for this review.

Classification of relevant studies

Of the 139 outcome evaluations, one was excluded as a retrospective study and a further 28 were excluded on the basis of their exclusive focus on smoking. Of the remaining 110 outcome evaluations, just under half (46%, $n = 50$) reported on at least some employee involvement: 23 (21%) evaluated interventions developed in response to the expressed needs or views of the target population; 27 (25%) included at least some assessment of programme acceptability; 15 (14%) described interventions modified on the basis of pilot studies and only 15 (14%) described the involvement of employee partnerships in planning and implementation. (Note: some outcome evaluations were included in more than one category.)

The majority of outcome evaluations (63%) evaluated interventions which aimed to change clinical risk factors (*e.g.*, blood pressure, cholesterol level, weight) and/or behavioural risk factors (*e.g.*, diet, exercise) for cardiovascular disease. Most interventions (84%) included an educational component; half included a behavioural risk assessments and/or medical screening; 12% included personalized advice and 10% included some form of social support. Few interventions included a supportive measure (22%) or a regulatory/legislative measure (6%) at the organizational level of the workplace to facilitate individual behaviour change.

Quality assessment of outcome evaluations

The 50 outcome evaluations which reported at least some employee involvement were further assessed for their methodological quality. Just under half of the 50 outcome evaluations employed a control or comparison group equivalent on baseline outcome measures and sociodemographic variables (46%) or reported pre-intervention data (44%); nearly two-thirds (60%) reported post-intervention data, and almost all the outcome evaluations (82%) reported on all outcomes as targeted in the aims of the evaluation. In all, only 15 (30%) of the 50 outcome evaluations met all four of the methodological criteria needed for these to be classified as 'sound'.

Description of soundly evaluated programmes

Of the 15 outcome evaluations that were judged to be methodologically sound, 13 were carried out in the USA, one in Canada and one in the Netherlands. Eight of these included a process evaluation examining employee acceptability of the programme, five reported on an intervention which had been previously pilot-tested and modified according to employees' views, two were based on the explicit needs or views of employees and 11 had used some form of partnership in the development of the intervention. (Note: some studies were included in more than one category.)

Table 1 illustrates the sound outcome evaluations according to the type of intervention employed: health education with incentives; education only; personalized

Table 1. Effectiveness^a of interventions by intervention type and use of 'partnerships' for the methodologically 'sound' studies (*n* = 15)

Intervention type	Number of outcome evaluations			
	All (<i>n</i> = 15)	Effective ^a (<i>n</i> = 3)	Partly effective ^a (<i>n</i> = 8)	Ineffective ^a (<i>n</i> = 4)
Health education plus incentives	3	0	0	3
Education only	1	1	0	0
Personalized advice/education	2	0	2	0
Skill development	2	0	2	0
Environmental	1	1	0	0
Comprehensive	6	1	4	1
Use of 'partnership' in the development of intervention ^b	11	2	8	1

^a Effectiveness is based on the reviewer's judgement.

^b This category overlaps with the previous categories and thus *n* does not add up to 15 (*i.e.*, the interventions which used 'partnerships' in their development also appear in one of the other categories according to its intervention type. Details of which interventions were developed using 'partnerships' can be found in the text.)

advice/education; skill development; environmental modification and comprehensive. Comprehensive interventions were defined as those involving components which targeted both individual and organizational/environmental levels of change.⁷ In addition, an attempt was made to illuminate those interventions which were developed in partnership with employees, a key principle for the organization of such programmes found in much of the literature on workplace health promotion.^{6,9,28,29} The table indicates whether the outcome evaluation showed an intervention to be effective, partly effective (*i.e.*, effective for some outcomes, ineffective for others) or ineffective. In this way the analysis has attempted to link the principles of developing workplace programmes with evidence of effectiveness.

Eleven of the interventions were found to be effective or partly effective (*i.e.*, effective for some outcomes, ineffective for others) and four were found to be ineffective. Comprehensive programmes seem to be a promising strategy for effective interventions with five out of the six soundly evaluated interventions of this type shown to be effective or partly effective. There is also a relationship between effectiveness and employee partnership with 10 out of 11 interventions shown to be effective or partly effective. Because of the small number of studies, however, this analysis should be considered only as tentative at this exploratory stage.

Given the small number of studies in each category it is important to interpret these results within the context of each study's specific evaluation and intervention details. Effective interventions were: an educational programme, developed and delivered in partnership with employees, for reducing occupational cancer;⁴⁸ a programme providing an environmental change within workplace cafeterias to increase the sales of low fat meals⁴⁹ and a comprehensive programme targeting individual and organizational levels of change in the context of cardiovascular disease prevention.⁵⁰

Parkinson *et al.* evaluated the 'Coke Oven Intervention Program' for reducing occupational cancer in 28 coke plants in Canada and the USA using a study sample of mostly male and highly educated employees.⁴⁸ The intervention was developed in conjunction with the union of

steel workers; it combined the expertise of workers and university personnel and consisted of health education sessions, delivered by staff and union members, and included health and safety, occupational cancer surveillance and regulations for personal practice. Compared to control plants, participants improved significantly in their knowledge of the Coke Oven Standard (guidelines developed by the Occupational Safety and Health Administration to address the hazards of coke oven emissions) and in workplace safety behaviours.

Levin evaluated a low-effort, low-budget intervention which attracted attention to the low-fat selections available in workplace cafeterias by means of an appropriate label, a poster and a prize draw.⁴⁹ It was found that sales of targeted low-fat meals increased significantly in the intervention cafeteria as compared to a carefully matched control cafeteria over a four-week assessment period (from 4.3% of total entrees sold to 11.9%). This increase in sales was maintained at six months follow-up. The study sample consisted of a predominantly Hispanic population of government employees in an urban setting. A process evaluation suggested that one reason for programme success was the use of materials accessible to employees with a range of literacy skills.

The 'Live for Life' programme consisted of health screening, lifestyle improvement programmes and organizational changes planned in conjunction with a task force of employees.⁵⁰ A high participation rate was achieved through the provision of a regular and convenient programme backed up with organization changes such as on-site exercise facilities, nutritious food in the cafeteria and vending machines and a no-smoking policy. Intervention worksites showed improvement in exercise, smoking, stress management and weight loss compared to control worksites at 2 years follow-up. The study sample was relatively young and predominantly highly educated.

The seven partly effective interventions consisted of: two interventions which aimed to increase healthy eating, one of which used personalized delivery of information,⁵¹ the other involving the development of specific skills;⁵² one intervention which aimed to encourage healthy eating specifically in the context of osteoporosis

prevention using personalized education;⁵³ two alcohol abuse prevention programmes, one involving skill development⁵⁴ and the other a comprehensive programme combining education with changes to workplace culture⁵⁵ and three comprehensive programmes targeting individual level and organizational factors to change a variety of health practices.⁵⁶⁻⁶³

The intervention which used personalized delivery of information on dietary intake of fat, fruit and vegetables⁵¹ found that predominantly male, highly educated employees randomly assigned to a tailored nutrition education intervention showed a greater decrease in fat consumption at 1 month follow-up as compared with employees assigned to a general nutrition education intervention. However there was no difference found for fruit and vegetable consumption. The investigators used a computerized system to generate letters with feed-back messages. A concurrent process evaluation suggested that tailored information was an important part of the intervention, with more people in this group rating the letter as being of personal relevance, containing new information and increasing their motivation to make dietary changes.

White-collar employees randomly assigned to a skills-based healthy eating intervention (education, diet analysis, supermarket tours, group walks) showed less agreement with attitudinal barriers to eating healthy food (e.g., healthy food is costly) and greater self-efficacy than a control group.⁵² However, although the intervention was based on a needs assessment and focus groups within the target population, it did not change intentions to adopt healthy eating or increase positive beliefs about the relationship between a healthy diet and health.

Similar mixed results were found for the healthy eating intervention developed in the context of osteoporosis prevention.⁵³ Female employees introduced to four learn-at-home lessons about osteoporosis prevention through a 30 minute motivational meeting (group-delivery) were compared to female employees who received the same four lessons with no introduction (impersonal delivery). The delivery approaches were adapted according to feedback from a sample of employed women. Female employees maintained a higher behaviour habits score at 4 months follow-up as compared with those who received impersonal delivery but there were no changes in calcium intake. However, both groups showed improvements as compared with a group receiving cancer information only. The attrition rate in this study was relatively high and non-completers in the group-delivery condition had a significantly better score for behaviour/habits at pre-test. Thus caution has to be exercised in terms of the generalizability of these findings.

Skill development was a central feature of one of the alcohol abuse prevention programmes which was partly effective: 'The Working People Program' which was field-tested with 108 predominantly blue-collar workers.⁵⁴ The relevance and acceptability of materials used in the intervention had previously been modified in light of workers' feedback. Immediately after the intervention there was a decrease in the number of drinking days and heavy drinking, but not for the number experiencing problems

at work due to alcohol, or the average number of drinks consumed on drinking days. A low participation rate and relatively high drop-out rate were major problems in the study. A process evaluation revealed that most of those remaining in the study rated the programme as 'very good' or 'excellent', although management support for the programme was felt to be extremely limited.

An alcohol abuse prevention programme which targeted individual and organizational levels of change was a mandatory programme which aimed to alter workplace culture and to promote employee ownership of the programme.⁵⁵ The study population consisted of equal proportions of males and females and included both blue and white collar employees. Components of the programme were: a supervisory training programme for managers and supervisors aimed at culture change, prevention and early intervention; an interactive education programme for employees and a peer-helper programme. At 3 months follow-up, the intervention was judged ineffective for smoking and marijuana use but effective for measures of alcohol use. Several factors were deemed to have contributed to the success of the programme, including strong management support, the involvement of an employee task force, the positive emphasis on caring about co-workers and the linking of the programme to existing plant safety and productivity initiatives.

Employee representation for planning intervention activities in a 'Wellness Co-ordinating Committee' was used in one of the partly effective programmes aiming to increase healthy behaviours by targeting individual and organizational levels of change (screening, health education, follow-up counselling, a menu of intervention types and change in plant organization).⁵⁶⁻⁵⁹ Using a study population of mostly hourly paid, male workers it was found that, as compared with workplaces receiving less comprehensive interventions, there were greater reductions in smoking and greater control over blood pressure. However weight loss achieved by some people was offset by the weight gained by others. An integral process evaluation found that engaging the 'eager' employees into wellness programmes was easy if programmes were provided on-site; engaging the 'reluctant' employees required one-to-one approaches and the provision of increased choice through a menu approach.

Similar mixed results were found for state employees in worksites where employee committees selected a series of health promotion programmes.⁶⁰ These typically included: weight control and nutrition, stress management, exercise, smoking cessation, alcohol education and safety education. Changes at the individual level were supported by changes at the organizational level, such as providing healthy food choices in the cafeteria and smoking regulations. Ten months after implementation, employees showed significantly greater positive changes in smoking and alcohol use when compared with worksites not exposed to the programme, but no change for exercise behaviour, diet and stress.

The final intervention which was partly effective was a cancer prevention and control programme which targeted both individual and organizational levels of change and was developed in partnership with employees. It was

evaluated in the 'Working Well Trial' which tested the intervention with a predominantly male and blue collar population.⁶¹⁻⁶³ The intervention was implemented in 114 workplaces which all targeted eating patterns and/or smoking and occupational exposure to carcinogens. The project had three structural levels: (1) an overarching decision-making structure to establish and co-ordinate administration; (2) a management structure within each of the four study centres to implement the intervention and (3) an employee advisory board and a co-ordinator in each workplace to help tailor and implement the intervention. Members on the advisory board were trained in the goals and content areas of the project, and in their roles and responsibilities. The intervention had three main goals: to increase motivation to change through increased awareness; to provide skills training for individuals ready to take action and to maintain behaviour change through supportive changes at the organizational level.

At 1 year follow-up, there were small but significant increases in fruit and vegetable consumption and reductions in fat consumption in the intervention group as compared with the control group, but no differences in dietary fibre intake or smoking prevalence. In addition, the authors highlighted that although the decrease in fat consumption in the intervention group was greater than in the control group, fat consumption also notably decreased in the control group. This suggests either a modest secular trend in the reduction of fat consumption or the possibility that the control group may have become contaminated through awareness of some of the messages of the intervention. In the context of the mixed findings of this study the authors highlighted some challenges to the use of 'partnerships' and suggested economic hardships, lay offs and change in management may have disrupted intervention strategies which relied on worker participation.

Of the four ineffective interventions, three were concerned with weight loss. These interventions all used a pay-roll based incentive system which involved participants agreeing to have a fixed sum withheld from their pay cheque. This could be earned back depending on progress made with weight loss. Any money remaining was divided amongst those who reached their personal weight loss goals. This system was combined with health education classes to control weight amongst mixed sex, blue and white collar workers at a university or at a medium-sized workplace within a metropolitan area. One study did not find any effect on weight⁶⁴ whereas the other two showed that most of the people who lost weight regained it within one year after the intervention.⁶⁵⁻⁶⁷

The fourth ineffective intervention targeted both individual and organizational levels of change and was developed in partnership with employees. The 'Take Heart Project' highlighted some methodological challenges in the use of 'partnerships'.^{68,69} Employee Steering Committees at each site aimed to enhance ownership and involvement, and chose brief, low-intensity health education and environmental change activities best suited to their work site from a menu. There were no differences

in smoking, fat intake or cholesterol levels between workplaces randomly assigned to control and intervention sites at 2 year follow-up. A concurrent process evaluation highlighted the importance of giving 'employee steering groups' greater direction; ensuring active participation from all representatives on the steering group and encouraging greater interaction between sites.⁶⁹

DISCUSSION

Effective workplace health promotion partly depends on the interest and willingness of employers to support such programmes and of employees to participate. Consequently two important factors are collecting evidence that convinces employers of the beneficial effects of health promotion and finding ways to make programmes relevant and acceptable to employees. From this review of 110 outcome evaluations studies in the workplace, it can be concluded that a lot of progress still needs to be made on both accounts.

In terms of methodological quality of the outcome evaluations, few outcome evaluations met the four 'core' criteria necessary to be considered as providing reliable evidence of effectiveness. The most common shortcomings were lack of employment of an equivalent control/comparison group and a failure to report pre-intervention data. Most studies in this review cannot be considered to be sufficiently rigorous to make a strong case for workplace health promotion in terms of the benefits for health and/or other outcomes. Further, most interventions were evaluated with respect to short-term effects only. Of the fifteen 'sound' outcome evaluations identified in this review, follow-up intervals ranged from immediately after the intervention to three years, with the majority of evaluations only employing follow-up intervals of six months or less. Thus, there is an urgent need to investigate the longer-term maintenance of these short-term effects. This resonates with other systematic reviews of workplace health promotion programmes which have found that conclusive evidence of effectiveness is not yet available.⁷⁰⁻⁷⁷ In addition, the effectiveness of different approaches to workplace health promotion is likely to be influenced by different organizational structures. There is very little discussion of this in the available literature.

This review found that health promotion interventions in the workplace more often address disease prevention issues guided by epidemiological data than needs identified by the recipients themselves: only 21% of the outcome evaluations reported that the evaluated interventions were based on what employees said they wanted or what they thought were the problems that needed addressing. In addition, only about one in five studies included some attempt to involve the target population in the development of the programme. Most programmes were targeted at the individual level; supportive organizational modifications were scant. These findings indicate a substantial discrepancy between the recommendations of what counts as 'good practice' within workplace health promotion and what is reported in the evaluation of effectiveness literature. 'Good practice' may well exist,

but such programmes are either not rigorously evaluated for their effectiveness and/or many of the evaluation findings may remain outside the public domain.

The limited overall attempt to ensure that programmes are based on the needs of employees could also explain variation in the reported participation rates which varied from 2% to nearly 100% [many studies (42%) did not state their participation rate]. Some studies also suffered from high drop-out rates. These findings undermine the claim that workplaces provide easy access to large captive audiences and suggest that any effort invested in workplace health promotion should be more responsive to the needs of workers. If participation in workplace health promotion is to be increased, research into the barriers and facilitators for participation needs to inform programme development and implementation. Studies within the context of an evaluation of a cancer control and prevention programme in the USA, the 'Working Well Trial',⁶¹⁻⁶³ indicated that low-risk non-participants were already participating in health promotion activities outside the workplace, whereas moderate-risk and high-risk non-participants were preoccupied with past failures in health behaviour change, were suspicious of the motives of health promotion programmes and found the work environment to be non-supportive. A common barrier to participation regardless of risk status was lack of time. Participation was more likely, however, when workers were aware of changes their employer had made to reduce occupational hazards.^{78, 79} These findings suggest that participation in workplace health promotion may be increased if interventions also take into account health risks arising from work activities.

Taken together the findings about the effectiveness of workplace health promotion and employee partnerships suggest:

- there should be visible and enthusiastic support for, and involvement in, the intervention from top management;
- there should be involvement of employees at all organizational levels in the planning, implementation and activities of the intervention;
- a focus on a definable and modifiable risk factor, which constitutes a priority for the specific worker group, can make an intervention more acceptable to that group of workers and increase their participation and
- interventions should be tailor-made to the characteristics and needs of the recipients.

These recommendations give a very important role to employee involvement and the use of partnerships for planning and implementing health promotion in the workplace. Whilst the findings of this review suggest that the use of partnerships is a promising strategy for increasing the effectiveness of programmes, process evaluations of the use of such strategies suggest some challenges to their use, including economic hardships and trying to strike a balance between the promotion of employee ownership and giving employees enough support.^{68, 79} This highlights the need for further research

to determine factors to facilitate the success of such partnerships.

Though these recommendations are very general and certainly have been advocated before, our review has clearly indicated that they are far from commonly applied in practice. Health promotion programmes have become increasingly popular, but persuading companies to implement relevant programmes in the appropriate way, and to evaluate them properly has proved difficult, mainly due to lack of financial and human resources, as well as time constraints.¹³

Given the small number of soundly evaluated interventions identified in this review, specific recommendations for effective interventions have yet to be identified. The 'sound' outcome evaluations identified in this review tested interventions with specific populations in terms of age, ethnicity, social class, education level and gender. Such sociodemographic detail is crucial for evaluating the generalizability of research findings and for examining any selective effects of an intervention.⁸⁰ Similarly, the specific context in which the intervention is implemented is important. For example the partly effective skill development intervention to reduce alcohol and drug consumption reported by Stoltzfus *et al.* was a mandatory programme.⁵⁵ This creates a very different context compared with programmes which involve voluntary participation.

Of particular concern is the lack of any soundly evaluated outcome evaluations identified in the UK. Since many employers in the USA bear the health care costs of their workforce, workplace health promotion programmes arise in a very different context from that in the UK and other European countries. This again warrants caution in the generalizability of the findings of this review. Although many workplace health promotion programmes are in progress in the UK, many programmes have either not been formally evaluated or much of the information is unpublished. This highlights the need for more rigorous research on the effectiveness of workplace health promotion in the UK.

A further issue highlighted by this review is the lack of outcome evaluations with integral process evaluations. Only one in five studies in this review included both process and outcome measures. Springett and Dugdill advocate the use of a more comprehensive, holistic approach to the evaluation of workplace health promotion and the need to develop new research paradigms.¹³ Such calls are made throughout health promotion and have often led to fierce debates about what constitutes 'evidence'. The issue is not one of competition between different methods, but about collecting a range of good quality data, which increases the validity of conclusions and provides us with a fuller picture of the extent to which programmes work, and the reasons why.

CONCLUSION

Although the workplace has enormous potential as a setting for improving the health of the adult population, many programmes seem to ignore the needs and views

of the target population in the planning and implementation of workplace health promotion programmes. In addition, the general lack of good quality evaluation studies is a matter for concern. Evaluation should be included as an integral part of any new intervention programme and include both a range of outcome and process measures.

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