Workplace policy and management practices to improve the health of employees

Evidence Review 2

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Executive summary

The National Institute for Health and Care Excellence (NICE) has been asked by the Department of Health to develop guidance on management practices to improve the health of employees, with a particular emphasis on the role of line managers and organisational context. The guidance will cover support for managers, their training, and awareness of employee health issues including managing sickness absence, as well as policies and the organisational context.

The Institute for Employment Studies (IES) in partnership with The Work Foundation (TWF) and Lancaster University have been contracted to undertake a series of evidence reviews of relevant effectiveness and qualitative studies and an economic analysis to support the production of this guidance.

This report presents the second of these evidence reviews and covers studies which examine the effectiveness of organisational interventions that aim to support line managers to enhance the wellbeing of the people they manage. The first review examined the effectiveness of interventions taken by supervisors that could enhance the wellbeing of the people they manage and the next will be a qualitative review of the workplace factors that facilitate or constrain the ability of line managers to enhance the wellbeing of the people they manage.

Method

It was agreed with NICE that a joint search strategy would be adopted for all three research questions which would include:

- A search of key literature databases
- A search of the websites of relevant organisations
- Citation searches of material included in the reviews
- A review of material submitted through the NICE Call for Evidence

- Writing to any known researchers and experts in the field not already contacted during the Call for Evidence to ask for relevant material.

All the papers were reviewed against agreed inclusion and exclusion criteria. Included studies were those that had an experimental or observational quantitative or economic design that were published in English since 2000, set in an OECD country which examined a workplace intervention, policy or practice at supervisory level which directly helped supervisors identify, promote or support employee health and wellbeing. Interventions or support that employees access on their own, statutory provision or interventions to promote physical activity, mental wellbeing and smoking cessation in the workplace, and to manage sickness absence are excluded.

The 10,204 titles and abstracts identified through the initial search process were screened through a two-stage process to identify papers that should be considered for full paper screening, using a checklist based on the inclusion/exclusion criteria. Articles were identified at this stage as being relevant for Review Question 1, 2 or 3.

The full papers of all the studies that came through the initial screening process were ordered and by the time of writing 511 of the 529 identified for full paper screening had been retrieved. Retrieved papers were appraised by two members of the review team using the full inclusion/exclusion checklist to assess the content of the articles and whether they should be included in the review (see Appendix 2).

Of the 529 papers identified for full paper screening a total of 141 have been screened. These include all those identified in the earlier search process as potentially relevant to Review Questions 1 and 2 and an additional 30 which were uncategorised. During the screening process 12 papers have been identified for inclusion in this review and an additional 31 for Review Question 3.

The 12 papers identified for inclusion in this review were assessed for quality and the data extracted and presented in an evidence table by two separate members of the review team. Papers were assessed using a checklist based on the quality assessment in the NICE Public Health Guidance Methods Manual (NICE, 2012). Depending on how they met the criteria behind the checklist papers were graded either: '++', '+' or '-'.

Findings

The 12 studies included in this review provide a mixture of evidence about the effect of workplace interventions on employee well-being. Most of the studies found a positive effect on employee well-being from their intervention. None of the studies

were set in the UK and although some were set in the USA or Western Europe their applicability to the UK setting is to some extent limited.

Seven different studies examined different forms of training in different settings. Three of these studies, carried out by the same research team in Japan, focused on the effects of training supervisors to be more aware about the mental health of their employees. Two (Takao et al. 2006 and Tsutsumi et al. 2005) found positive results from a face-to-face training programme, albeit of fairly low intensity, whereas the third (Kawakami et al. 2005) did not find any significant positive effects from a web-based training intervention.

Evidence Statement 1

There is mixed evidence from three studies (all in Japan[1,2,3]) about the effect of training supervisors in mental health issues on the well-being of the people they manage. Two separate non-randomised controlled studies[1,2] found that face-to-face training for supervisors about workplace mental health had large positive effects on the psychological distress (F=7.28, p=0.012) felt by young (aged 34 and under) white-collar males in a brewery[1] and a small positive effect on psychological distress (t=4.95, p.0.001) among all employees in a prefectural office[2]. However a third, randomised, controlled study[3] found that a web-based mental health at work training programme for supervisors in a Japanese software company had a small positive effect on the perceived level of supervisors support (p=0.032), there was no significant effect on the levels of psychological distress among the people they managed.

These three studies, from the same research group, are all set in Japan and because of the different workplace and management culture to that prevailing in the UK are of partial applicability.

1 Takao et al. 2006 (+)

2 Tsutsumi et al. 2005 (+)

3 Kawakami et al. 2005 (++)

We found weaker evidence about the impact of training supervisors to adopt a more positive management style towards their employees. However the quality of two of these studies is questionable and therefore the result need to be treated with caution.

Evidence Statement 2

There is inconsistent evidence from three studies that training supervisors to adopt more a positive management style can have a positive effect on employee wellbeing.

There is moderate evidence from a randomised controlled study[3] that a training and self-monitoring intervention designed to increase supervisors' family-supportive behaviours can have a positive impact on physical heath ($p<0.5$) for physical health

among employees with initially higher levels of family-to-work conflict (4.78 relative to baseline) but negative impacts on employees with initially lower levels of family-to-work conflict (-2.0 relative to baseline) among a total of 239 employees at 12 grocery stores in mid-western USA. However, the study found no significant change in job satisfaction or employee turnover intentions. This evidence is partially applicable to the UK.

However, there is weak evidence from an uncontrolled before and after study[1] that training supervisors to apply verbal positive reinforcement had no positive effect on employee job satisfaction in a software company based in Chile. The setting of this study significant limits its applicability to the UK. Another study[2] found that a management intervention to improve managers' behavioural skills and styles training managers did not have a significant positive effect on employee satisfaction in a global instrumentation manufacturer based in the USA. Although set in a more similar workplace environment the quality of the intervention and the overall study severely limits its applicability to the UK.

1 Del Chiaro et al. 2000 (-)

2 Swallow, 2008 (-)

3 Hammer et al. 2011 (+)

A seventh study examined a four-day health and safety training intervention delivered over a two year period in garages in Norway and found it had a positive effect on reducing self-reported musculoskeletal pain.

Evidence Statement 3

There is weak evidence from a controlled before and after study[1] that a four-day training programme in health and safety management delivered to supervisors in motor vehicle repair establishments in Norway may have had a positive effect on employees' perceptions of management support (+0.14, $p<0.001$) and a reduction in self-reported musculoskeletal pain (-0.12, $p<0.01$). This evidence is partially applicable to the UK.

1 Torp, 2008 (+)

Four studies investigated interventions which were designed to increase the involvement of employees in the organisation of their workplace. Again the results were mixed, two (DeJoy, 2010 and Mikkelson, 2000) found positive results but two others (Aust et al. 2010 and Biron et al. (2010))) found a negative impact on employee well-being. However the negative results would appear to be largely due to the poor implementation of the intervention, rather than the nature of the intervention per se.

Evidence Statement 4

There is mixed evidence that interventions to increase employee participation in the workplace may have a positive effect on their well-being.

There is moderate evidence from a non-randomised controlled study[1] that a 'healthy work organisation intervention' designed to develop employee participation and problem solving could have small positive effects on job satisfaction ($t[17]= 2.19$, $p < .03$, $n^2=.03$), job stress levels ($t[17]= - 1.83$, $p < .05$, $n^2= .02$) and perceived health ($t[17]=2:07$, $p<.04$, $n^2=.01$) among retail employees working in a large multi-branch organisation in the Southern states of the USA. The evidence also suggests the intervention resulted in small positive improvements in business performance in terms of sales per labour hour ($F[2, 36]= 3.64$, $p<.04$, $n^2 = .03$) and employee turnover ($F[2,36]= 4.10$, $p<.03$, $n^2 =. 02$).

In addition, there is weak evidence from a non-randomised controlled study[2] that a participatory workplace intervention in two community health care organisations in Norway had a positive, but limited, effect on work-related stress ($p < 0.05$), learning climate and management style (no p-values reported) but no significant effects on subjective health and anxiety.

However one non-randomised controlled study[3] found that a workplace intervention designed to improve psychosocial working conditions, which was not implemented well, had a small negative impact on a psychosocial work environment in a large hospital in Denmark. A separate study[4] of a randomised delayed start trial of a workplace intervention designed to improve psychosocial working conditions but which had a failed implementation found it had no effect on sources of stress, mental and physical health, and commitment and a large negative effect on absenteeism among employees in a large public utility in the UK.

This evidence is partially applicable to the UK. One of the interventions was set in the UK and the other three would appear to be similar to those that could be applied in the UK and the workplace settings in the USA and Scandinavia bear some similarity to those in the UK.

1 DeJoy et al. 2010 (+)

2 Mikkelsen et al. 2000 (-)

3 Aust et al. 2010 (+)

4 Biron et al. (2010) (+)

One further study investigated the impact of a team building intervention and found no positive effects on employee well-being.

Evidence Statement 5

There is weak evidence from a before and after study[1] that a team building exercise among nurses, nursing assistants and nursing staff in a general hospital in North Carolina, USA had no significant effect on their job satisfaction. Although health care systems in the USA and UK are different, the intervention would appear to be similar to those that could be applied in the UK and therefore this evidence is partially applicable to the UK.

1 Amos et al. 2005 (-)

How well an intervention is implemented appears to influence whether an intervention is effective or not and, indeed, a badly implemented intervention may have a negative effect on well-being.

Evidence statement 6

There is moderate evidence from two studies that a poorly implemented intervention can have a negative impact on employee wellbeing. One non-randomised controlled study[1] found that a poorly implemented workplace intervention designed to improve psychosocial working conditions had a small negative impact on a psychosocial work environment in a large hospital in Denmark. A separate study of a poorly implemented randomised delayed start trial of a workplace intervention designed to improve psychosocial working conditions found it had no effect on sources of stress, mental and physical health, and commitment and a large negative effect on absenteeism among employees in a large public utility in the UK.

This evidence is partially applicable to the UK. One of the interventions was set in the UK and the other in Scandinavia however there may be unique contextual factors in each of the workplace settings which led to the difficulties in implementing the intervention.

1 Aust et al. 2010 (+)

2 Biron et al. (2010) (+)

1 Introduction

The National Institute for Health and Care Excellence (NICE) has been asked by the Department of Health to develop guidance on management practices to improve the health of employees, with a particular emphasis on the role of line managers and organisational context. The guidance will cover support for managers, their training, and awareness of employee health issues including managing sickness absence, as well as policies and the organisational context. It will be based on the best available evidence and will provide recommendations for good practice for line managers, professionals, commissioners and managers with public health as part of their remit working within the NHS, local authorities and the wider public, private, voluntary and community sectors.

The Institute for Employment Studies (IES) in partnership with The Work Foundation (TWF) and Lancaster University have been contracted to undertake a series of evidence reviews of relevant effectiveness and qualitative studies and an economic analysis to support the production of this guidance.

This report is the second of these evidence reviews and covers studies which examine the effectiveness of organisational interventions that aim to support line managers to enhance the wellbeing of the people they manage. The first review examined the effectiveness of interventions taken by supervisors that could enhance the wellbeing of the people they manage and the next will be a qualitative review of the workplace factors that facilitate or constrain the ability of line managers to enhance the wellbeing of the people they manage. We will also analyse the available economic data on the subject.

1.1 Background

The health of the working population is vital to the economy and to society, but due to changing demographics of the workforce, western societies are facing great challenges to maintain economic growth and competitiveness. The workforce is aging with more people living with a longstanding health problem or disability and musculoskeletal disorders (MSDs) and mental health problems account for more

than half of all short and long-term disability (www.realising-potential.org/stakeholder-factobox). In the UK, around one in three adults (30 per cent) reported in 2009 that they had a longstanding illness or disability, compared with around one in five adults (21 per cent) in 1972 (ONS No 41; 2009). It is likely that chronic disease rates will continue to rise; much of this is due to an increase in poor life style factors, such as poor diet, smoking and lack of exercise.

Ill-health represents a major economic burden for society due to increased healthcare costs, loss in productivity and sickness absence. Although absence rates have been falling in recent years, it has been estimated that annual cost of sickness absence for UK businesses is nearly £14 billion a year (Vaughan-Jones & Barham 2009). In addition, it is likely that presenteeism, defined as reduced performance and productivity due to ill-health while at work, could cost employers two to seven times more than absenteeism (Hemp 2004).

It has been recognised that improved workplace health has the potential to make a significant contribution to the economy, to public finances and to reducing levels of disease and illness in society (Waddell and Burton 2006). Employers play a key role in helping to protect health and prevent future ill health of working population and the NICE Public Health Guidelines (2009) recommend strategic and coordinated approach to promote employees' mental health wellbeing.

The health of employees is a major factor in an organisation's competitiveness. Employees in good health can be up to three times as productive as those in poor health; they can experience fewer motivational problems; they are more resilient to change; and they are more likely to be engaged with the business's priorities (Vaughan-Jones & Barham 2010). In Dame Carol Black's review of the health of Britain's working age population it was calculated that improved workplace health could generate cost savings to the government of over £60 billion – the equivalent of nearly two thirds of the NHS budget for England (Black 2008).

An employer's attitude to workplace health is likely to depend on the culture of the organisation and their motivation for investment. According to a large world-wide survey involving 378 organisations (GCC 2013), the main reasons for employers developing wellness strategies were improving employee health (69 per cent), improving work engagement (68 per cent) and also reducing sickness absenteeism (36 per cent) and increasing productivity (27 per cent).

Workplace interventions are usually grouped in two main categories:

- Interventions that aim to improve health safety or managing ill-health of employees, such as sickness absence management programmes, vocational rehabilitation, and return to work schemes.
- Health promotion programmes, which focus on overall wellbeing, for example smoking cessation, healthy diet and exercise programmes (PriceWaterHouseCoopers LLP Feb 2008).

Reasons why employers invest in workplace health can be:

- legal (to comply with health and safety requirements)
- economic (reducing costs or add value to the business) and/or
- ethical (the sense that is the right thing to do) (Vaughan-Jones & Barham 2010).

It is, however, difficult for employers to measure the extent to which a particular workplace health intervention has had an impact. There is surprisingly little evidence on what the total costs, both direct and indirect, are to business (Bevan 2010). That so few businesses spend time calculating the costs could be one explanation for why relatively few of them are investing in employee health measures (Black 2008). Similarly, academic systematic reviews examining the effectiveness of interventions on sickness absence management and job retention have found programmes to be effective, but may be highly biased due to small number and size of the studies and their moderate or low quality (Palmer et al. 2012; Hamberg-van Reenen et al. 2012).

Workplace health interventions are more likely to be effective in organisations that promote good quality work (Vaughan-Jones and Barham 2010) and producing good quality work is beneficial for physical and mental health resulting in better self-esteem and quality of life (Waddell and Burton 2006). Promoting good quality work involves giving consideration to issues of working practices and job design (Bevan 2010). The Macleod Review on employee engagement (July 2009) has revealed how this 'feeling good' factor is strongly influenced by good leadership. The main factors influencing good quality of work are:

- leaders who support employees see where they fit into the bigger organisational picture
- effective line managers who respect, develop and reward their staff
- consultation that values the voice of employees and listens to their views, and
- concerns and relationships based on trust and shared values.

While there are a relatively large number of research studies examining the link between management practices and employees' health, systematic evaluation of the best approach, however, is lacking. As more employers recognise the need to promote wellbeing at work it is important that they have access to guidelines which help them to provide healthy and good quality working environments in a cost effective way and using evidence-based interventions.

1.2 Aim of this review

The aim of this second review is to answer the following central research question:

What workplace interventions, policies or practices implemented by employing organisations, are effective and cost effective in supporting line managers to enhance the wellbeing of the people they manage?

Such interventions could include organisational culture, leadership styles, management practices and support from occupational health departments which affect the ability of line managers to identify employees' health and wellbeing support needs and provide them directly or indirectly with the support to meet those needs.

In addition we sought to identify and review any evidence that covered an additional secondary question:

- Are there actions or activities by line managers which discourage or hinder the health and wellbeing of employees?

We were looking for evidence covering line managers (ie an employee with direct responsibility for the performance, development and/or welfare of one or more other employees) at any level and the impact they have on employee wellbeing. Wellbeing was defined as the emotional, physical and mental health and happiness of individuals as it is affected by a number of factors in the workplace which could include organisational, managerial, social and physical dimensions. To be included in the review, studies had to examine the effectiveness of an intervention (or workplace policy or practice) by means of a comparison with a control group, or through a longitudinal approach (or ideally both).

The next review examines Review Question 3, which is a broader question than those covered by the first two reviews and will include non-intervention studies. The third review question is as follows:

What workplace factors facilitate or constrain the ability of line managers to enhance the wellbeing of the people they manage?

1.3 Structure of the report

This report covers:

- The methodology we adopted to conduct this review
- The findings from the review
- A discussion of the evidence.

In addition a series of Appendices provide further information on our approach and a bibliography of the studies included and excluded from this review.

2 Methodology

In this chapter we set out our approach to conducting this review.

2.1 Overall search strategy

It was agreed with NICE at the outset that a joint search strategy would be adopted for all three research questions which would cover:

- Effectiveness studies (for Review Questions 1 and 2)
- Qualitative studies (for Review Question 3)
- Economic studies (for the economic review and modelling report)

The search for relevant evidence covered a number of elements:

- A search of key literature databases
- A search of the websites of relevant organisations
- Citation searches of material included in the reviews
- A review of material submitted through the NICE Call for Evidence
- Writing to any known researchers and experts in the field not already contacted during the Call for Evidence to ask for relevant material.

2.2 Inclusion and exclusion criteria

All the papers were reviewed against agreed inclusion and exclusion criteria. The agreed criteria are set out below.

2.2.1 Inclusion criteria

Populations included:

- All adults over age 16 in full or part-time employment, both paid and unpaid

- All employers in the public, private and 'not for profit' sectors who employ at least one employee.

Questions to be addressed by included studies:

- What is the role of the organisational culture and context in supporting line managers, and in turn their employees? What is the role of organisational policy and processes? *[Covered by Review 2]*
- How can line managers promote the health and wellbeing of employees? Which interventions or policies are most effective and cost effective? *[Covered by Review 1]*
- Are there actions or activities by line managers that discourage or hinder the health and wellbeing of employees? How can line managers support and motivate employees? *[Covered by Reviews 1 and 3]*
- How can line managers be best equipped to identify any employee health and wellbeing issues? How can line managers identify and support distressed employees? *[Covered by Reviews 1, 2 and 3]*
- How can high-level management promote a positive line management style that is open and fair, that rewards and promotes positive behaviours and that promotes good working conditions and employee health and wellbeing? *[Covered by Review 2]*
- How can line managers be best supported and provided with good line management themselves? *[Covered by Reviews 1 and 2]*
- Which types of support and training for line managers are effective and cost effective? *[Covered by Review 2]*
- What is the role and value of occupational health services in supporting line managers? Are these services effective and cost effective? *[Covered by Reviews 1 and 2]*
- What is the business or economic case for strengthening the role of line managers in promoting the health and wellbeing of employees? *[Covered by Reviews 1 and 2]*

Locations included:

- Developed/OECD countries
- Workplace settings.

Time period considered:

- 2000 onwards for effectiveness and cost-effectiveness primary studies and reviews.

Study types included:

- Experimental quantitative studies including:
  - Before and after studies
  - Non-randomised controlled trials (non-RCT)
  - Randomised control trials (RCT)
- Observational quantitative studies:
  - Before-and-after studies
  - Case–control studies
  - Cohort studies
  - Correlation studies
  - Cross-sectional studies
  - Interrupted time studies
- Economic studies
  - Cost–benefit analyses
  - Cost-effectiveness analyses.

2.2.2 Exclusion criteria

Excluded population groups

- Self-employed individuals
- Sole traders
- Unemployed individuals.

Interventions and policies excluded

- Intervention or support that employees access on their own, without input from the employer, organisation or line manager
- Statutory provision to employees
- The effectiveness of specific interventions to promote physical activity, mental wellbeing and smoking cessation in the workplace, and to manage sickness absence and the return to work of those who have been on long-term sick leave.

Locations excluded:

- Developing or non-OECD countries

Study types excluded:

- Non English language studies
- Qualitative studies.

2.3 Searching literature databases

A series of databases were searched by an Information Scientist at the Lancaster University library between 19 October and 4 November 2013, see Table 2.1.

Table 2.1: Literature databases searched

Database Name	No. of title and abstracts downloaded to EndNote database
MEDLINE	1,998
PsycINFO	2,999
Academic Search Complete	1,067
Business Source Premier	1,858
ABI Inform	102
Proquest Digital Dissertations	62
EconLit	106
Social Policy and Practice	340
Web of Science	1,500
EMBASE	73
	10,105

Source: IES/Work Foundation/Lancaster University, 2013

The search strategies were designed to cover: the workplace, the role of line managers and supervisors, health and wellbeing, organisational culture, and management style. Examples of the strategies used are set out in Appendix 1 and the results set out in Table 2.1. The titles and abstracts identified through the searches were recorded in an EndNote database.

2.3.1 Initial screening

The titles and abstracts identified through the search were screened through a two-stage process to identify papers that should be considered for full paper screening.

Initial sift (Sift 1)

The titles and abstracts of the 10,105 papers identified through the search were initially screened by the Information Scientist at Lancaster University using the population, setting and relevance inclusion and exclusion criteria and to exclude studies not published in English. Those that passed were marked for further consideration. The first 200 papers identified through the initial search were screened by a second member of the review team to ensure that the inclusion/exclusion criteria were being applied consistently and no discrepancies were identified. Sift 1 resulted in 2,286 papers being identified for more detailed title and abstract screening.

Second sift (Sift 2)

The titles and abstracts of the 2,286 references selected for further consideration were screened in more depth by five members of the review team at IES and the Work Foundation, using an inclusion/exclusion checklist based on the Public Health Guidance Methods Manual (NICE, 2012) (see Appendix 2). Half the references were screened by two different researchers and any differences resolved in discussion with a third. As a result of this process, 529[1] references were identified for full paper screening. At this point papers were categorised as relevant to either Review Question 1, 2 or 3, although 30 failed to be categorised.

[1] This figure includes papers identified through the Call for Evidence and citation searching which had been full paper screened

2.3.2 Full paper screening

The full papers of all the studies that came through the initial screening process were ordered and by the time of writing 511 of the 529 identified for full paper screening had been retrieved[2]. As part of the retrieval process the authors of papers unobtainable through the Lancaster University library were contacted and asked to send a copy of their paper to the research team. Retrieved papers were appraised by two members of the review team using the full inclusion/exclusion checklist to assess the content of the articles and whether they should be included in the review (see Appendix 2). Where there was a discrepancy between the assessments of the two reviewers, a further review was conducted by an additional member of the team. The progress of papers through the full paper screening process was tracked using a spreadsheet adapted for this project from one devised by the University of Kent.

The spreadsheet was used to identify:

- the first exclusion reason for those papers excluded; and
- for which Research Question the paper was relevant.

2.4 Website searches

In addition, the following websites were searched for relevant material and seven items were identified as potentially meeting the inclusion and exclusion criteria and allocated for full paper screening.

UK

- Acas
- British Chambers of Commerce (BCC)
- British Psychological Society
- Centre for Employment Studies Research
- Centre for Mental Health

[2] Where possible, the research team have written to the authors and/or publishers of papers unobtainable through Lancaster University library to request a copy of their full paper.

- Chartered Institute of Environmental Health
- Chartered Institute for Personnel and Development
- Chartered Institute of Management
- Department of Health
- Department for Work and Pensions
- Engineering Employers Federation
- Health and Safety Executive
- Institute for Occupational Safety and Health
- London Health Commission
- NICE (including former Health Development Agency document search) and NICE Evidence
- Oxford Health Alliance
- Public Health Observatories
- Scottish Government
- UK Commission for Employment and Skills / Investors in People
- Welsh Government
- Xpert HR

International:

- EU-OSHA
- Eurofound
- EuroHealthNet
- European Commission
- Finnish Institute of Occupational Health
- Institute for Work and Health
- International Commission of Occupational Health
- Liberty Mutual Research Institute for Safety
- Organisation for Economic Co-operation and Development
- The National Institute for Occupational Safety and Health
- World Health Organisation

Seven reports and papers were identified as potentially relevant to at least one of the review questions and a copy obtained for full paper screening. None were identified as relevant for Review Question 2.

2.5 Citation searching

A further element of the search process involves checking whether the papers included in each review have been cited by subsequent researchers and screening those references to ensure the review covers the most up-to-date material. Citations of the 11 papers included in this review have been searched. As a result, 48 studies were identified through this process and screened. One met the inclusion/exclusion criteria and has been included in this review.

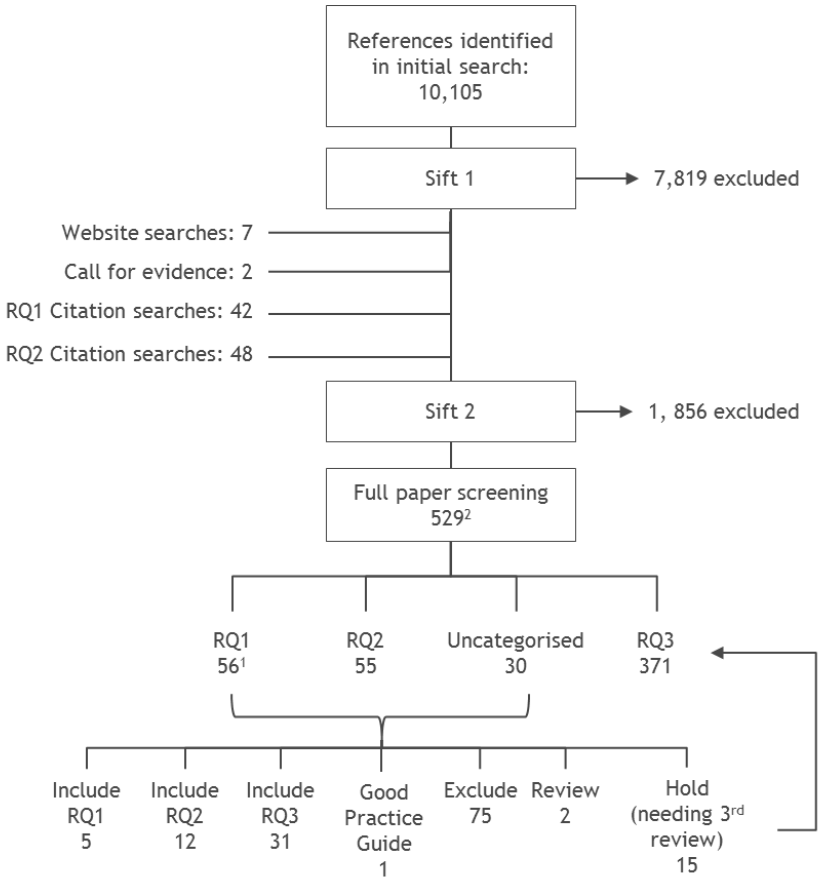
2.6 Call for Evidence

A further process involved a Call for Evidence issued by the NICE review team. The call was issued on 13 September 2013 and closed on 16 October 2013 and asked for interested parties to send in evidence of relevance to the reviews. This material has been reviewed by the research team and one of the studies identified was found to be relevant to this Research Question (in addition to the one that was included in Review Question 1). This paper was screened following the same process outlined above and subsequently included in this review.

2.7 Outcome of the search process

The searching and screening process is summarised in Figure 2.1.

Figure 2.1: Outcome of search process for Review Question 2



1. Includes one economic paper
2. Includes 4 papers still in the process of being obtained at the time of writing and 13 books (RQ3)

Source: IES, TWF, Lancaster University

Of the total number of 529 papers so far identified for full paper screening, 141 have been screened. These include all those identified in the earlier search process as potentially relevant to Review Questions 1 and 2 and 30 which were uncategorised, plus papers identified through the website search, the call for evidence and the citation search as relevant for Review Question 1 (see below). During this screening process 12 papers were identified for inclusion in this review and a further 31 for Review Question 3.

2.8 Data extraction

The 12 papers identified for inclusion in this review were assessed for quality and the data extracted and presented in an evidence table. The evidence from each paper was extracted and the quality of the paper appraised by a member of the IES/TWF review team and then checked and re-appraised by another. The narrative statements of evidence were written by a third member of the team.

2.8.1 Quality appraisal

Papers were assessed using a checklist based on the quality assessment in the NICE Public Health Guidance Methods Manual (NICE, 2012). As a result papers were graded either:

++ All or most of the checklist criteria have been fulfilled, where they have not been fulfilled the conclusions are very unlikely to alter

+ Some of the checklist criteria have been fulfilled, where they have not been fulfilled, or not adequately described, the conclusions are unlikely to alter and

- Few or no checklist criteria have been fulfilled and the conclusions are likely or very likely to alter.

The checklist is included in Appendix 2.

2.8.2 Data extraction

For each paper the evidence table, which follows the format set out in Public Health Guidance Methods Manual (NICE, 2012) summarises:

- the key research aims
- the study quality rating
- the research design and methodology
- the intervention (if applicable) and focus of the study
- the findings that contribute to the research questions
- limitations and gaps
- summary information about authors, publication etc.

2.9 Evidence synthesis

The results of the data extraction and quality assessment for each of the included effectiveness studies are presented in a narrative summary and an evidence table (Chapter 3). The findings from studies have been synthesised and where appropriate grouped thematically and an evidence statement(s) generated for each theme (Chapter 4).

The synthesis and evidence statements were initially drafted by one member of the review team, circulated to all other members of the team and revised on the basis of comments received. At this point the relevance of the findings to the UK context was also assessed, based on the following criteria:

- The population involved
- The setting, including the country or countries and type of workplaces in which the study took place
- The intervention and whether it would be appropriate for the UK
- The reported outcomes.

2.10 Excluded studies

Appendix 4 provides the reference details of 75 excluded studies from the full paper screening for Review Questions 1 and 2. Studies were excluded because they failed to meet at least one of the inclusion criteria. As soon as they failed to meet one of the criteria they were excluded. In the appendix the references are ordered by the criterion by which they were excluded. Five were excluded because they did not cover the right population (eg were not employees) but these may have failed against other criteria too. Four were in the wrong setting (ie not based in the OECD or a workplace), 20 did not have sufficient methodological information or contained insufficient information about the method used and 25 were rejected on grounds of relevance, eg they did not study the influence of line managers' actions on the health and wellbeing of the people they managed and a further 10 on the grounds that they did not examine a specific workplace intervention. In nine cases we did not have the full paper and the author was uncontactable. Two of the papers designated for Review Question 2 turned out to be based on studies already included in the first review. Fifteen papers still need a third screening but have been assessed as not relevant to Review Question 2.

3 Findings

A total of 12 studies met the criteria for inclusion in this review and focussed on workplace policies, practices or interventions implemented by organisations that supported line managers to enhance the wellbeing of the people they manage that contained evidence about their effectiveness or cost effectiveness in enhancing the wellbeing of the people they manage. The studies are summarised below and the implications of the findings discussed in Chapter 4. The Evidence Tables for each of the included studies at in Appendix 1.

3.1 Summaries of the included studies

3.1.1 Amos et al. (2005)

This (-) uncontrolled before and after study aimed to measure the effect of a team-building intervention on staff communication and job satisfaction among 44 nurses, nursing assistants and nursing secretaries in a general hospital in North Carolina, USA.

The intervention was developed by a consultant in private practice and an expert in staff development, who worked with the nurse manager to develop a team-building programme consisting of eight hours of training about:

- communication styles (including effective communication styles and listening skills)
- conflict resolution
- stress management
- personality styles
- normal group development and group dynamics.

Two, eight-hour days were held twice: in the autumn and in the spring. Half of the participants attended each session so all the participants attended one session in the

autumn and another in the spring (16 hours in all). Activities included presentations by the facilitator and other experts, group discussions, and role play. Strategies for stress management were also introduced to assist staff with self-care. The sampling procedure is unclear, but it is reported that 44 out of a possible 52 nurses, nursing assistants and nursing secretaries/monitor technicians in the medical surgical unit took part in the evaluation.

Outcomes

The outcomes of the intervention were measured using the Staff Communication Evaluation Tool (SCET) and the Index of Work Satisfaction (IWS) and a Continuous Employee Perceptions Survey (CEPS), regularly applied by the hospital. Measurements were taken at baseline and after three months.

A paired t-test was used to examine the impact of the team-building intervention on communication and job satisfaction. There were no statistically significant differences between baseline and three-month post-test scores on the Staff Communication Evaluation Tool ($p > .05$). There were also no significant differences between baseline and three-month post-test scores on the IWS total job satisfaction score ($p = .96$).

The long-term benefits of the programme were assessed by the Continuous Employee Perceptions Survey. The evaluation of the team environment in the department increased over the previous year by seven per cent from 75.6 per cent to 80.8 per cent.

The use of positive and constructive feedback by staff improved by five per cent after the intervention. Although the differences pre- and post-test were not statistically significant, staff reported that esprit de corps on the unit improved. The staff also discussed their experiences with colleagues from a similar unit. They believed that the team-building programme was beneficial and recommended that the other unit manager and staff develop a similar team-building programme.

Limitations

This study was assessed as (-). The review team had a number of concerns about the lack of information about the methodology (eg how the study population was selected and the lack of detail about any within group differences eg between nurses and nurse secretaries). It was also unclear whether individuals took part in the study because team building on communication and job satisfaction was important to them, or whether they participated to gain their continuing education credit that was offered for taking part. This could have had an impact on the participants' level

of engagement in the study. The timescales of the study were confusing as the intervention spread over two sessions between autumn and spring and it was unclear when pre and post test carried out in relation to these two dates. The full results were only given for one of the three instruments used for data collection.

Applicability to the UK

This evidence is partially applicable to the UK. Although health care systems in the USA and UK are different, the intervention would appear to be similar to those that could be applied in the UK.

There is weak evidence from a before and after study[1] that a team building exercise among nurses, nursing assistants and nursing staff in a general hospital in North Carolina, USA had no significant effect on their job satisfaction.

[1] Amos et al. 2005 (-)

3.1.2 Aust et al. (2010)

This is a (+) non-randomised controlled study which investigated whether workplace interventions designed to improve psychosocial working conditions resulted in changes in the psychosocial work environment in 14 units of a large hospital in Denmark.

Seven units in a large Danish hospital were asked by a hospital project group to take part in an intervention designed to improve psychosocial working conditions and to decrease sickness absence. When researchers were invited to evaluate the project they requested the inclusion of reference (control) units. Therefore, seven further reference units, which matched the specialism of the intervention units as far as possible, were chosen to participate in the study. Because the control groups were recruited for the study after the intervention units had been chosen, randomisation was not possible.

A baseline survey and a follow-up survey, six months after the official end (final staff meeting) of the intervention project were conducted with a gap between the baseline and follow-up surveys of about 16 months.

Of the 450 eligible employees in the 14 units, 399 participated in a baseline survey (response rate: 89 per cent). Of these, 97 had left the unit at follow up (after 16 months), reducing the sample to 302 employees, of which 231 (76 per cent) responded to the follow-up questionnaire: 128 in the intervention and 103 in the control group. Non-respondents had lower mental health (72 vs. 79, $p<0.001$) and

vitality scores (55 vs. 65, $p<0.001$) at the follow-up stage. The intervention and control group did not differ in gender distribution, age, and years of employment in the unit.

The intervention started by providing detailed written reports about results from the baseline questionnaire to all intervention and reference units. Thereafter, the control units did not get any further input from the project team until they received a final report about the project. In the intervention units the baseline results were used as a starting point for a discussion about their psychosocial work environment. The consultants met with each unit leader to discuss the results of the survey and to find out which issues the unit leaders thought were most important. All employees were invited to a kick-off day in their respective units. Selected results of the baseline survey were presented by the unit leader. Under the guidance of the consultants, employees were asked to comment on the results and add further information about potential areas for work environment improvements. After discussing the issues, the units decided on which topics they were going to focus such as communication, sickness absence and expectations from leaders and employees. In some units organizational changes were established. For example one managed to establish a common shift-schedule for all three units in the department and another unit found a better solution to manage summer vacation time by improving the cooperation between two similar units. Overall, however, few changes were implemented.

In the process evaluation employees criticised the lack of clarity about their roles and resources during the project, and said that they would have needed more help from the project consultants and that they were frustrated about the few implemented changes.

Outcomes

The psychosocial work environment was measured using the Copenhagen Psychosocial Questionnaire, version I (COPSOQ I) scale which comprises:

- Demands at work: quantitative demands, high work pace, emotional demands, demands for hiding emotions);
- Work organisation and job content: influence, possibilities for development, meaning of work); and
- Interpersonal relations and leadership: social support from colleagues, social support from supervisor, role clarity, role conflicts, predictability, quality of leadership).

Changes in the mean score were analysed for each of the psychosocial work environment scales separately for the intervention and the control group. To take any clustering effect into account, a mixed model for repeated measures and random effects was used.

In the intervention units, there was a statistically significant worsening in six out of 13 work environment scales. The decrease was most pronounced for the three scales that measure aspects of interpersonal relations and leadership. In addition, all the three scales that measured aspects of work organisation and job content decreased. However, one positive change was found in the intervention group: emotional demands became less. In comparison, the reference group showed statistically significant changes in only two scales. The process evaluation revealed that a large part of the implementation failed and that different implicit theories were at play.

After 16 months of follow up, the participants of the intervention group showed a statistically significant decrease in the scales of emotional demands, influence, possibilities for development, meaning of work, supervisor support, predictability, and quality of leadership. The decrease was most pronounced for quality of leadership with a mean decline of 9.2 points, followed by supervisor support (minus 8.3 points) and predictability (minus 6.1 points). The reference group showed statistically significant changes on two scales – an increase in work pace and a decrease in predictability. A combined analysis, adjusting for gender, age, years at unit, job group, and baseline values of mental health and vitality showed that the changes in the two groups were significantly different from each other for:

- Meaning of work: *Intervention group:* Baseline: Mean 81.1 (SD 13.7). Follow-up: 76.7 (SD 14.3). Change: -4.4, t= -4.17 p<0.001. *Control group:* Baseline: Mean 83.3 (SD 12.7). Follow-up: 82.5 (SD 11.8). Change: -0.8, t= -0.56 p=0.58. Interaction change x group: Est. – 3.7 t= -2.36, p=0.02
- Social support from supervisors: *Intervention group:* Baseline: Mean 60.1 (SD 22.1). Follow-up: 51.8 (SD 21.2). Change: -8.3, t= -3.9 p<0.001.*Control group:* Baseline: Mean 67.6 (SD 19.2). Follow-up: 69.3 (SD 19.6). Change: +1.7, t= 0.85 p=0.40. Interaction change x group: Est. – 9.9 t= -3.40, p<0.001
- Quality of leadership: *Intervention group:* Baseline: Mean 55.1 (SD 16.2). Follow-up: 45.9 (SD 17.2). Change: -9.2, t= -5.41 p<0.001. *Control group:* Baseline: Mean 67.8 (SD 20.1). Follow-up: 67.0 (SD 15.7). Change: - 0.8, t= -0.66 p=0.51 Interaction change x group: Est. – 8.2 t= -3.52, p<0.001.

The study authors conclude that without the insights gained from process data the negative effects of this intervention could not be understood. “Sometimes – as it

seems happened in this study – more harm can be done by disappointing expectations than by not conducting an intervention."

Limitations

This study was assessed as (+). The authors state that the negative results could have been due to poor implementation of the intervention.

Because randomisation was not possible, and only one hospital recruited, it could have led to biased findings because of risk of contamination. It could have also played some role in the poor implementation.

Applicability to the UK

This evidence is partially applicable to the UK. The intervention is set in a Danish hospital and is therefore not dissimilar to a similar setting in the UK. Although the intervention appears to have been poorly conceived and implemented which limits the applicability of the study it does show that a poorly implemented intervention can have negative effects.

There is moderate evidence from non-randomised controlled study that a poorly implemented workplace intervention designed to improve psychosocial working conditions can have small negative impacts on a psychosocial work environment among employees in a large hospital in Denmark.

[1] Aust et al. 2010 (+)

3.1.3 Biron et al. (2010)

This study (+) primarily focuses on why a stress prevention programme failed to achieve its aims, in so doing it reports the results of a randomised delayed start trial which evaluated a stress prevention programme implemented among 32 managers in a department of a large private utility company in the UK.

The company had designed a stress prevention initiative, partly based on the Health and Safety Executive's (HSE) Stress Management Standards. It required managers to use a Stress Risk Assessment tool (SRA) within their team (developed by a consultancy company to help organisations comply with the HSE's legal requirements), and discuss the results with employees to find corrective solutions. The SRA tool measured the stressors identified by the HSE (ie Relationships, Roles, Change, Demands, Control and Support) as well as mental and physical well-being, and subjective performance.

The managers attended a stress workshop, delivered by the company Human Resource (HR) staff, where they learned about basic occupational stress concepts and about the SRA tool. Following the workshop, managers invited members of their team to complete a questionnaire. A minimum of 60 per cent of the team had to complete the questionnaire before for the manager could close this phase. Managers received a confidential aggregated team report which they were expected to discuss in a team meeting and agree an action plan of corrective interventions for high risks levels.

A total of 32 managers worked in the participating business unit which comprised two operational departments. One group of managers was trained to implement the programme six months before the second group. It was hypothesised that if the programme was to produce some effects, they would be stronger in employees from the first group of trained managers. Managers were split into two groups based on their operational departments, and 50 per cent from each department were randomly allocated to each research group.

The impact of the stress management programme on employees was measured through two employee surveys, which were based on the ASSET questionnaire tool (Cartwright & Cooper, 2002; Faragher, Cooper, & Cartwright, 2004). This questionnaire was selected because it provided individual data, was based on established models of stress (eg Cooper & Marshall, 1978) and had norms for the private sector. The survey comprised three sections, as well as socio-demographic characteristics:

- *Exposure to stressors*: being troubled by relationships (α =.85), resources and communication (α=.69), pay and benefits, work-life balance (α=.71), overload (α=.80), job security (α=.68), control (α= .81), and job overall (α=.72),
- *Commitment:* Perceived commitment of the organisation to the employee (eg, feeling valued and trusted by the organisation), (α=.83) and commitment of the employee to the organisation (eg, willing to go the extra mile), α= .79).
- *Strain and absenteeism*: Mental (α=.91) and physical (α= .79) well-being.

A total of 125 employees completed the questionnaire: once after managers attended the stress workshop, and again nine months later (n = 94) (response rate of 61 per cent at Time 1 and of 48 per cent at Time 2, with n = 60 full-completers). The dropout rate was 52 per cent. A total of 54 employees whose manager used the SRA completed the questionnaire, and were compared to the 75 employees whose manager did not use the SRA tool.

At baseline, t tests showed no significant differences on any of the study variables between employees whose manager had used the SRA tool versus those whose manager had not.

Qualitative data (12 semi-structured interviews and observation notes gathered over 12 months) were used to document the intervention process and context. Out of the 16 managers composing Group 1, 12 managers from all levels (operations, team and senior manager) were interviewed individually six months after they attended the stress workshop where they were trained to use the SRA tool.

Outcomes

Results showed no overall significant changes in employee measures between Time 1 and Time 2 with respect to sources of stress, mental and physical health, and commitment. Absenteeism was the only exception; the number days reported increased from 2.07 at Time 1 to 5.88 at Time 2.

Employees whose manager did not use the SRA tool reported a decrease in their workload, $t(1, 40)$ _$=2.68$, $p = .01$, $d = .65$, a medium effect size. Three interaction effects which approached significance were found on physical health ($p = .06$), organisational commitment ($p = .09$), and employee commitment ($p = .08$). Analysis showed that employees whose manager had used the SRA reported poorer physical health at Time 2, although this only approached significance and had a small effect size, $t(1, 40) = 1.84$, $p = .07$, $d = .31$.

Employees whose manager used the SRA tool were less committed at Time 2, with a medium effect size, $t(1, 40) = 2.46$, $p = .03$, $d = .62$. Lower organisational commitment was noted but only approached significance, a small effect size, $t(1, 40) = 1.75$, $p = .09$, $d = .45$). The increase in absenteeism was only significant for those whose manager used the SRA tool, a small effect size, $t(1, 40) = 2.02$, $p = .05$, $d = .35$.

The researchers also compared managers who did not use the tool with managers who did. Results showed managers who used the SRA tool reported better mental health, $F(1, 20) = 8.64$, $p < .01$, better physical health, $F(1, 20) = 7.40$, $p < .05$, lower exposition to stressors such as poor resources and communication, $F(1, 20) = 5.92$, $p < .05$ and poor relationships at work, $F(1, 20) = 5.54$, $p < .05$.

A number of reasons for the failure of the intervention were identified:

- *Contextual influences*; eg interviews showed that very few (five) managers from the first group trained to use the SRA tool were in a position to use it appropriately. In addition, lots of organisational and internal changes affected the department during the study period.

- *Low ownership of stakeholders*: eg quantitative and qualitative data showed a low perceived need for the tool due to the low level of exposure to stressors. Survey data at follow-up showed that 32 per cent of managers indicated they were uncomfortable discussing stress-related issues with their team.

Limitations

The authors identified that the study was based on a relatively small sample which is not representative. The time frame was quite short (12 months overall, and 9 months between the survey measures), considering organisational-level interventions are known to take time before being fully implemented.

Since the SRA tool was intended for managers only and provided aggregated data, another questionnaire (ASSET) had to be used in conjunction with the tool. It is likely that respondents confused the two, and that having to complete three questionnaires over 12 months represented a burden.

The review team note that changes occurred during the research period which, along with other contextual factors, limit the generalisability of the study as these contextual influences were thought to have an impact on the intervention

Applicability to the UK

This study is set in the UK but the study has some specific contextual influential which limits its wider applicability.

There is moderate evidence from a study of a randomised delayed start trial that a poorly implemented workplace intervention designed to improve psychosocial working conditions had no effect on sources of stress, mental and physical health, and commitment and a large negative effect on absenteeism among employees in a large public utility in the UK.

[1] Biron et al. 2010 (+)

3.1.4 DeJoy et al. (2010)

This (+) non-randomised controlled study examined the impact of a 'healthy work organisation intervention' among employees in 21 branches of a large warehouse-type retailer across a range of Southern states in the USA.

Two districts of a large retail chain (11 stores) were assigned to the intervention group and two districts (10 stores) served as control sites. Assignment to the intervention and control groups was not randomised and was reported to be

conducted to make the worksites in the two groups as comparable as possible. The stores were reported to be very similar in basic operations, physical layout, and overall product mix, and ranged in size from about 150 to over 300 employees, employing a total of around 4,000 employees (across all the 21 stores involved).

The intervention was designed to build capacity for employee participation and problem solving and create a healthier work organisation.

Within each intervention store, an employee problem-solving team, called the 'ACTion team', was organised. ACTion team members (8–12 per team) came from all departments and levels and were broadly representative of the employee mix at each location. The teams were charged with developing, implementing and evaluating tailored plans of action for addressing the issues or problems identified within their stores. Assisted by trained facilitators, the ACTion teams developed action plans using a five-phase problem-solving process: familiarisation, skill building, prioritisation, action and reaction.

A variety of structured activities were used by the facilitators, directed at improving team communication and cohesiveness (eg team mapping, mirroring) as well as developing problem solving (eg weighing pros and cons), time management (eg prioritising tasks) and conflict resolution skills (eg anger control). During the action phase, the ACTion team developed a detailed action plan to meet team goals and address the identified priorities. In control stores, teams were not formed and no organised activities or consultations were provided.

Baseline surveys (organisational audits) were conducted at all 21 worksites, six months prior to the start of the intervention. The same survey with minor modifications was then re-administered approximately 12 months later (post-test 1), and again 24 months later (post-test 2). Employees were allowed to complete surveys in work time and participate in intervention activities. Completion of the surveys was entirely voluntary and anonymous.

The baseline survey results provided the starting-point for problem identification and action planning. The facilitator helped the team move through a systematic set of activities to identify priority problems and issues.

Intervention effectiveness was assessed using three levels of outcomes forming a logic chain of impact:

- Proximal or short-term outcomes included three set of measures assessing job design, organisational climate and job future;

- Intermediate outcomes included five measures of psychological work adjustment; and
- Distal or long-term outcomes consisted of two sets of measures assessing employee health and well-being, and store business performance, respectively.

Each set of outcomes was measured at baseline, post-test 1 and post -test 2.

Outcomes

The results for the three sets of outcomes provided partial support for each of the studies three central hypotheses, which were that relative to control worksites, worksites engaging in the intervention process would show:

- positive changes in targeted aspects of job design, organisational climate, or job future (ie short-term outcomes);
- improvements in psychological work adjustment as reflected in measures of job satisfaction, organisational commitment (ie intermediate measures);
- improvements in employee health and well-being and financial performance (long-term measures).

Short-term outcomes

Significant positive responses were found in the intervention stores for involvement practices (t [17]= 3:01, p< .008, n^2 =.03) and organisational support (t [17]= 2:86, p < .01, n^2 = .02). Trends favouring the intervention group were evident for communication (t[17] = 1:85, p < .06, n^2 = .04) and participation with others (t [17] = 1:63, p < .10, n^2 = .01). From the seven work design variables, significant interactions were obtained for job content (t[17] = 3.35, p<.001, n^2 = .02), role clarity (t[17]=2.69, p<.008, n^2=.02), and environmental conditions (t[17]= -2.28, p<.04, n^2=.01). Similar effects approaching significance were autonomy (t[17]=1.66, p<.09, n^2=.03) and work scheduling (t[17=1.82, p<.08, n^2=.01).

Job future (t[17]=2:78, p <.01, n^2 =.02) and procedural equity (t[17]=2:28, P<.04, n^2=.03) were significant while the interaction for distributive equity (t[17]=1.73, p<08, n^2=.02) approached significance.

Intermediate outcomes:

Among the five variables in this group, the treatment by change interactions for job satisfaction (t[17]= 2.19, p < .03, n^2 = .03), organisational commitment (t[17]=3.58, p < .003, n^2 = .02), and job stress (t[17]= - 1.83, p < .05, n^2 = .02) were each statistically

significant. The negative change across time for job satisfaction and organisational commitment was greater for control than for intervention stores.

Long-term outcome

Significant positive results were obtained for overall perceived health (t[17]=2:07, p<.04, n^2 = .01) and perceived safety at work (t[17]=2:43, p<.02, n^2 = .05). In contrast to the intervention stores, which experienced slight positive change on both variables during the duration of this study, the control stores experienced slight negative change. The intervention stores also did relatively better on the financial measures for both sales per labour hour (F[2, 36]= 3.64, p<.04, n^2 = .03) and employee turnover(F[2,36]= 4.10, p<.03, n^2 =. 02).

In addition a process evaluation found, through a survey of team members which assessed their perceptions of the process and its overall success, that 92 per cent said the ACTion team had done a good job of identifying problem areas, 82 per cent indicated good performance in setting priorities and 76 per cent thought their team had devised effective solutions. There was less satisfaction about being able to make actual changes in their stores (50 per cent).

Having a chance to express views and learning more about the company were the most frequently mentioned gains from the intervention (84 per cent and 68 per cent respectively).

Limitations

This study was assessed as (+). The study team reported that all data collection had to occur on the less busy weekdays and they only had access for a two-day period. As a result, they were not able to reach every employee (eg some part-time employees only work weekends or evenings). This could have resulted in biased results.

Some difficulties were encountered in sustaining and integrating teams, especially post-facilitation. This could in part be attributed to ongoing changes and challenges occurring in the company. Several informants commented ‘there were just too many plays being called at the same time’.

In addition the review team note that there were some misgivings reported among some employees thinking that the research team worked for the company which may have resulted in biased results, if employees did not feel free to express their negative views about the intervention.

No demographic variables were controlled for in the data analysis, although there were statistically significant differences in educational levels of the intervention and control groups (with the educational level among employees lower in the intervention than in the control stores).

Applicability to the UK

This evidence is partially applicable to the UK. The intervention would appear to be complex, but possible to be applied in the UK and the workplace setting not dissimilar to those in the UK.

There is moderate evidence from a non-randomised controlled study[1] that a 'healthy work organisation intervention' designed to develop employee participation and problem solving could have a small positive effect on job satisfaction (t[17]= 2.19, p < .03, n^2=.03), job stress levels (t[17]= - 1.83, p < .05, n^2= .02) and perceived health (t[17]=2:07, p<.04, n^2=.01) among retail employees working in a large multi-branch organisation in the Southern states of the USA. The evidence also suggests the intervention resulted in small positive improvements in business performance in terms of sales per labour hour (F[2, 36]= 3.64, p<.04, n^2 = .03) and employee turnover(F[2,36]= 4.10, p<.03, n^2 =. 02).

[1] DeJoy et al. 2010 (+)

3.1.5 Del Chiaro (2006)

This (-) uncontrolled longitudinal study examined the relationship between training supervisors in using positive verbal reinforcement techniques, such as praise, and the employees' perceived level of job satisfaction in five education departments of a computer software company based in Chile.

Five front-line supervisors (three male and two female, aged between 22 and 43) were employed in the education departments of a computer software company based in Santiago, Chile. They managed a total of 39 employees. Each supervisor was located in a different South or Central American country but travelled to Santiago for training.

The supervisors attended a one day training session on incorporating positive verbal reinforcement into supervisory style (four, 45 minute modules). They were also trained on how to use a self-monitoring data collection sheet: completed for weeks one, three and five. At the end of six weeks the data were collected.

Outcomes

The main outcome measure was employees' job satisfaction scores. The extent of positive verbal reinforcement was also measured.

A baseline was established by using the employee responses to the pre-intervention job satisfaction survey. During the six weeks following the supervisors' positive verbal reinforcement training, employees completed a tri-weekly questionnaire, designed to measure employees' perceived level of job satisfaction. 12 weeks after the training, supervisors completed a self-monitoring checklist to assess if the acquired behaviour was maintained. Employees also completed a post-intervention job satisfaction survey to see if there was a change in perceived job satisfaction 12 weeks after the training.

The study found that the supervisors increased the amount of verbal positive reinforcement from week one to week 12. However, while employee job satisfaction increased during the course of the intervention for four of the five supervisors, the change was not statistically significant (no p-values reported). The average baseline job satisfaction mean score was 5.6; average intervention mean score was 5.7; post test mean score (at 12 weeks) was 5.9. (No standard deviations reported)

Due to the small increase found in the comparison of the means (baseline to intervention to post test) the study concluded that there was therefore no empirical evidence that training supervisors to apply verbal positive reinforcement has an effect on employee job satisfaction.

Limitations

This study was assessed as (-). There were a low number of data points at baseline. A longer baseline phase could have provided a better assessment of the typical job satisfaction of employees. The intervention (one day training) was relatively brief and there is little evidence that the verbal reinforcement technique had been applied. The behaviour was self-monitored and so the measurement may not have been reliable. Only two supervisors returned complete self-monitoring data sheets; the three other supervisors returned only partially completed sheets (ie missing a week of data) which could have biased the findings.

Employee job satisfaction was high prior to the intervention and so there may have been a 'ceiling effect'.

In addition the sample size (five supervisors) is small and they worked across a wide area and therefore likely to have different workplace cultures.

Applicability to the UK

This evidence is not applicable to the UK. The intervention could be applied in the UK but the workplace settings and culture are likely to be significantly different. In addition the study has a number of limitations which significantly weaken its validity.

There is weak evidence from an uncontrolled before and after study[1] that training supervisors to apply verbal positive reinforcement has no effect on employee job satisfaction in a software company based in Chile.

[1] Del Chiaro et al. 2000 (-)

3.1.6 Hammer et al. (2011)

This (+) randomised controlled trial assessed the impact of a training and self-monitoring intervention designed to increase supervisors' family-supportive behaviours on health and job outcomes for 239 employees at 12 grocery stores in mid-western USA.

Six stores were randomly chosen to be intervention sites and six other stores served as control sites (no information on the randomisation process is supplied).

In the intervention sites, a work–family training intervention was implemented that informed supervisors about the importance of increasing work–family specific supportive behaviours and asked supervisors to set goals to self-monitor the frequency of family-supportive supervisor behaviours after the training.

The training was designed to enhance supervisors' skills and motivation to increase interpersonal contact with employees and support employees' needs in managing the work–family context and comprised:

- Self-paced, computer-based training, lasting approx. 1 hour.
- 60-90 min face-to-face training conducted by the study authors to change practices and behaviours of supervisors that include emphasising emotional support, modelling healthy work–family behaviours, schedule conflict resolution, knowledge of company policies, and cross-training on work skills
- Behavioural self-monitoring. Participants were requested, in both computer-based and face-to-face training to change their behaviour over the following three to five weeks by collecting self-monitoring data on themselves for six behaviours and to set the goal of increasing the frequency of those behaviours:

- speak with store employees;
- ask something about an employee's family;
- say something about their (the supervisor's) family;
- give positive feedback about an employee's work performance;
- suggest a constructive improvement in an employee's performance; and
- initiate a question about, or offer away to improve, an employee's schedule.

To obtain a baseline and a goal measure, the authors asked supervisors, in the face-to-face training, to provide an estimate of how frequently they currently performed each behaviour each day and to set a goal of by how much they would increase it (supervisors at two small stores did not provide baseline estimates and goals).

As part of the computer-based training, supervisors were given a computer-based pre-test and post-test containing an identical set of 15 questions in order to assess learning and retention of the material.

As part of the intervention, supervisors were also asked to participate in a behavioural self-monitoring activity for two weeks following the training to increase the transfer of training to on-the-job behaviours.

Thirty-nine supervisors participated in the computer and face-to-face training (which was mandated by the company) in the six intervention stores and 32 participated in the self-monitoring All but four completed supervisor daily data cards on a mean of 7.5 days (SD = 3.7) over a 25-day period. Some 117 employees were included in the intervention group and 122 employees were in the control group.

The intervention took place approximately nine months after the pre-intervention survey was administered. The post-intervention data was collected approximately one month following the end of the intervention.

Pre-intervention and post-intervention surveys were administered to employees individually in face-to-face interviews, consisting of 196 survey questions, a process that led to virtually no missing data.

Outcomes

Family supportive supervisor behaviour was measured by a 14-item scale including four dimensions: emotional support; role-modelling behaviours; instrumental

support and creative work–family management (developed by the author, (Hammer 2009)). The reliability estimate for the total scores was .94.

Work–family conflict was measured in two directions with a total of 10 items. The coefficient alpha reliability for work-to-family conflict was estimated at .87, and at .85 for family-to-work conflict. Job satisfaction was measured with a five-item scale (reliability estimated to be .80). Employee intentions to quit their job were measured with a two-item scale (reliability .87). Physical health was measured with the Short-Form Health Survey (Version 2) seven-item physical composite score (reliability .82).

The findings showed that family supportive supervisor training was successful at improving work and health outcomes ($p<0.05$) for physical health (slope 2.17) but found no significant change in job satisfaction or turnover intentions. However, the positive impact of the training was driven by workers with initially higher levels of family-to-work conflict (4.78 relative to baseline), while people with initially lower levels of family-to-work conflict had a significantly negative impacts (-2.0 relative to baseline). This finding was partly explained by a possible backlash by those with low family-to-work conflict perceiving the intervention as negative or as affecting them adversely.

- Family supportive supervisor behaviour: Baseline: M= 3.44 SD= 0.71. Follow-up: M=3.61 SD=0.76
- Physical health: Baseline: M=51.62 SD=8.23. Follow-up: M=51.03 SD=8.44
- Job satisfaction. Baseline: M=3.41 SD=0.68. Follow-up: M=3.34 SD=0.74
- Employee intentions to quit. Baseline: M=2.44 SD=1.12. Follow-up: M= 2.52 SD= 1.05.

Limitations

This study was assessed as (+). The study team were unable to conduct independent observations of supervisor behaviours to verify self-reports of behaviour change. They also did not achieve 100 per cent compliance of the supervisors in the self-monitoring element of the intervention. As the intervention was voluntary by design, it could have led to weaker results than would have otherwise been gained with 100 per cent supervisor participation in all intervention activities.

The team were also unable to implement the feedback element of self-monitoring – these are believed to be critical for effective self-monitoring – which could explain why behavioural changes were much smaller and weaker than those reported in literature.

The post-intervention survey was conducted one month after training and so the long-term effects of the training were not measured.

In addition the review team noted that supervisors and employees paid ($25) to complete the surveys which may have implications for the findings, or the reasons they wanted to participate in the study.

Applicability to the UK

This evidence is partially applicable to the UK. The work–family training intervention could be applied in the UK and the workplace setting and culture are unlikely to be dissimilar to that of the UK.

There is moderate evidence from a randomised controlled study[1] that a training and self-monitoring intervention designed to increase supervisors' family-supportive behaviours can have a positive impact on physical heath ($p<0.05$) among employees with initially higher levels of family-to-work conflict (4.78 relative to baseline) but negative impacts on employees with initially lower levels of family-to-work conflict (-2.0 relative to baseline) among a total of 239 employees at 12 grocery stores in mid-western USA. The study found no significant change in job satisfaction or turnover intentions.

[1] Hammer et al. 2011 (+)

3.1.7 Kawakami et al. (2005)

This (++) randomised controlled trial examined the effect of a web-based health at work training programme on 16 section heads (responsible for 190 employees) in a Japanese computer software engineering company.

The 16 section chiefs were randomly assigned to intervention and control groups. Those in the intervention group were invited to participate for one to four weeks in the web-based supervisor training provided by an internet server. Section chiefs participated either from the workplace or home. A study co-ordinator watched their progress and encouraged them by email to complete the training. The contents of the web-based training included a variety of topics that supervisors were required to know, including:

- essential knowledge about mental health
- importance of occupational mental health
- roles of supervisors in occupational mental health
- consultation with workers (listening and advice to workers, recognition of mental health problems among workers) and use of mental health services, if necessary

- support for workers who were returning to work after receiving treatment for mental health problems
- improvement of the work environment for stress prevention, and
- self-care or awareness of stress and coping with it.

The average time to complete the entire training was three to five hours.

During the same period, the section chiefs in the non-training group participated in a two-hour training session regarding a method of relaxation, instead of the web-based training.

A total of 100 subordinate workers were working for the nine section chiefs in the training group (intervention group workers); 90 subordinate workers were working for the seven section chiefs in the non-training group (control group). Most employees in both groups were male (16 per cent and 24 per cent women workers in the intervention and control groups). There was otherwise little difference in the demographics between the two groups.

Before the beginning of the web-based training for section chiefs, all employees were asked to participate in an online baseline survey of job stress and mental health. Three months after the training, the follow-up survey was conducted. Eighty two (82 per cent) in the intervention group and 84 (93 per cent) among the control group workers, participated in both the baseline follow-up surveys.

The intervention effect was tested by examining the interactive effect between groups (the intervention and control groups) and time (baseline and three-month follow-up) by using a repeated analysis of variance (ANOVA). Average scores of psychological distress and other job stressors were also compared by group and among subordinate workers by using a repeated analysis of variance (ANOVA). In addition, an intention to treat analysis was conducted.

The key outcome measures were:

- *Worksite support* including supervisor support and co-worker support – reported to show showed acceptable levels of internal consistency reliability (Cronbach's alpha, 0.78–0.84 and 0.71–0.79, respectively) and factor-based validity.
- *Psychological distress* including measures of quantitative and qualitative job overload, job control and overtime hours. The Cronbach's alpha for each sub-scale were 0.92–0.93, 0.84–0.85, 0.85–0.88, 0.74–0.75, and 0.88–0.90, respectively.

Outcomes

The level of supervisor support was perceived to fall during the course of the study among both the control and intervention group (attributed by the researchers to peak workloads during the study period). The score for supervisor support greatly decreased in the control group during the follow-up period, and the score decreased by a smaller amount among the intervention group, with a significant intervention effect ($p = 0.032$). This pattern was more pronounced for one particular item dealing with the extent to which a supervisor listens to personal problems of subordinate workers (the intervention effect, $p = 0.012$). No intervention effect was observed for the score measuring co-worker support, psychological distress, or other job stressors among subordinate workers ($p > 0.05$).

Workplace support

Intervention group (N=82):

- Supervisor support: Baseline: 7.02 (SD 1.97), Follow-up: 6.84 (SD 1.96)
- Co-worker support: Baseline: 8.11 (SD 1.84), Follow-up: 7.71 (SD 1.72)

Control group (N=85):

- Supervisor support: Baseline: 7.63 (SD 1.93), Follow-up: 6.93 (SD 1.91)
- Co-worker support: Baseline: 8.07 (SD 2.01), Follow-up: 7.55 (SD 1.79)

Psychological distress

No significant intervention effect of the web-based supervisor training on subordinates' psychological distress was observed in the intention to treat analysis ($P = 0.402$): the average scores were 43.6 (10.8) and 44.7 (11.4) at the baseline and follow-up respectively in the intervention group. Among the controls the average scores were 43.2 (10.8) at the baseline and 45.3 (10.7) at follow-up.

Limitations

This study was quality assessed and given a rating of (++). The authors point out that the small number of supervisors could have caused bias in findings. In addition the review team point out that section chiefs of the same company were randomised which would have given the intervention group an opportunity to discuss the training with their counterparts in the control group. This may have caused bias in the results.

Applicability to the UK

This evidence is partially applicable to the UK. The intervention would appear to be similar to those that could be applied in the UK and the immediate workplace setting is not dissimilar to those in the UK. However the study is set in Japan where the overall workplace culture and approach to human resource management is different from the UK (McCann, 2007).

There is moderate evidence from a non-randomised controlled study[1] that while a web-based health at work training programme for supervisors in a Japanese software company had a small positive effect on the perceived level of supervisor support ($p = 0.032$) there was no significant effect on the levels of psychological distress among the people they managed.

[1] Kawakami et al. 2005 (++)

3.1.8 Mikkelsen et al. (2000)

This randomised controlled study (-) investigated the effect of a 'participatory organisational intervention' on 135 supervisors and employees in two Norwegian community health care institutions.

The study states that two health care institutions were selected to carry out the organisational intervention, and all of the supervisors and all of the employees in these institutions were invited to participate. From the other institutions (number unspecified) in the same district, individuals were randomly allocated to the three individual interventions and to a control group. No other information on the allocation process was provided.

The overall aim of the intervention was to set in motion a learning process on how to identify and solve work problems in order to improve workplace health and organisational performance continuously, on a long term basis. The intervention began with a six-hour seminar to identify the key factors that would create a good work environment and the actions required to reduce the gap between the wanted situation and reality. Seven small work groups were set up that had nine individual group meetings lasting for two hours each over a 12-week period in work time. The groups discussed their respective topics (unspecified), the stressors related to these concerns, their likely causes and possible remedial action. In the fifth session, a summary of principal results of the baseline survey was given to the participants, and, in the sixth session, groups developed an overview of the results of the process and formulated suggestions to the steering committee on how the improvement process should be sustained after the 12 week intervention.

An external organisational development facilitator/consultant was responsible for carrying out the intervention overseen by a board consisting of the consultant, the manager, the supervisor, a union representative and the employee safety representative.

Outcomes

The study examined a series of outcome measures:

- *Work-related stress* was measured using a subscale of Cooper's Job Stress Questionnaire. The sub-scale has three items and each answer is measured on a 6-point scale ranging from 0 to 5. The Cronbach's alpha reliability score(α) was 0.77
- *Subjective health* measured by The Health Inventory. Consists of questions regarding frequent somatic and psychological problems experienced in the last 30 days: eight items based on psychological problems, six items based on pain, two items based on cold/influenza, three items on allergy, and seven items on gastrointestinal problems. α = 0.82
- *Demands-control* dimensions measured by a short version of the Job Content Questionnaire. This had three substrands – demands (five items) Cronbach's α 0.75, skill discretion (four items) Cronbach's α 0.51 and decision authority (two items) α = 0.73
- *Social support* measured by the Work Apgar Questionnaire. The social support at the workplace scale was used. Six items covering co-worker support and supervisor support. 1-3 scaling with 1 being 'usually' and 3 is 'almost never'. α = 0.70
- *Role harmony* measured according to Rizzo, House and Lirtzman (1970), 8 items with a 1-7 scaling. 1 was 'completely wrong' and 7 was 'completely right'. α = 0.78
- *Learning climate* measured by the Learning Climate Questionnaire. 7, 10-item scales, with α ranging from 0.66 to 0.81
- *Leadership* measured by the Multifactor Leadership Questionnaire with 45 items and 12 different subscales. α = 0.64

The intervention was evaluated by means of logbooks and written reports prepared by the supervisor of the work units and the consultant. These were sent with work group reports and action plans to the researchers for analysis.

The same survey was used for pre and post intervention assessments. The survey was administered in the first week after the intervention, and a second time one year after the pre-intervention baseline survey was carried out.

MANOVA repeated measures were used to find changes over time in the intervention group compared to control group. Univariate ANCOVA was used to test if there had been a different development in the intervention group compared to the control group from pre- to post-test. Paired t-tests were used for simple main effects.

The study states that a tolerance level of up to 50 per cent of missing data was adopted. In the analysis the two intervention groups were combined into one intervention group.

The multivariate analysis (by repeated measures MANOVA) of the dependent variables work-related stress, subjective health complaints, psychological job demands, social support, role harmony and also the control variables showed no main effect of change over time ($p = 0.9$).

The study found that the participatory intervention had a positive, but limited, effect on work-related stress, job characteristics, learning climate and management style, and seemed to have started a beneficial change process. Seven changes in dependent variables over time were significant when intervention and control groups were compared.

The study found a significant overall positive effect in the intervention group compared to the control group on *work-related stress* and *psychological job demands* ($p < 0.05$). There were no significant effects on *subjective health and anxiety*.

The study also found significant overall positive effects of the intervention compared to the control group on increasing *decision authority, social support* and *role harmony* ($p< 0.05$) relative to decreases in the measures in the control group (repeated measure ANCOVA). Compared to the control group that had a downward trend in the period, the intervention also had a positive effect on *learning climate* (no p value given) and managers having greater '*consideration for individuals'* (no p value given)

Due to the low response rate at post-test 2 (there were only 14 people left in the control sample from a pre-test total of 35, which itself appears to be 49 per cent of the control population, the data and results were not included in the analysis.

Limitations

This study was assessed as (-). The review team note the lack of information about the allocation of the groups and the sample characteristics as well as the low sample size at post-test 2, which meant that post-test 2 measurement data was not included in this analysis.

The authors say that the low response rates at the second post-test point in the intervention group may have been due to lack of follow-up on the action plan after the project period had ended, therefore there was low commitment to the project.

The authors note the tolerance level of 50 per cent missing data and state that: 'results should be treated with caution'

In addition in one of the institutions the manager was sceptical about the intervention, and the employees did not want to use their leisure time for participating. The manager in the other work unit was enthusiastic but often did not attend meetings. Meetings had a tendency to occur without planning, and were rather unstructured.

The positive short-term effect, between the test immediately prior and those immediately after the intervention, may also be interpreted as a 'Hawthorne' effect.

The review team also note that some of the significance of the findings comes from the fact that measurements in the control group had declined, therefore the apparent increase may not be to do with the intervention.

The intervention was apparently conducted at two separate organisations, and each of these was split in to seven groups respectively, so the experience of the intervention will not be entirely comparable. Also how the control group was kept unbiased is unclear.

Applicability to the UK

This evidence is partially applicable to the UK. The intervention would appear to be similar to those that could be applied in the UK and the immediate workplace setting is not dissimilar to those in the UK. However the study is set in Norway where the overall workplace culture is more participatory than that in the UK. In addition the study has a number of limitations which weaken its validity.

There is weak evidence from a non-randomised controlled study[1] that a participatory workplace intervention in two community health care organisations in Norway had a positive, but limited, effect on work-related stress ($p < 0.05$), learning climate and management style (no p-values reported) but no significant effects on subjective health and anxiety.

[1] Mikkelsen et al. 2000 (-)

3.1.9 Swallow (2008)

The purpose of this (-) controlled before and after study was to examine the effect of a management intervention to improve managers' behavioural skills and styles on employees' job satisfaction and performance in a global instrumentation manufacturer based in USA.

The study was conducted by a senior executive of the company. It divided the workforce into an intervention group, based in the company's headquarters in mid-western USA and a control group, comprising the company's four other sites (three in USA and one in Belgium). Managers in the intervention group received four sets of presentations on a variety of topics related to leadership and management over the 6 month period and asked to complete a series of Life Styles Inventory Surveys™ (LSI). The LSI Survey was designed to help people identify their beliefs, values, behaviours and assumptions about themselves in order to improve their careers, health, relationships and wellbeing.

Prior to the intervention all employees were asked to complete an employee satisfaction survey. The employee satisfaction survey was based on the Gallup survey. The survey looked at whether employees were satisfied in their current environment and after a benchmark was established whether satisfaction could be improved in any way by engaging their management in a self-discovery process. The survey was not externally tested.

Outcomes

The study found no statistically significant (95% confidence level) change in employee satisfaction over time between the before and after surveys for both the total control group and the total intervention group.

Limitations

This study was assessed as (-).

Only a few limitations were discussed by author in the report. However the review team had a number of concerns. It was noted that the control groups and experimental groups were not randomised and this could have had an impact on the results based on other issues that were occurring in the various locations.

No comparison was made between employees (and managers) who did or did not take part and whether there was any bias in the intervention or control groups. The employee satisfaction survey was untested and the author did note that the statisticians who conducted the analysis expressed a view that the survey scale could have been constructed better – many items were de facto yes or no questions, yet the answer options were scale (eg from strongly disagree to strongly agree). The intervention was unclear and in particular the author does state that there is 'very little published research' on the Life Styles Inventory.

The author of this paper was a senior executive officer at the company being researched, raising serious questions about bias, and also about possible perceptions of coercion and unequal power relationships during research. This was possibly countered somewhat by allowing participants to choose the location of interviews and coaching.

Applicability to the UK

This evidence is not applicable to the UK. Although set in the USA and therefore in a not dissimilar work environment, the intervention is unclear and is unlikely to be applied in the UK. In addition the study has a number of serious limitations which significantly weaken its validity.

There is weak evidence from an uncontrolled before and after study[1] that a management intervention to improve managers' behavioural skills and styles training managers did not have a significant positive effect on employee satisfaction in a global instrumentation manufacturer based in the USA.

[1] Swallow, 2008 (-)

3.1.10 Takao et al. (2006)

This randomised controlled study (+) evaluated the effects of a single job stress education session for 24 mainly male supervisors on the psychological distress and job performance of the 134 people they managed in a sake brewery in Japan.

Some 46 supervisors were randomly allocated to either an intervention group (N=24) or a control group (N=22) (procedure not known). The intervention group received a single 60-minute education programme on mental health, run by an

occupational physician and a psychologist, and training that provided consulting skills combined with role playing exercises (comprising a 60-minute lecture and 120-minute practice session, delivered by two clinical psychologists). The intervention aimed to clarify the roles of supervisors by providing them with information on: early awareness of mental health problems; support for those returning to work, consultation for subordinates, improvement of working environments on a daily basis; self-care recommendations; and information on mental health problems.

Each supervisor managed on average 5.5 people. There were 134 employees in the intervention group and 92 in the control. The intervention and control groups differed significantly according to occupation (p=0.028) (intervention group was more blue collar) and years of education (p=0.012). The intervention group also had lower job demands and lower job control than the control group.

The effect of the intervention was assessed by a survey of employees. Before the training, all employees were asked to fill in a baseline questionnaire. Three months after the training, the follow-up survey was conducted.

Outcomes

The key outcome measures were:

- Psychological distress of subordinates (an 18-item questionnaire derived from Brief Job Stress Questionnaire) (α = 0.80-0.84)
- Self-reported job performance using the WHO Health and Work Performance Questionnaire (α =0.70-0.74).

Intervention effects (time x group) were not significant for psychological distress or job performance among employees as a whole:

- **Psychological distress**. Intervention group (n=134): Pre-intervention: Mean 26.8 (SE 0.81), Post-intervention: Mean 26.9 (SE 0.98); Control group (n=92): Pre-intervention: Mean 27.4 (SE 0.88), Post-intervention: 28.0 (SE 1.06). p=0.715
- **Job performance**. Intervention group (n=126): Pre-intervention: Mean 67.2 (SE 0.67), Post-intervention: 66.7 (SE 0.74); Control group (N=87): Pre-intervention: Mean 66.9 (SE 0.80), Post-intervention: 66.4 (SE 0.89). p=0.969.

However, young male subordinates in white-collar occupations showed significant and large intervention effects for psychological distress (p=0.012) and job performance (p=0.029). The intervention suggested possible positive effect of supervisor education among this group.

Limitations

This study was assessed as (+). White collar supervisors might have been more proactive in promoting mental health to their employees because of some of their subordinates' risk of redundancy. Young supervisors may also have been reluctant to advise their older subordinates about mental health issues.

Supervisors and subordinates from both the intervention and control groups often worked together which may have diluted the intervention effect.

In addition the review team noted that the method of randomisation was not discussed by the authors and neither was the independence of the control and the intervention groups and there is a possibility that the supervisor in the intervention group may have discussed their training with their colleagues, biasing the results. Significant differences between employees in occupational and educational levels between the control and intervention groups could have resulted in biased findings.

Applicability to the UK

This evidence is partially applicable to the UK. The intervention would appear to be similar to those that could be applied in the UK and the immediate workplace setting is not dissimilar to those in the UK. However the study is set in Japan where the overall workplace culture and the approach to managing change is different from that in the UK (see for example McCann et al. 2004).

There is moderate evidence from a non-randomised controlled study[1] that a single job stress education session for supervisors in a Japanese brewery had a large positive effects on the psychological distress (F=7.28, p=0.012) felt by young (aged 34 and under) white-collar males, although no significant effects were found among female or older male workers.

[1] Takao et al. 2006 (+)

3.1.11 Torp (2008)

This controlled before and after study (+) investigated the effects of a training programme over two years in health and safety management for managers at small and medium-sized motor vehicle repair garages in Norway.

An invitation to participate in the training was sent to all the member companies of the Norwegian Association of Motorcar Dealers and Service Organization (NAMDSO). The training consisted of four, one-day seminars over the course of two years. These were run by the NAMDSO and an insurance company and covered:

internal control regulation, health and safety management, health and safety management procedures supplemented by homework and a visit by a health and safety advisor.

The effects were measured using questionnaires sent before and after the intervention to the managers and workers at the garages. A health and safety management questionnaire was sent to managers after the first seminar (baseline) and before the fourth (follow-up). A questionnaire on the working environment and musculoskeletal pain was sent to garage workers after the managers for baseline and simultaneously to managers for follow-up.

The intervention group consisted of workers and managers at motor vehicle repair garages in which the manager participated in the health and safety management training. The comparison garages were selected from the Association's list of member companies and matched to the intervention garages for size and region. Comparison garages had no intervention. At baseline the intervention and comparison garages did not differ significantly in company size and workers did not differ in age, sex or occupation. There were 113 garages in the intervention group employing 363 workers at baseline and 113 garages employing 358 in the control group.

Outcomes

The main outcome measure at the company level was changes in a health and safety management index, rated by managers using a 16-item questionnaire. The intervention group improved their health and safety management system significantly more than the comparison garages. The mean change in the standardised scores for the intervention group were 0.61 ($p<0.001$) and 0.26 ($p<0.01$) for the comparison group and the difference between the two had a p value of 0.02.

At the employee level, the only significant change from baseline to follow-up among the intervention group workers was an increase in satisfaction with the physical working environment (the mean change in the intervention group was 0.19 ($p<0.001$) and 0.06 ($p>0.05$) for the comparison group and the difference between the two had a p value of 0.02). In the same period of time the comparison group workers reported no significant improvements in any of the dependent variables, but significant worsening regarding social support ($p<0.001$), management support ($p<0.01$), and musculoskeletal pain ($p<0.01$).

Further analysis showed that a positive change in the health and safety management index correlated significantly with a positive change in how the workers regarded

management support (+0.14, p<0.001) and a negative change in reported musculoskeletal pain (-0.12, p<0.01).

Limitations

This study was assessed as (-). The authors note that the study does not show whether improvements in health and safety systems led to increased health and safety activities.

High labour turnover among garage workers in Norway may explain the relatively low number of individuals who participated in both the baseline and follow-up measures (despite a high response rate at each).

The timing of surveys (the first after the management training had started and the second before the training had finished) is likely to have reduced the potential to detect changes.

The review team add that there is a lack of clarity about sample sizes in general. The intervention involved four training sessions, but the baseline was taken after the first intervention and the follow-up before the fourth session so the intervention was not complete when it was assessed and the timeframe does not allow for the incorporation of behaviours learned in training.

Applicability to the UK

This evidence is partially applicable to the UK. The intervention would appear to be similar to those that could be applied in the UK and the workplaces in which the study was set, although in Norway, are likely to be similar to those in the UK. However the study has a number of limitations which weaken its applicability.

There is weak evidence from a controlled before and after study[1] that a four-day training programme delivered over two years to supervisors in motor vehicle repair establishments in Norway may have had a positive effect on employees' perceptions of management support (+0.14, p<0.001) and a reduction in reported musculoskeletal pain ((-0.12, p<0.01).

[1] Torp, 2008 (+)

3.1.12 Tsutsumi et al. (2005)

This (+) non-randomised control study evaluated the effect of supervisor training about mental health on the psychological distress and job performance of employees in a prefectural (local government) office in Japan. The study compared departments

where at least one third of the supervisors had attended the training against those where supervisors had a lower attendance rate.

The prefectural office employed 1,644 people including some 473 supervisors. All employees and supervisors were asked to complete a baseline questionnaire which received a 70 per cent response.

After the survey was conducted, all supervisors received guidelines for the promotion of mental health in the workplace and were encouraged to improve their working environments according to the guidelines. All of the employees, including supervisors, received a brochure on mental health (including a general explanation of stress and stress reactions, information about recognising stress and guidelines for consulting with specialists). Supervisors were then invited to attend a single training session, taking place during working hours, and offered on five separate days. The supervisory education included:

- a 90 minute basic lecture entitled 'Positive Mental Health in the Workplace: Responsibilities of Supervisors'
- a lecture on active listening showing supervisors how to apply what they have learnt, alongside how to counsel employees.

The sample was then split in two between departments where more than a third of the supervisors attended the training (the intervention group) and those where fewer than a third attended (the control group).

There were 57 departments in the first group (ie where more than a third of supervisors attended the training). These departments employed 219 male and 13 female supervisors (average age 50.9) with 388 male non-supervisors and 54 female non-supervisors (average age 37.9). There were 18 departments in the second group where no more than a third of supervisors attended the training. These departments employed 54 supervisors (all men, average age 49.8) and 110 male non-supervisors and 26 female non-supervisors (average age 37.9).

Outcomes

A second survey was conducted after the training and attracted a 68 per cent response rate. Of these, 889 employees (286 supervisors and 603 non-supervisors responded to both surveys with matching participant ID numbers). The final number of analysed subjects was 864 employees (53 per cent), of which 286 were supervisors and 578 were non-supervisors.

The main outcomes measured were:

- *Psychological stress reaction:* including: vigour, anger-irritability, fatigue, anxiety, and depression.
- *Job performance:* to assess behavioural outcome, a self-reported job performance checklist was given to employees.
- *Job content questionnaire:* a Japanese version of the Job Content Questionnaire was used, based on Karasek's demand-control model including: job demands; job control and skill discretion; and social support from supervisor and co-workers.
- *Supervisory questionnaire:* measured supervisors' knowledge, attitudes and behaviours towards current mental health practices.

The means of each measure were compared by employing a t-test or a paired t-test where necessary. Differences in categorical variables were assessed using the χ^2 test. An analysis of covariance of repeated measurements was used to assess the educational effects of psychological distress and job performance.

Employees in the control group had higher educational attainment, more overtime, more job strain and less supervisory support than those in the intervention group.

Between pre and post-education survey measurements, the degree of psychological distress decreased in the intervention group and remained the same among the control group. These patterns were replicated among both supervisors and non supervisors. Higher training attendance rates positively affected the outcome. The self-reported performance score improved among the non-supervisors from the high attendance category, but deteriorated among the same group in the low attendance group.

Paired sample t-tests showed significant improvements in psychological distress ($t=4.95$, $p<.001$) and to a lesser extent in self-reported performance ($t=-1.75$, $p=.080$) in all employees in the intervention group. Significant improvements in psychological distress were found among both supervisors and non-supervisors ($t=3.15$, $p=.002$ and $t=3.9$, $p<.001$). No significant main effects were found among the control group.

Limitations

This study was assessed as (+). The authors note that the intervention and control groups were not assigned on a random basis and it was possible that supervisors were prevented from attending the educational session due to a "hectic situation" and this adversely affected the psychological reactions of the employees. Voluntary participation in the supervisory education is likely to suffer from selection bias with attendees more eager to solve mental health problems than non-attendees.

Although the response rate of the survey was satisfactory, only half of the target population was analysed for this study. A comparison between the analysed and excluded subjects indicated no systematic differences in terms of psychosocial job characteristics, but this sample attrition limits study validity.

The lack of longer follow-up data means no conclusions can be reached about the long-term effects of the education.

Applicability to the UK

This evidence is partially applicable to the UK. The intervention would appear to be similar to those that could be applied in the UK. However the immediate workplace setting is different to that found in the UK and the study is set in Japan where the overall workplace culture and the approach to managing change is different from that in the UK (see for example McCann et al. 2004).

There is moderate evidence from a non-randomised controlled study[1] that supervisor training about mental health can have a small positive effect on psychological distress among employees in a prefectural office in Japan.

[1] Tsutsumi et al. 2005 (+)

4 Discussion

This review includes evidence from 11 studies about the effect of workplace interventions on employee well-being. The studies provide a mixture of evidence, partly due to the varying nature of the interventions under investigation and also due to the varying quality of the studies reviewed and their different settings and applicability to the UK.

Most of the studies found a positive effect on employee well-being from their intervention. The most common form of intervention involved training supervisors to improve the way they managed their employees and/or how to be more aware of their mental health condition and take appropriate action. The other studies involved more complex changes to the way people worked, for example to increase employee involvement in solving workplace problems and how their jobs were organised.

None of the studies were set in the UK and although some were set in the USA or Western Europe their applicability to the UK setting is to some extent limited. The relevance of the evidence base is also limited by the quality of the studies included. Four have been given a negative (-) rating and in two cases the intervention under investigated was poorly conceived and implemented. In one of these cases the poor implementation was suggested to have resulted in negative impacts on the psychosocial work environment as employee expectations had been raised and unfulfilled. This indicates the importance of ensuring that any intervention is well planned and delivered if it is to have the desired effect.

4.1 Supervisor training can have mixed effects on employee wellbeing

We found mixed evidence about the impact of training supervisors to be more supportive about the well-being of the people they manage. Seven different studies examined different forms of training in different settings. Three of these studies focused on the effects of training supervisors to be more aware about the mental health of their employees. The three separate studies, in different workplaces, were carried out by the same research team in Japan and two (Takao et al. 2006 and

Tsutsumi et al. 2005) found positive results from a face-to-face training programme, albeit of fairly low intensity, whereas the third (Kawakami et al. 2005) did not find any significant positive effects from a web-based training intervention. The evidence therefore suggests that the form of the training programme may be influential in how effective it is.

Evidence Statement 1

There is mixed evidence from three studies (all in Japan[1,2,3]) about the effect of training supervisors in mental health issues on the well-being of the people they manage. Two separate non-randomised controlled studies[1,2] found that face-to-face training for supervisors about workplace mental health had large positive effects on the psychological distress ($F=7.28$, $p=0.012$) felt by young (aged 34 and under) white-collar males in a brewery[1] and a small positive effect on psychological distress ($t=4.95$, p.0.001) among all employees in a prefectural office[2]. However a third, randomised, controlled study[3] found that while a web-based mental health at work training programme for supervisors in a Japanese software company had a small positive effect on the perceived level of supervisor support ($p=0.032$), there was no significant effect on the levels of psychological distress among the people they managed.

These three studies, from the same research group, are all set in Japan and because of the different workplace and management culture to that prevailing in the UK are of partial applicability.

1 Takao et al. 2006 (+)

2 Tsutsumi et al. 2005 (+)

3 Kawakami et al. 2005 (++)

We found weaker evidence about the impact of training supervisors to adopt a more positive management style towards their employees. However the quality of two of these studies is questionable and therefore the results need to be treated with caution.

Evidence Statement 2

There is inconsistent evidence from three studies that training supervisors to adopt a more positive management style can have a positive effect on employee wellbeing.

There is moderate evidence from a randomised controlled study[3] that a training and self-monitoring intervention designed to increase supervisors' family-supportive behaviours can have a positive impact on physical heath ($p<0.05$) for physical health among employees with initially higher levels of family-to-work conflict (4.78 relative to baseline) but negative impacts on employees with initially lower levels of family-to-work conflict(-2.0 relative to baseline) among a total of 239 employees at 12 grocery stores in mid-western USA. However, the study found no significant change in job satisfaction or employee turnover intentions. This evidence is partially applicable to the UK.

However, there is weak evidence from an uncontrolled before and after study[1] that training supervisors to apply verbal positive reinforcement had no positive effect on employee job satisfaction in a software company based in Chile. The setting of this study significant limits its applicability to the UK. Another study[2] found that a management intervention to improve managers' behavioural skills and styles training managers did not have a significant positive effect on employee satisfaction in a global instrumentation manufacturer based in the USA. Although set in a more similar workplace environment the quality of the intervention and the overall study severely limits its applicability to the UK.

1 Del Chiaro et al. 2000 (-)

2 Swallow, 2008 (-)

3 Hammer et al. 2011 (+)

Finally a seventh study examined a four-day health and safety training intervention delivered over a two year period in garages in Norway and found it had a positive effect on reducing self-reported musculoskeletal pain.

Evidence Statement 3

There is weak evidence from a controlled before and after study[1] that a four-day training programme in health and safety management delivered to supervisors in motor vehicle repair establishments in Norway may have had a positive effect on employees' perceptions of management support (+0.14, $p<0.001$) and a reduction in self-reported musculoskeletal pain ((-0.12, $p<0.01$). This evidence is partially applicable to the UK.

1 Torp, 2008 (+)

4.2 Increasing employee involvement can have a positive effect on employee well-being

Four studies investigated interventions which were designed to increase the involvement of employees in the organisation of their workplace. Again the results were mixed, two (DeJoy, 2010 and Mikkelson, 2000) found positive results but two others (Aust et al. 2010 and Biron et al. (2010)) found a negative impact on employee well-being. However the negative results would appear to be largely due to the poor implementation of the intervention, rather than the nature of the intervention per se.

Evidence Statement 4

There is mixed evidence that interventions to increase employee participation in the workplace may have a positive effect on their well-being.

There is moderate evidence from a non-randomised controlled study[1] that a 'healthy work organisation intervention' designed to develop employee participation and problem solving could have small positive effects on job satisfaction ($t[17]= 2.19$, $p < .03$, $n^2=.03$), job stress levels ($t[17]= - 1.83$, $p < .05$, $n^2= .02$) and perceived health ($t[17]=2:07$, $p<.04$, $n^2=.01$) among retail employees working in a large multi-branch organisation in the Southern states of the USA. The evidence also suggests the intervention resulted in small positive improvements in business performance in terms of sales per labour hour ($F[2, 36]= 3.64$, $p<.04$, $n^2 = .03$) and employee turnover($F[2,36]= 4.10$, $p<.03$, $n^2 =. 02$).

In addition, there is weak evidence from a non-randomised controlled study[2] that a participatory workplace intervention in two community health care organisations in Norway had a positive, but limited, effect on work-related stress ($p < 0.05$), learning climate and management style (no p-values reported) but no significant effects on subjective health and anxiety.

However one non-randomised controlled study[3] found that a workplace intervention designed to improve psychosocial working conditions, which was not implemented well, had a small negative impact on a psychosocial work environment in a large hospital in Denmark. A separate study of a randomised delayed start trial of a workplace intervention designed to improve psychosocial working conditions but which had a failed implementation found it had no effect on sources of stress, mental and physical health, and commitment and a large negative effect on absenteeism among employees in a large public utility in the UK.

This evidence is partially applicable to the UK. One of the interventions was set in the UK and the other three would appear to be similar to those that could be applied in the UK and the workplace settings in the USA and Scandinavia bear some similarity to those in the UK.

1 DeJoy et al. 2010 (+)

2 Mikkelsen et al. 2000 (-)

3 Aust et al. 2010 (+)

4 Biron et al. 2010 (+)

4.3 Team building may not have an effect on employee well-being

One further study investigated the impact of a team building intervention and found no positive effects on employee well-being.

Evidence Statement 5

There is weak evidence from a before and after study[1] that a team building exercise among nurses, nursing assistants and nursing staff in a general hospital in North Carolina, USA had no significant effect on their job satisfaction. Although health care systems in the USA and UK are different, the intervention would appear to be similar to those that could be applied in the UK and therefore this evidence is partially applicable to the UK.

1 Amos et al. 2005 (-)

4.4 Poorly implemented intervention can have a negative effect

How well an intervention is implemented appears to influence whether an intervention is effective or not and, indeed, a badly implemented intervention may have a negative effect on well-being.

Evidence statement 6

There is moderate evidence from two studies that a poorly implemented intervention can have a negative impact on employee wellbeing. One non-randomised controlled study[1] found that a poorly implemented workplace intervention designed to improve psychosocial working conditions had a small negative impact on a psychosocial work environment in a large hospital in Denmark. A separate study of a poorly implemented randomised delayed start trial of a workplace intervention designed to improve psychosocial working conditions found it had no effect on sources of stress, mental and physical health, and commitment and a large negative effect on absenteeism among employees in a large public utility in the UK.

This evidence is partially applicable to the UK. One of the interventions was set in the UK and the other in Scandinavia however there may be unique contextual factors in each of the workplace settings which led to the difficulties in implementing the intervention.

1 Aust et al. 2010 (+)

2 Biron et al. (2010) (+)

Appendix 1: Evidence Tables

Amos et al. (2005)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: Mary Anne Amos, Jie Hu, Charlotte A. Herrick **Year:** 2005 **Citation:** The impact of team building on communication and job satisfaction of a nursing staff **Aim of study:** to measure staff communication and job satisfaction before and after receiving a team-building intervention Journal for Nurses in Staff Development, 21(1), 10-16. **Study design:** Before and	**Source population/s:** **Country of study:** USA **Setting:** medical-surgical unit in a general hospital in North Carolina. **Sample characteristics,** Eligible population: 52 nurses, nursing assistants and nursing secretaries/monitor technicians in medical surgical unit in a general hospital The sampling procedure is unclear. A convenience sample of 44 participants took part which consisted of 24 nurses (55%), 13 nursing technicians (30%), and 7 nursing secretaries/monitor technicians (15%). The mean age of the sample was 35 years (SD = 11.19) with a range from 21 to 58	**Method of allocation:** (Before and after design – same study group) No control group – longitudinal aspect of pre- and post-test evaluation. **Intervention/s description:** Facilitator (a consultant in private practice, an expert in staff development) worked with nurse manager to develop a team-building programme consisting of 8 hours training on 5 key topics: communication styles (including effective communication styles and listening skills); conflict resolution; stress management; personality styles; and normal group development and group dynamics. Each 8 hour day was held twice in autumn and in spring. Half the participants attended each session so all the participants attended one session in autumn and another in spring (16 hours in all). Activities included presentations by the facilitator and other experts, group discussions, and role play. Strategies for stress management were also introduced to assist staff with self-care. **Baseline comparisons:** Not reported. **Study sufficiently powered:** Power	**Outcomes:** Several tools used for data collection: Demographic questionnaire used to determine staff characteristics. The outcomes of the team-building intervention were measured using the Staff Communication Evaluation Tool (SCET) and the Index of Work Satisfaction (IWS). The SCET included eight concepts with 25 items. Responses were on a Likert-type scale ranging from 1 (rarely) to 5 (always). The SCET had been used in the Nursing Department at this hospital with approximately 150 people for 4 years. The tool demonstrated good reliability, with a Cronbach's alpha coefficient of .96 in this study. The IWS (Stamps, 1997) was used to measure job satisfaction. Construct validity was reported for all subscales in the IWS as significantly related to the overall scale ($p < .0001$) (Stamps,1997). In this study,	**Report results for all relevant outcomes:** A paired t-test was used to examine the impact of the team-building intervention on communication and job satisfaction. There were no statistically significant differences between baseline and 3-month post-test scores on the Staff Communication Evaluation Tool ($p > .05$). There were also no significant differences between baseline and 3-month post-test scores on the IWS total job satisfaction score ($p = .96$) and the scores on the subscales: pay ($p > .05$); autonomy ($p = .52$); task requirements ($p = .27$); organisational policies ($p = .73$); interaction ($p = .58$); and professional status ($p = .66$). Long-term benefits of the programme were assessed by the Continuous Employee Perceptions Survey. The evaluation of the team environment in the department increased over the previous year by	**Limitations identified by author:** None reported. **Limitations identified by review team:** - Small sample size, unclear methodology and results. No control. - lack of clarity in selection of study population - no detail given as to whether this group is representative of hospital - Timescale unclear – intervention spread over 2 sessions between autumn and spring – unclear when pre and post test carried out in relation to these two dates. - Full results only given for one of the three instruments used for data collection. - Unclear whether individuals took part in the study as team building on communication and job satisfaction was important to them, or whether they participated to gain their continuing education credit that was offered for taking part. This

after study, Quality score - External Validity score: -	years. The average number of years of employment was 8 (SD = 7.55) with a range from 3 months to 26 years. The average number of years in nursing was 9 (SD = 8.38) with a range from 3 months to 31 years. 38 (86%) were female, 6 (14%) were male. 26 (60%) were full-time, 16 (37%) were half-time and 2 (3%) had relief status. 13 (35%) had a BSc in Nursing, 8 (22%) had Associate degree in Nursing, 3 (8%) had a diploma, 7 (19%) had completed high school and 6 (16%) had a college degree other than nursing. **Excluded population/s:** Not stated.	calculations not provided.	the Cronbach's alpha coefficient for the total scale was .91. The Continuous Employee Perceptions Survey (CEPS) is used annually by the hospital to assess staff satisfaction of all hospital employees, using a Likert-type scale. (The Jackson Group, 2002). It was administered to the subjects 2 months after the completion of the intervention on team building. Follow-up periods: baseline and 3 month post-test (CEPS 2 months after intervention) **Method of analysis**: Paired t test used.	7% from 75.6% to 80.8%. The use of positive and constructive feedback by staff improved 5% after the intervention. The turnover rate from the year prior to the intervention to the year after the team-building program dropped from an annual rate of 13.42% to 6.56% (Wesley Long/Moses Cone Health System Turnover Report, 2001, 2002). **Total sample**: 44 Baseline Follow-up (all time points) 2 months post intervention for CEPS; 3 months post test for others End-point Control group(s) – not applicable Attrition details: Non given	could have an impact on the participant's level of engagement in the study. - No within group differences noted (ie were there different concerns between the nurses, the nursing technicians and secretaries), as these different roles may have different levels of what they consider to be important/necessary for their positions in terms of team building and staff communication. **Source of funding**: Not stated

Aust et al. (2010)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: Birgit Aust, Reiner Rugulies, Annett Finken and Chris Jensen **Title and source:** When workplace interventions lead to negative effects: Learning from failures. Scand J Public Health 2010 38: 106 DOI: 10.1177/1403494809354362 **Country of study:** Denmark **Study design:** Non-randomised intervention study **Aims of the study:**	**Source population/s:** **Country of study** Denmark **Setting** 14 units of large hospital **Location** Urban **Sample characteristics** Seven intervention units (n=128) and seven non-randomised control units (n=103). A total of 450 employees fulfilled the eligibility criteria. Of the 450 eligible employees, 399 participated in the baseline survey (response rate: 89%). Of these, 97 had left the unit at follow up, reducing the sample to 302 employees, of which 231 (76%) responded to the follow-up questionnaire: 128 in the intervention and 103 in the reference group. 97% were women in intervention group and 99% in control group. The mean age was 40.6 (SD 9.4) in intervention group and 42.2 (SD 8.6) in control. Number of Nurses/midwifes was 79 in the intervention and 75 in control, 12 worked as nurse assistants in both groups. In intervention group, 35 were laboratory technicians and 11 in control group. Mean years in unit were 7.5 years (SD 7.4) and 8.3 (SD 7.6). The groups did not differ in gender distribution, age, and years of	**Method of allocation:** N/A **Intervention:** The intervention started by providing detailed written reports about results from the baseline questionnaire to all intervention and control units. Thereafter, the reference units did not get any further input from the project team until they received a final report about the project. In the intervention units the baseline results were used as a starting point for a discussion about their psychosocial work environment. The consultants met with each unit leader to discuss the results of the survey and to find out which issues the unit leaders thought were most important. All employees were invited to a kick-off day in their respective units. Selected results of the baseline survey were	**Outcomes:** Psychosocial work environment scale was used (Copenhagen Psychosocial Questionnaire, version I (COPSOQ I) <u>Demands at work</u> (Quantitative demands, High work pace, Emotional demands, Demands for hiding emotions) <u>Work organisation and job content</u> (Influence, Possibilities for development, Meaning of work) <u>Interpersonal relations and leadership</u> (Social support from colleagues, Social support from supervisor, Role clarity, Role conflicts, Predictability, Quality of leadership) The internal consistency was satisfactory for most of the scales in the present sample (alphas between 0.73 to 0.87). Only for the scales on demands for hiding emotions (0.47) and possibilities for development (0.65) had an alpha score below 0.70. **Follow-up periods:**	**Report results for all relevant outcomes:** After 16 months of follow up, the participants of the intervention group showed a statistically significant decrease in the scales of emotional demands, influence, possibilities for development, meaning of work, supervisor support, predictability, and quality of leadership. The decrease was most pronounced for quality of leadership with a mean decline of 9.2 points, followed by supervisor support (minus 8.3 points) and predictability (minus 6.1 points). The reference group showed statistically significant changes on two scales – an increase in work pace and a decrease in predictability. A combined analysis, adjusting for gender, age, years at unit, job group, and baseline values of mental health and vitality showed that the changes in the two groups were significantly different from each other for: <u>Meaning of work:</u> *Intervention group:* Baseline: Mean 81.1 (SD 13.7). Follow-up: 76.7 (SD 14.3). Change: -4.4, t= -4.17 p<0.001	**Limitations identified by author:** Poor implementation of the intervention. **Limitations identified by review team:** Because randomisation was not possible and only one hospital recruited, it could have led to biased findings because of risk of contamination. It could have also played some role in poor implementation. **Source of funding:** The Danish Working Environment Research Fund

To investigate if workplace interventions with the goal of improving psychosocial working conditions resulted in changes in the psychosocial work environment **Quality score** + **External Validity score:** +	employment in the unit. There was a difference in the distribution of occupational position, with the intervention group including a higher proportion of laboratory technicians than the reference group. Participants in the two groups did not differ in mental health and vitality at baseline. The 97 employees who had left the unit before follow up, were younger (36 vs. 41 years, p<0.001) and had worked for less years at the unit (4 vs. 8 years, p<0.001). The 71 employees who had not responded to the follow-up questionnaire, had lower mental health (72 vs. 79, p<0.001) and vitality scores (55 vs. 65, p<0.001). Other differences were not found. **Selected population:** **Inclusion criteria** Employees at the 14 units were eligible for the study if they were on regular duty at the time of the baseline survey. **Excluded population/s:** Clinicians were excluded because they were usually assigned to more than one unit.	presented by the unit leader. Under the guidance of the consultants, employees were asked to comment on the results and add further information about potential areas for work environment improvements. After discussing the issues, the units decided on which topics they were going to focus during the next months.	At baseline and at 16 months (six months after the intervention finished). **Method of analysis**: First changes in the mean score were analysed for each of the 13 psychosocial work environment scales separately for intervention and reference group. To take clustering effect into account, a mixed model for repeated measures and random effects were used.	*Control group:* Baseline: Mean 83.3 (SD 12.7). Follow-up: 82.5 (SD 11.8). Change: -0.8, t= -0.56 p=0.58 Interaction change x group: Est. – 3.7 t= -2.36, p=0.02 <u>Social support from supervisor:</u> *Intervention group:* Baseline: Mean 60.1 (SD 22.1). Follow-up: 51.8 (SD 21.2). Change: -8.3, t= -3.9 p<0.001 *Control group:* Baseline: Mean 67.6 (SD 19.2). Follow-up: 69.3 (SD 19.6). Change: +1.7, t= 0.85 p=0.40 Interaction change x group: Est. – 9.9 t= -3.40, p<0.001 <u>Quality of leadership</u> *Intervention group:* Baseline: Mean 55.1 (SD 16.2). Follow-up: 45.9 (SD 17.2). Change: -9.2, t= -5.41 p<0.001 *Control group:* Baseline: Mean 67.8 (SD 20.1). Follow-up: 67.0 (SD 15.7). Change: - 0.8, t= -0.66 p=0.51 Interaction change x group: Est. – 8.2 t= -3.52, p<0.001	

Biron et al. (2010)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: Biron C, Gatrell C, Cooper C L **Year:** 2010 **Citation:** Autopsy of a Failure: Evaluating Process and Contextual Issues in an Organizational-Level Work Stress Intervention, International Journal of Stress Management 2010, Vol. 17, No. 2, 135–158 **Aim of study:** The aim of the original study was to: To evaluate if the utilization of the SRA tool by managers	**Source population/s**: Country of study: UK Setting: Private utility company Location (urban, rural): Not stated **Sample characteristics:** Company employs over 10,000 people, but 205 worked in the department concerned. **Eligible population**: 32 Managers in department. Managers and senior officials (24%) and administrative/ clerical staff (33%) were the largest group, followed by sales and customer service staff (20%). The sample included 62.8% of women, and 60.6% of the participants were aged between 31 and 40. The department was chosen because no intervention had taken place yet, which permitted the	**Method of allocation**: Managers were split into two groups based on their operational departments, and 50 per cent from each department were randomly allocated to each research group. No separate control group. **Intervention/s description**: The stress prevention initiative which was partly based on the Health and Safety Executive's (HSE) Stress Management Standards was aimed at compelling managers to use a Stress Risk Assessment tool (SRA) within their team (developed by a consultancy company to help organisations comply with the HSE's legal requirements), and discuss the results with employees to find corrective solutions. The SRA tool measures the stressors identified by the HSE (ie, Relationships, Roles, Change, Demands, Control and Support) as well as mental and physical well-being, and subjective performance. Managers attended a stress workshop, delivered by HR staff, where they learned about basic occupational stress concepts and about the SRA tool. Following the workshop, managers invited members of their team to complete a questionnaire. A minimum of 60% of the team had to complete the questionnaire before for the manager could close this phase. Managers received a confidential aggregated team report and they were expected to discuss this group	**Outcomes**: *Exposure to stressors*: being troubled by relationships (α =.85), resources and communication (α=.69), pay and benefits, work-life balance (α=.71), overload (α=.80), job security (α=.68), control (α= .81), and job overall (α=.72), *Commitment:* Perceived commitment of the organisation to the employee (eg, feeling valued and trusted by the organisation), (α=.83) and commitment of the employee to the organisation (eg, willing to go the extra mile), α= .79).	**Report results for all relevant outcomes**: Results showed no overall significant changes in employee measures between Time 1 and Time 2 with respect to sources of stress, mental and physical health, and commitment. Absenteeism was the only exception; the number days reported increased from 2.07 at Time 1 to 5.88 at Time 2. Employees whose manager did not use the SRA tool reported a decrease in their workload, t(1, 40) _=2.68, p = .01, d = .65, a medium effect size. Three interaction effects which approached significance were found on physical health (p = .06), organisational commitment (p = .09), and employee commitment (p = .08). Analysis showed that employees whose manager had used the SRA reported poorer physical health at Time 2, although this only approached significance and was a small effect size, t(1, 40) =1.84, p = .07, d = .31. Employees whose manager used the SRA tool were less committed at Time 2, a medium effect size, t(1, 40) = 2.46, p = .03, d = .62. Lower organisational commitment was noted but only approached significance, a small effect size, t(1, 40)=1.75, p = .09, d = .45). The increase in absenteeism was only	**Limitations identified by author**: Relatively small sample which is not representative. The time frame was quite short (12 months overall, and 9 months between the survey measures), considering organisational-level interventions are known to take time before being fully implemented. Since the SRA tool was intended for managers only and provided aggregated data, another questionnaire had to be used in conjunction with the tool. It is likely that respondents confused the two, and that having to complete three questionnaires over 12 months represented a

was associated with longitudinal changes in employees' stressors, commitment levels, and well-being indicators. The aim of this paper was to: provide a critical examination of the foundations of a stress prevention program which was poorly implemented in order to identify and correct inherent flaws. Study design: RCT Quality score (+) External Validity score: (-)	researchers to follow the intervention before its instigation. **Selected population:** 88%, n=21 of managers attended the workshop. The business unit comprised two operational departments. To enhance internal validity, one group of managers was trained to implement the program 6 months before the second Group. **Excluded population/s:** Not stated	report in a team meeting and agree an action plan on corrective interventions for high risks levels. Some 33% (n = 8) of managers indicated they invited their team to complete the SRA. Qualitative data (12 semi-structured interviews and observation notes gathered over 12 months) were used to document the intervention process and context. Out of the 16 managers composing Group 1, 12 managers from all levels (operations, team and senior manager) were interviewed individually six months after they attended the stress workshop where they were trained to use the SRA tool. A total of 125 employees completed the questionnaire after managers attended the stress workshop, and again 9 months later (n = 94) (response rate of 61% at Time 1 and of 48% at Time 2, with n = 60 full-completers). The dropout rate was 52%. A total of 54 employees whose manager used the SRA completed the questionnaire, and were compared to the 75 employees whose manager did not use the SRA tool. At baseline, t tests showed no significant differences on any of the study variables between employees whose manager had used the SRA tool versus those whose manager had not.	*Strain and absenteeism*: Mental (α=.91) and physical (α= .79) well-being. To evaluate the implementation and perceptions of the SRA tool, the perceived need for change was also measured using the Discrepancy subscale (4 items, α=.91) **Method of analysis**: Analysis of qualitative data was done using template analysis proposed by Crabtree and Miller (1992). Also a series of analyses of variance using linear mixed models was conducted.	significant for those whose manager used the SRA tool, a small effect size, $t(1, 40) = 2.02$, $p = .05$, $d = .35$. The researchers also compared managers who didn't use the tool with managers who did. Results showed managers who used the SRA tool reported better mental health, $F(1, 20) = 8.64$, $p < .01$, better physical health, $F(1, 20) = 7.40$, $p < .05$, lower exposition to stressors such as poor resources and communication, $F(1, 20) = 5.92$, $p < .05$ and poor relationships at work, $F(1, 20) = 5.54$, $p < .05$. **Reasons for failure of the intervention were:** C*ontextual influences*; eg. interviews showed that very few (five) managers from the first group trained to use the SRA tool were in a position to use it appropriately. Lots of organisational and internal changes affected the dept. during the research. *Low ownership of stakeholders*: eg. quantitative and qualitative data showed a low perceived need for the tool due to the low level of exposure to stressors. Survey data at follow-up showed that 32% of managers indicated they were uncomfortable discussing stress-related issues with their team.	burden. The review team note that changes occurred during the research period, along with other contextual factors limit the generalisability of the study as these contextual influences were thought to impact the intervention **Source of funding**: Not stated.

DeJoy et al. (2010)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: David M. DeJoy, Mark G. Wilson, Robert J. Vandenberg, Allison L. McGrath-Higgins and C. Shannon Griffin-Blake **Title and source:** Assessing the impact of healthy work organisation Intervention. Journal of Occupational and Organizational Psychology (2010), 83, 139–165 DOI:10.1348/09631 7908X398773 **Country of study:** USA **Study design:** Non-randomised controlled	**Source population/s:** **Country of study** USA **Setting** A total of 21 stores (four operational districts within the Southern US region) in a large national retailer, operating "large warehouse-type stores". The stores were reported to be very similar and ranged in size from about 150 to over 300 employees. **Sample characteristics** The final sample consisted of 2,207 employees at pre-test; 1,723 at post-test 1; and 1,510 at post-test 2, representing 53, 44, and 35%, respectively, of employees at each time frame. Participation rates in the intervention and control sites were similar (56, 43, and 36% for intervention sites; 49, 45, and 35 for control sites).There were no statistically significant differences between the two groups. The study	**Method of allocation**: Two districts (11 stores) were assigned to the intervention group and two districts (10 stores) served as control sites Assignment to intervention and control conditions was conducted to make worksites in the two conditions as comparable as possible. **Intervention:** The intervention was designed to build capacity for employee participation and problem solving and create a healthier work organisation. An employee problem-solving team, called the 'ACTion team', was organised within each intervention store. ACTion team members (8–12 per team) came from all departments and levels and were broadly representative of the employee mix at each location. The teams were charged with developing, implementing, and evaluating tailored plans of action for addressing the issues or problems identified within their stores. Assisted by trained facilitators, the ACTion teams developed action plans using a five phase problem-solving process:	**Outcomes**: Baseline surveys were conducted at all 21 worksites 6 months prior to the start of the intervention. This same survey with minor modifications was then re-administered approximately 12 months later (post-test 1), and again 24 months later (post-test 2). Store-level financial and human resources data for each store were collected from the company on a monthly basis throughout the study. In each store, completion of the surveys was entirely voluntary and anonymous. Intervention effectiveness was assessed using three levels of outcomes: Short-term outcomes included three set of measures assessing job design, organisational climate, and job future. The intermediate outcomes included five measures of psychological work adjustment and long-term outcomes consisted of sets of measures assessing employee	<u>Short-term outcomes</u> Significant treatment-by-change interactions favouring the intervention stores were obtained for involvement practices (t [17]= 3:01, p< .008, n2 =.03), and organisational support (t [17]= 2:86, p < .01, n2 = .02). Trends favouring the intervention group were evident for communication (t[17] = 1:85, p < .06, n2 = .04) and participation with others (t [17] = 1:63, p < .10, n2 = .01). From the seven work design variables, significant interactions were obtained for *job content* (t[17] = 3.35, p<.001, n2 = .02), *role clarity* (t[17]=2.69, p<.008, n2=.02), and *environmental conditions* (t[17]= -2.28, p<.04, n2=.01). Similar effects approaching significance were *autonomy* (t[17]=1.66, p<.09, n2=.03) and *work scheduling* (t[17=1.82, p<.08, n2=.01). Job future: (t[17]=2:78, p <.01, n2 =.02) and procedural equity (t[17]=2:28, P<.04, n2=.03) were significant while the interaction for distributive equity (t[17]=1.73, p<08, n2=.02) approached significance.	**Limitations identified by author**: All data collection had to occur on the less busy weekdays and we only had access for a 2-day period. As a result, the research team was not able to reach every employee (eg some part-time employees only work weekends or evenings). This could have resulted in biased results. Difficulties found in sustaining and integrating teams, especially post-facilitation could in part be attributed to ongoing changes and challenges occurring in the company –several informants commented 'there were just too many plays being called at the same time'. Additionally, difficulty of the 'intensity' of interventions means it 'competes' with other

study **Quality score** + **External Validity score:** ++	samples were generally similar to the overall employee population of the company. The average age of the total workforce was 34. 35% of all employees were female, 77% were White, and 11% African-American. Significant differences (no p values reported) were found for educational level at each time period – the educational levels of among employees were lower in the control group. Response rate: Overall: pre-test (53%), post-test1 (44%), post-est2 (35%) Intervention: pre-test (56%), post-test1 (43%), post-est2 (36%) Control: pre-test (49%), post-test1 (45%), post-est2 (35%) **Inclusion criteria** NR **Excluded population:** NR	familiarisation, skill building, prioritisation, action, and reaction. A variety of structured activities were used by the facilitators, directed at improving team communication and cohesiveness (eg team mapping, mirroring) as well as developing problem solving (eg weighing pros and cons), time management (eg prioritising tasks) and conflict resolution skills (eg anger control). Surveys were distributed and collected by research team members during two consecutive weekdays at each location. Employees were given time on the clock to complete surveys and participate in intervention activities. The baseline survey results provided the starting-point for problem identification and action planning. The facilitator helped the team move through a systematic set of activities to identify priority problems and issues.. During the action phase, the ACTion team developed a detailed action plan to meet team goals and address the identified priorities. **In control stores**, teams were not formed and no organised activities or consultations were provided.	health and well-being, and store business performance. Psychological work adjustment comprised: Job satisfaction (Reliability .81), organisational commitment (Reliability .92), job stress (Reliability .88), work self-efficacy (Reliability .81), work impact (Reliability .88) Employee Health and well-being comprised: Perceived health, perceived safety at work No reliability reported **Method of analysis**: Regression analysis were performed of 21 vectors representing the across time difference (repeated measures) of each of variables. The data was presented in adjusted Bayesian means and plots of group means. Intervention effectiveness was examined through multi-level random coefficients modelling. Analysis was carried out at both level 1 – individual level – and level 2 – between-unit level. Controls – assigned to zero – were the baseline condition.	Intermediate outcomes: Hypothesis 2 predicted that the intervention process would produce positive change on psychological work adjustment. Among the five variables in this group, the treatment by change interactions for job satisfaction ($t[17]= 2.19$, $p < .03$, $n2=.03$), organisational commitment ($t[17]=3.58$, $p < .003$, $n2=02$), and job stress ($t[17]= - 1.83$, $p < .05$, $n2= .02$) were each statistically significant. The negative change across time for job satisfaction and organisational commitment was greater for control than for intervention stores. Long-term outcomes: Significant positive results were obtained for overall perceived health ($t[17]=2:07$, $p<.04$, $n2=.01$) and perceived safety at work ($t[17]=2:43$, $p<.02$, $n2=.05$). The intervention stores experienced slight positive change on both variables during the duration of this study, the control stores experienced slight negative change. Significant treatment-by-change interactions were obtained for both sales per labour hour ($F[2, 36]= 3.64$, $p<.04$, $n2=.03$) and employee turnover($F[2,36]= 4.10$, $p<.03$, $n2=.02$).	day-to-day work pressures. **Limitations identified by review team:** Misgivings of some employees thinking that the research team worked for the company may have resulted in biased results, employees not necessarily expressing their negative views about the intervention. Slight possibility of limitations as no demographic variables were controlled for, and the different in educational level was found to be statistically significant. **Source of funding**: the National Institute for Occupational Safety and Health (NIOSH) and the US Centers for Disease Control and Prevention (CDC)

Del Chiaro (2006)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: Del Chiaro, S A **Year:** 2006 **Citation**: The effect of training supervisors to use positive verbal reinforcement on employee job satisfaction. A dissertation presented to the Faculty of the School of Education Counselling Psychology Department. University of San Francisco. **Aim of study**: To examine the relationship between training	**Source population**: **Country of study:** Chile **Setting:** Five education departments of a computer software company based in Chile **Location:** Urban **Sample characteristics:** Five supervisors (three males, two females); and 39 employees. No control group Supervisors: employed in the computer software company based in Santiago, Chile. Each supervisor was located in a different country ie Argentina, Brazil, Mexico, Peru, Columbia, Venezuela, and Costa Rica, but travelled to Santiago for training. Supervisors were front-line mangers; aged 29 to 45, and of Latin or South American descent. Employees: 39 direct reports of the supervisors (18 females and 21 males); employed as	**Method of allocation**: Not applicable. **Intervention/s description**: A one day training session for supervisors on incorporating positive verbal reinforcement into supervisory style (four, 45 minute modules). Also trained supervisors on how to use a self-monitoring data collection sheet: completed for weeks one, three and five. At the end of six weeks the data was collected. Employees completed a demographic questionnaire and a pre-intervention job satisfaction survey one week prior to supervisor training. Baseline comparisons: Employees' average length of employment was between one to two years; employees reported having contact with their supervisors about twice a day. Employees reported that their job satisfaction had remained stable over	**Outcomes**: - Job satisfaction scores. - Positive verbal reinforcement **Follow up**: Baseline was established by using the employee responses to the pre-intervention job satisfaction survey. During the six-weeks following the supervisors' positive verbal reinforcement training, employees completed a tri-weekly questionnaire, designed to measure employees' perceived level of job satisfaction. 12 weeks after the training supervisors' completed a self-monitoring checklist to assess if the acquired behaviour was maintained. Employees also completed a post-intervention job satisfaction survey to see if there was a change in perceived job satisfaction 12 weeks after the training. **Method of analysis**: -Time series analysis	**Report results for all relevant outcomes**: Supervisors increased the amount of verbal positive reinforcement from week one to week 12. For four of the five supervisors the job satisfaction of their employees increased from baseline to intervention phase (although not statistically significant, no p-values reported). Average baseline job satisfaction mean score was 5.6; average intervention mean score was 5.7; post test mean score (at 12 weeks) was 5.9. (No standard deviations reported) Due to the small increase found in the comparison of the means (baseline to intervention to post test) there is no empirical evidence that training supervisors to apply verbal positive	**Limitations identified by author:** Low number of data points at baseline. The baseline phase should have lasted for a six week period to provide a better assessment of the typical job satisfaction of employees. Validity of the supervisors' ratings: their use of positive verbal reinforcement was self-reported. Reactivity effect: The supervisor applying the positive verbal reinforcement was aware of the behaviour they were self-monitoring, and so there may be an increase in this behaviour. Relatively brief intervention and fatigue experienced by supervisor group (due to intervention training lasting over six hours and travel required) Ceiling effect: Employees had a relatively high level of perceived job satisfaction prior to the intervention. Language translation difficulties (English to Spanish). Missing data from the supervisors' self-monitoring checklists mean it is difficult to determine if the intervention was responsible for the slight increase in job satisfaction as there is little empirical evidence that shows positive verbal reinforcement

supervisors in using positive verbal reinforcement techniques, such as praise, and the employees' perceived level of job satisfaction Study design: Longitudinal intervention study **Quality score** + External Validity score: -	educators for the software company; residing in Latin and South America. Aged: 22 to 43; Latin or South American descent. **Eligible population:** Participants (both supervisors and employees) recruited by email sent by company VP. **Selected population:** Not described. **Excluded population**: Two additional supervisors received the intervention but were excluded from the study because they were supervisors of other members in the supervisor group.	the duration of their employment, but they felt "slightly overworked".		reinforcement has an effect on employee job satisfaction.	was applied. **Limitations identified by review team:** Only two supervisors returned complete self monitoring data sheets; the three other supervisors returned only partially completed sheets (ie missing a week of data) which could have caused biased in findings. Period of exposure (12 months) should have been longer Reliability/validity test of job satisfaction question measures not performed. No adjustments made for transient confounding variables in data collected from employees, ie employee mood **Source of funding**: Not stated.

Hammer et al. (2011)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: Hammer LB, Kossek EE, Anger WK, Bodner T, Zimmerman KL Year: 2011 Citation: Clarifying Work–Family Intervention Processes: The Roles of Work–Family Conflict and Family-Supportive Supervisor Behaviors, Journal of Applied Psychology 2011 Jan;96(1):134-50. **Aim of study**: To assess the impact of a training and self-monitoring intervention	**Source population/s**: Country of study: USA **Setting**: Grocery stores **Location**: Not stated (Midwestern USA) **Sample characteristics:** Each of the 12 stores had at least one store manager and between one and nine supervisors/ dept. head. Employees per store ranged from 30 to 90. **Eligible population:** Represented low wage employees, typically less able to take advantage of formal work-family policies such as flexible work schedules. **Selected population:** 360 (61% response rate) employees responded to pre-intervention data	**Method of allocation:** Six stores randomly chosen to be intervention sites and six other stores served as control sites. **Intervention/s description**: Implemented a work–family training intervention that informed supervisors about the importance of increasing work–family specific supportive behaviours and asked supervisors to set goals to self-monitor the frequency of family-supportive supervisor behaviours (FSSB) after the training. The training was designed to enhance supervisors' skills and motivation to increase interpersonal contact with employees and support employees' needs in managing the work–family context. 39 supervisors participated in the computer and face to face training and 32 participated in the self monitoring, and all but four completed supervisor daily data cards on a mean of 7.5 days (SD _ 3.7) over a 25-day	**Outcomes**: FSSB: 14-item scale (Hammer et al., 2009) includes four dimensions: emotional support; role-modelling behaviours; instrumental support and creative work–family management. The reliability estimate for the total FSSB scores was .94. Work–family conflict: The measured in two directions with a total of 10 items (Netemeyer, Boles, & McMurrian, 1996). Coefficient alpha reliability for work-to-family conflict was estimated at .87, and at .85 for family-to-work conflict. Job satisfaction (JSAT) and turnover intentions (TOI): job satisfaction measured with a five-item scale (Hackman & Oldham, 1975). Reliability for this scale was estimated to be .80. Employee intentions to quit their job was measured with a two-item scale (Boroff & Lewin, 1997). Reliability for this scale was 87. Physical health (PH):	**Report results for all relevant outcomes**: Computer based training was found to be useful, and the information that they received was rated as 'good' (M=4.10, SD = 0.50). A significant difference in the level of learning pre and post test was reported: t(39) = 7.77, p<.001. Self-report data on frequency of individual behaviours showed 62.5% exceeded their estimated baseline number of behaviours at least once, and 48.6% met or exceeded their goals at least once during the intervention. Means for the outcome variables observed at Baseline and follow up are: Baseline FSSB M= 3.44 SD= 0.71 Follow-up FSSB M=3.61 SD=0.76 Baseline PH M=51.62 SD=8.23 Follow-up PH M=51.03 SD=8.44 Baseline JSAT M=3.41 SD=0.68 Follow-up JSAT M=3.34 SD=0.74 Baseline TOI M=2.44 SD=1.12 Follow-up TOI M= 2.52 SD= 1.05 Findings show that family	**Limitations identified by author**: The study team were unable to conduct independent observations of supervisor behaviours to verify self-reports of behaviour change. Did not achieve 100% compliance of the supervisors in the self-monitoring element of the intervention, as it was voluntary by design, and so could have led to weaker results that would have been gained with 100% supervisor participation in all intervention activities. Unable to implement the feedback element of self-monitoring – these are believed to be critical for effective self-monitoring – which could explain why behaviour changes were much smaller and weaker than those reported in literature. Not aware how long the training effects continued, as the post-intervention survey was conducted one month after training. **Limitations identified by review team:** Intervention designed to have

designed to increase supervisors' use of family-supportive supervisor behaviours on health and job outcomes. Study design: Randomised control. Longitudinal Quality score + External Validity score: +	collection. 27% male; 73% female; 92% White; mean age of 38 years; 55% living as married; 41% had children living at home; 16% were providing care for another adult; 9% providing care for both a child and adult. 239 (67% response rate) employees responded to post-intervention survey: 22% male; 77% female; 92% White; mean age of 40 years; 57% reported living as married; 48% had children living at home; 14% were providing care for another adult; 9% providing care for a child and an adult. No significant differences in key demographics between the control and experimental groups at pre-intervention except for mean age. **Excluded population/s:** NR	period. 117 employees were included in the intervention group. Control group= 122 employees The intervention took place approximately 9 months after the pre-intervention survey was administered. The post-intervention data was collected approx. 1 month following the end of the intervention. Pre-intervention and post-intervention surveys administered to employees individually in face-to-face interviews, consisting of 196 survey questions, a process that led to virtually no missing data	measured with the Short-Form Health Survey (Version 2) seven-item physical composite score (Ware, Kosinski, & Keller, 1996). The reliability for the physical health composite score of the survey was .82. The post-intervention sample (239 out of 360) was affected by attrition with significant $X2$ tests: Drop-outs had significantly lower job satisfaction (M = 3.31, SD = 0.71) than completers (M =3.47, SD = 0.65; p =.05) significantly higher mean turnover intentions (M= 2.64, SD= 1.22) than completers (M = 2.34, SD= 1.02; p= .01). **Methods:** To account for the impact of observable characteristics on attrition, the study implements full information maximum likelihood estimates of regression models of the intervention on outcomes (Mplus 4.2). Mediated moderation analyses were conducted as an evaluation of the process	supportive supervisor training was successful at improving work and health outcomes at 5% level for physical health (Slope 2.17). However, this impact was driven by workers with initially higher levels of family-to-work conflict (4.78 relative to baseline), while people with initially lower levels of family-to-work conflict had a significantly negative impacts (-2.0 relative to baseline). This finding was partly explained by a possible backlash by those with low family-to-work conflict perceiving the intervention as negative or as affecting them adversely.	training followed by behavioural self-monitoring to support transfer of training. Authors were unable to isolate the effects of the different components. Supervisors and employees were paid to participate which may have implications for why they wanted to participate in the study. Long wait after pre-intervention survey and intervention (no reason given for this) – could this long wait accounted for those who did not want to participate? **Source of funding**: The research was partially supported by the Work, Family and Health Network which is funded by a co-operative agreement through the National Institutes of Health and the Centres for Disease Control and Prevention: National Institute of Child Health and Human Development, National Institute of Aging, Office of Behavioural and Social Sciences Research and National Institute for Occupational Safety and Health (grant numbers are provided)

Kawakami et al. (2005)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: Norito Kawakami, Yuka Kobayashi, Soshi Takao, Akizumi Tsutsumi **Year:** 2005 **Citation:** Effects of web-based supervisor training on supervisor support and psychological distress among workers: A randomised controlled trial. Preventive Medicine 41 (2005) 471–478 doi:10.1016/j.ypmed.2005.01.001 **Country of study:** Japan **Aim of study:** To determine	**Country of study** Japan **Setting** The study site was a computer software engineering company located in Okayama City, Japan that had a total of 219 employees. **Location** Urban **Sample characteristics** A total of 100 subordinate workers were working for the nine section chiefs in the training group (intervention group workers); 90 subordinate workers were working for the seven section chiefs in the non-training group (control group workers). Among them, 90 (90%) and 90 (100%), respectively, participated in the first baseline survey of stress and mental health (before supervisor training), and 89 (89%) and 85 (94%), respectively, participated in the second survey at the 3-month follow-up. The numbers of subordinate workers who participated in both baseline surveys and	**Method of allocation**: All section chiefs were randomly assigned to intervention and control groups (no more details provided) **Intervention:** Intervention group The sections chiefs (SCs) in the intervention group were invited to participate for one to four weeks in the web-based supervisor training provided by an internet server PC. The SCs participated either from workplace or home. A study co-ordinator watched their progress and encouraged them by email to complete the training. The contents of the web based training included a variety of topics that supervisors were required to know based on "The Guidelines for Promoting Mental Health Care in Enterprises" by the Japan Ministry of Labor. These topics included (a) essential knowledge about mental health, (b) importance of occupational mental health, (c) roles of supervisors in occupational mental health, (d)	**Outcome measures**: - Worksite support including supervisor support and co-worker support (alphas: 0.78–0.84 and 0.71–0.79). - psychological distress including measures of quantitative and qualitative job overload, job control and overtime hours (alphas for each sub-scale were 0.92–0.93, 0.84–0.85, 0.85–0.88, 0.74–0.75, and 0.88–0.90),. **Follow-up periods:** Before the beginning of the web based training for section chiefs, all employees were asked to participate in online baseline survey of job stress and mental health. Three months after the training, the follow-up survey was conducted. **Method of analysis**: The intervention effect was tested by examining the	**Results:** The score of supervisor support greatly decreased in the control group during the follow-up period, and the score changed very little in the intervention group, with a significant intervention effect (p = 0.032). This pattern was more pronounced for one particular item dealing with the extent to which a supervisor listens to personal problems of subordinate workers (the intervention effect, p = 0.012). No intervention effect was observed for the score measuring co-worker support, psychological distress, or other job stressors among subordinate workers (p>0.05). **Report results for all relevant outcomes**: Workplace support Intervention group (n=82) Supervisor support: Baseline: 7.02 (SD 1.97), Follow-up: 6.84 (SD 1.96) Co-worker support: Baseline: 8.11 (SD 1.84), Follow-up: 7.71 (SD 1.72) Control group (n=85) Supervisor support: Baseline: 7.63 (SD 1.93), Follow-up: 6.93 (SD 1.91) Co-worker support: Baseline: 8.07 (SD 2.01), Follow-up: 7.55 (SD 1.79) Psychological distress No significant intervention effect of the web-based supervisor training on subordinates' psychological distress was observed in the ITT analysis (p = 0.402): the average scores were	**Limitations identified by author**: Small number of supervisors could have caused bias in findings. **Limitations identified by review team:** Section chiefs of the same company were randomised which would have given those in intervention group opportunity to discuss the training with their counterparts in control group. This may have caused bias in results. **Source of funding**: Partnership between Universities and Industry Program (A)Q

the effects of web-based supervisor training on worksite supervisor support and psychological distress among subordinate workers. **Study design:** RCT **Quality score** + **External Validity score:** ++	follow-up were 82 (82%) and 84 (93%) in the intervention group and control group workers, respectively. There were 16% and 24% women workers in the intervention and control groups, respectively; the average age was 32.7 (7.0) and 32.7 (6.1) in the intervention and control groups, respectively; 69 (84%) technicians and 13 (16%) clerks were in the intervention group; 58 (69%) technicians and 26 (31%) clerks were in the control group; and 42 (54%) in the intervention group and 41 (49%) in the control group worked 60 or more hours of overtime per month. **Selected population:** **Inclusion criteria** Employees of the company working under the section chiefs. **Excluded population/s:** Managers who ranked higher than a section chief	consultation with workers (listening and advice to workers, recognition of mental health problems among workers) and use of mental health services, if necessary, (e) support for workers who were returning to work after receiving treatment for mental health problems, (f) improvement of the work environment for stress prevention, and (g) self-care or awareness of stress and coping with it. The average time to complete the entire training was 3 to 5 hours. <u>Control group</u> During the same period, the section chiefs in the non-training group participated in a 2-h training session regarding a method of relaxation, instead of the web-based training. For ethical reasons, after the study was completed, the web-based training was provided to the section chiefs in the control group; and a training session on a relaxation method was provided for those in the training group.	interactive effect between groups (the intervention and control groups) and time (baseline and 3-month follow-up) by using a repeated analysis of variance (ANOVA). Average scores of psychological distress and other job stressors were also compared by group and among subordinate workers by using a repeated analysis of variance (ANOVA). In addition, ITT (Intention to treat) analysis were conducted.	43.6 (10.8) and 44.7 (11.4) at the baseline and follow-up respectively, in the intervention group; 43.2 (10.8) and 45.3 (10.7) at the baseline and follow-up, respectively, in the control group. Averages (SDs) of overtime hours in the previous month for the intervention and control groups were 58.2 (30.1) and 57.7 (28.6), respectively, at baseline; 53.2 (31.4) and 56.3 (29.0), respectively, at follow-up. Average scores (SDs) of quantitative job overload for the intervention and control groups were 9.7 (1.9) and 9.7 (2.2), respectively, at baseline; 9.5 (2.0) and 9.8 (2.0), respectively, at follow-up. Average scores (SDs) of qualitative job overload for the intervention and control groups were 9.5 (1.7) and 9.3 (1.9), respectively, at baseline; 9.5 (1.7) and 9.4 (1.8), respectively, at follow-up. Average scores (SDs) of job control for the intervention and control groups were 7.3 (1.9) and 7.4 (1.6), respectively, at baseline; 7.1 (2.1) and 7.4 (1.7), respectively, at follow-up. No significant difference was observed in these variables at baseline between the two groups (p = 0.452–0.921). No significant difference in changes in these variables was observed at the ITT analysis (significance for an interaction between group time, p = 0.445 for overtime hours; p = 0.243 for quantitative job overload; p = 0.595 for qualitative job overload; p = 0.393 for job control)	(2001–2003) between the Japan Ministry of Education, Culture, Sports, Science and Technology and Fujitsu Infosoft Technology, Co., Ltd.

Mikkelsen et al. (2000)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: Mikkelsen A, P Ø Saksvik and P Landsbergis **Year**: 2000 **Citation**: Mikkelsen A, P Ø Saksvik and P Landsbergis 2000 The Impact of a Participatory Organisational Intervention on Job Stress in Community Health Care Institutions Work and Stress: An International Journal of Work, Health & Organisations 14(2) 156-170 **Aim of study:** To investigate the effect of a short-term participatory intervention in health care	**Country of study** Norway **Setting:** Community health care institutions Urban **Eligible population:** All of the supervisors and employees from two selected health care units were invited to participate. **Sample characteristics:** Sample size and demographics are unclear. Data in tables do not match the data in the text. In particular N = managers and N = employees are not clear). It would appear that 64 employees were in the original intervention group (or whom 74% completed a baseline questionnaire prior to the intervention	**Method of allocation:** The study states that two health care institutions were selected to carry out the organisational intervention, and all of the supervisors and all of the employees in these institutions were invited to participate. From the other institutions (number unspecified) in the same district, individuals were randomly allocated to the three individual interventions and to a control group. No other information on the allocation process is provided. The overall aim of the intervention was to set in motion a learning process on how to identify and solve work problems in order to improve workplace health and organisational performance continuously, on a long term basis. The intervention began with a six-hour seminar to identify the key factors that would create a good work environment and the actions required to reduce the gap between the wanted situation and reality. Seven small work groups were set up that had nine individual group meetings lasting for two hours each over a 12-week period in work time. The groups discussed their respective topics (unspecified), the stressors related to these concerns, their likely causes and possible remedial action. In the 5th session a summary of the	**Outcome measures:** Work-related stress was measured using a subscale of Cooper's Job Stress Questionnaire. The sub-scale has three items Cronbach's α 0.77 Subjective health measured by The Health Inventory. Consists of questions regarding frequent somatic and psychological problems experienced in the last 30 days. Cronbach's α 0.82 Demands-control dimensions measured by a short version of the Job Content Questionnaire. This had three substrands – demands Cronbach's α 0.75, skill discretion Cronbach's α 0.51 and decision authority Cronbach's α 0.73 Social support measured by the Work Apgar Questionnaire. Cronbach's α 0.70 Role harmony measured according to Rizzo, House and Lirtzman (1970), Cronbach's α 0.78 Learning climate measured by the Learning Climate Questionnaire. Cronbach's α	**Report results for all relevant outcomes**: The multivariate analysis (by repeated measures MANOVA) of the dependent variables work-related stress, subjective health complaints, psychological job demands, social support, role harmony and also the control variables showed no main effect of change over time ($p = 0.9$). Seven changes in dependent variables over time were significant when intervention and control groups were compared. Significant overall positive effect of the intervention compared to the control group on increasing decision authority, social support and role harmony ($p< 0.05$) relative to decreases in the measures in the control group (repeated measure ANCOVA). Compared to the control group that had a downward trend in the	**Limitations identified by author:** The authors note the tolerance level of 50% missing data and state that: 'results should be treated with caution' Due to low response rate and small sample in the control group, post-test 2 measurement data was not included in this analysis. The low response rates at the second post-test point in the intervention group may have been due to lack of follow-up on the action plan after the project period had ended, therefore there was low commitment to the project. In one of the institutions the manager was sceptical about the intervention, and the employees did not want to use their leisure time for participating. The manager in the other work unit was enthusiastic but often did not attend meetings. Meetings had a tendency to occur without planning, and were rather unstructured.

institutions in Norway on workers' control, other job characteristics, job stress, subjective health and job satisfaction **Study design:** Non-RCT Quality score - External Validity score: -	and 71 in the control (49% pre-test response rate). It is stated that Chi-squared analyses showed that there were no significant differences between the intervention and control groups on demographic variables at pre-test. Both groups were predominantly female (>90%), aged c. 40 to 45, mostly working art-time. The response rate data seems to be show significant changes in the sample sizes at pre-test and post-test 1 and 2. There is no explanation of this in the paper. Excluded population/s: N/A	results of the baseline survey was given to the participants, and in the 6th session groups developed an overview of the results and formulated suggestions on how the improvement process should be sustained after the intervention. An external OD facilitator/consultant was responsible for carrying out the intervention along with a board consisting of the consultant, the manager, the supervisor, a union representative and the employee safety representative. It is not stated what intervention (if any) was received by the control group Total sample: Baseline: 135 Follow-up (all time points): 82 End-point: 59 Intervention group(s): Baseline: 64 Follow-up (all time points): 47 End-point: 45 Control group(s) Baseline: 71 Follow-up (all time points): 35 End-point: 14 No information available about power calculations. The post-test 2 sample size was very small which is likely to mean lower power.	ranging from 0.66 to 0.81 Leadership measured by the Multifactor Leadership Questionnaire. Cronbach's α 0.64 The intervention was evaluated by means of logbooks and written reports prepared by the supervisor of the work units and the consultant. These were sent with work group reports and action plans to the researchers for analysis. Same survey used for follow up assessments. These occurred in the first week after the intervention, and a second time 1 year after the pre-intervention baseline survey was carried out. Method of analysis: MANOVA repeated measures were used to find changes over time in the intervention group compared to control group. Univariate ANCOVA was used to test if there had been a different development in the intervention group compared to the control group from pre- to post-test. Paired t-tests were used for simple main effects.	period, the intervention also had a positive effect on learning climate (no p value given) and managers having greater 'consideration for individuals' Significant overall positive effect in the intervention group compared to the control group on work-related stress and psychological job demands ($p < 0.05$). There were no significant effects on subjective health and anxiety. Intervention group *t*-test showed significant improvements in 'role harmony' and 'satisfaction'. No other changes in this group. Control Group the paired sample *t*-test showed no significant changes. Due to the low response rate at post-test 2, the data and results were not included in the analysis.	Qualitative results showed that there was slow progress in learning that seem to have been caused by constant interruptions in work due to demands from the daily activities in the work unit The positive short-term effect between the test immediately prior and those immediately after the intervention) may also be interpreted as a 'Hawthorne ' effect. **Limitations identified by review team:** Some of the significance of the findings comes from the fact that measurements in the control group had declined, therefore the apparent increase may not be to do with the intervention but be confounded. The intervention was at two separate companies, and each of these was split in to 7 groups respectively, so the experience of the intervention will not be entirely comparable. **Source of funding:** Not explained

Swallow (2008)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: J.K.Swallow Year: 2008 Title: How managers' discovery and awareness of their behavioural characteristics affect their employees' satisfaction. **Citation:** A dissertation submitted to Benedictine University for a Doctor in Philosophy in Organisation Development **Aim of study** The purpose of the study was to examine how intervening in the management process at	**Source population/s**: **Country of study**: USA (Midwest USA, Connecticut, Louisiana, New York) and Belgium **Setting:** Global instrumentation manufacturer (referred to as Levelco). The company had five sites. The company's HQ (in the mid-west) formed the experimental group and the four other locations formed the control group. All 550 employees at LevelCo were invited to take part, total of 443 responded at Time 1 (242 employees and 51 managers in the experimental group and 201 employees and 482 (248/204)at Time 2. The demographics of the two groups are	**Method of allocation**: Allocation to intervention/control group was based on the location employees were based in. Midwest used as experimental group, and all others in a control group. Management personnel were those chosen to undertake the intervention. **Intervention/s description**: Prior to the intervention all employees were asked to complete an employee satisfaction survey. Employees in the intervention group were given two weeks' advanced notice by bulletin board postings in two locations within the LevelCo Midwest headquarters building asking for their participation and cooperation. Control groups were told the form 'had to be' filled out and returned to a box. Experimental group of managers received four sets of presentations on a variety of topics related to leadership and management over the 6 month period and asked to complete a series of Life Styles Inventory Surveys™ (LSI). One presentation was before each of the three LSI's and one after the last LSI. They also participated in individual interviews and coaching	**Outcomes**: Employee Satisfaction Survey was based on the Gallup survey. It looked at whether employees were satisfied in current environment and after a benchmark was established whether satisfaction could be improved in any way by engaging their management in a self-discovery process. The survey was not externally tested. During phase 1 all LevelCo employees were given the Employee Satisfaction Survey to serve as a baseline, during phase 2 the managerial personnel from control and intervention groups were given three successive administrations of the Life Styles Inventory Survey. The LSI Survey was designed by Human Synergistics–to help people identify their beliefs, values, behaviours and assumptions about themselves in order to improve their careers, health, relationships and wellbeing. 12 LSI styles represent themselves various ways people choose to represent themselves, split into 3 categories: Constructive (achievement, self-actualising, humanistic, encouraging) Passive/Defensive (approval,	**Report results for all relevant outcomes:** There was no statistically significant (95% confidence level) change in employee satisfaction over time between the before and after surveys for both the total Control Group and total Experimental Group. The LSI results showed that the control group managers had consistently higher scores on the negative constructs and lower scores on the negative constructs than the experimental group. This averages across the LSI constructs for all three LSIs show that experimental group MP performed at a level lower than the control group MPs on positive aspects and higher on negative aspects. The Experimental Group became less negative and more positive as they move	**Limitations identified by author**: No limitations discussed by author in the report The author does state that there is 'very little published research' on the LSI. The author's statisticians expressed a view that the survey scale could have been better constructed– many items were yes or no questions, yet the answer options were scale (eg from strongly disagree to strongly agree). **Limitations identified by review team:** How the control groups and experimental groups were formed, based on location – not randomised – could have had an impact on the results based on other issues that were occurring in the various locations other than what was being studied, No explanation about how people were chosen to take part in the organisational development team for the project. No comparison with those

LevelCo could help foster an environment in which all individuals; managerial and non-managerial feel more job satisfaction, more comfortable offering ideas and more motivated to improve performance by investing more fully in their work and in their company **Study design:** Controlled before and after study **Quality score** - External Validity score: -	only described in general terms and is reported to include males and females, people from various ethnic backgrounds, origins, cultures, ages and educational levels In addition a Life Styles Inventory (LSI) was administered to managerial sub-sets in each group (Experimental N = 51 and control N = 35) **Selected population:** No selection criteria – "Every employee was given a survey no matter how long they were employed." Response rate: Phase 1 Employee Satisfaction Survey 443/550 – but author states this was made from a 77% RR from the control group and 64% RR from the intervention group… Does not match up. Phase 2 Employee Satisfaction Survey 462/550 **Excluded population/s:** All were invited to take part, nobody excluded	sessions after the second LSI and the next to last presentation before the third LSI but before the second employee satisfaction survey (time 2). There were presentations about topics including history and culture of the company, the importance of effective leadership to the company, traits of a successful leader, fostering meaningfulness at work, characteristics of effective organisations, differences between old and new paradigms, continuous improvement, professional key development and change management. All employees then took the Employee Satisfaction Survey (Time 2) Control group: took the LSI tool three times over six months. They were given no explanations of why they were taking the LSI (or the Employee Satisfaction Survey) other than that the O&D management team at the Midwest headquarters was doing a study. Furthermore, there were no presentations or discussions about the process or results, either collectively or individually. All that Control Group managers knew was that some kind of project was going on.	conventional, dependent, avoidance) Aggressive/Defensive (oppositional, power, competitive, perfectionist) Follow-up periods: Employee Satisfaction survey: undertaken twice by both the Control Group and the Experimental Group. Control Group once in June 2006 and January 2007, the Experimental Group, once in August 2006 and once in June 2007. LSI Survey was undertaken following the first ESS, with a subgroup of managers from the control and experimental groups. LSI for control group (35 managers)was administered 3 times in a 6 month period from June 2006 until December 2006 (with approx. 70 days between each test). LSI for experimental group (51 managers) was administered 3 times over 9 months between September 2006 and April 2007. **Method of analysis**: The data from the two ESS survey data (Pre and post intervention), and the three LSI data points were entered into excel spreadsheets and analysed using t-tests and z-tests. Cross group and inter-group comparisons could then be made using data from both instruments.	the LSI from time 1, 2 and 3. The experimental group went down meaningfully (confidence level of 80%) on negative LSI aspects. The trends remain consistent through time 1, 2 and 3 for both the control group and the experimental group suggesting the samples were unmatched. The experimental group MP between LSI 1 and 3 increased significantly on self-actualising and in the overall score for constructive styles. They reduced significantly for aggressive/defensive styles and passive/defensive styles. The group also had significantly reduced scores on oppositional and defensive styles. The group increased at a faster rate than the control group on positive constructs, and decreased at a faster rate on negative constructs.	who did not take part – was there a difference in employee satisfaction? The author of this paper was a senior executive officer at the company being researched, raising serious questions about bias, and also about possible perceptions of coercion and unequal power relationships during research. This was countered somewhat by allowing participants to choose the location of interviews and coaching, but I contend that this would not alter things much. Management was mostly male, and this was not accounted for during analysis. **Source of funding**: NR

Takao et al. (2006)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: Sushi Takao, Akizumi Tsutsumi, Kyoko Nishiuchi, Sachiko Mineyma, Noriko Kawakami Year: 2006 **Citation:** Effects of the job stress education for supervisors on psychological distress and job performance among their immediate subordinates: a supervisor-based randomised controlled trial. Journal of Occupational Health 2006: 48: 494-503. **Aim of study:** To evaluate the effects of a single job stress education session for supervisors on their subordinates' psychological distress and job performance.	**Source population/s**: **Country of study:** Japan **Setting:** Established Japanese sake brewery with 301 employees (46 supervisors and 255 subordinates). **Location:** Urban **Sample characteristics:** Intervention group= those subordinates whose immediate supervisor received the education. Control group = Those subordinates whose supervisors did not receive the education. Supervisor education group (Intervention group)(n=24 supervisors): The mean age was 50 (SD 5.2), one was a woman, the mean occupational length was 14.2 years (SD 11.1). Control group (n=22 supervisors): Mean age was 48.9 (SD 4.5), the mean occupational length: 15.8 years (SD 12.7). All were men. On average, each supervisor had 5.5. subordinates. Subordinates sample (intervention) (n=134): 33.6% were women, 47.8% were <34 years of age, 50.7% were in white-collar and 49.3% in blue collar occupations. 70.1% had less than 15 years of education. Subordinates sample (control):(n=92)	**Method of allocation**: Each supervisor was randomly allocated to either education group (n=24) or the control group (n=22). **Intervention:** A single 60 minute education programme on mental health was run by an occupational physician and a psychologist, along with training that provided consulting skills combined with role playing exercises (60 min lecture and 120-min practice session, delivered by two clinical psychologists). The intervention aimed to clarify the roles of supervisors by providing them information on: early awareness of mental health problems, support for those returning to work, consultation for subordinates, improvement of working environments on a daily	**Outcomes**: - Psychological distress of subordinates (an 18-item questionnaire derived from Brief Job Stress Questionnaire) (alpha= 0.80-0.84) - Self- reported job performance using the WHO Health and Work Performance Questionnaire (alpha=0.70-0.74). - Subgroup analysis by socio demographic factors. **Follow-up periods:** Before the training, all employees were asked to fill in a baseline questionnaire. Three months after the training, the follow-up survey was conducted. **Method of analysis**: To compare means of	Intervention effects (time x group) were not significant for psychological distress or job performance among employees. However, young male subordinates in white-collar occupations showed significant intervention effects for psychological distress (F=7.28, p=0.012) and job performance (F = 5.40 p=0.029). The intervention suggest possible positive effect of supervisor education among this group. Intervention group Psychological distress (n=134) Pre-intervention: Mean 26.8 (SE 0.81), Post-intervention: Mean 26.9 (SE 0.98) Job performance (n=126) Pre-intervention: Mean 67.2 (SE 0.67), Post-intervention: 66.7 (SE 0.74) Control group Psychological distress	**Limitations identified by author**: White collar supervisors might have been more proactive in promoting mental health to their employees because of some of their subordinates at risk of redundancy. Young supervisors may also have been reluctant to advice their older subordinates about mental health issues. Supervisors and subordinates from both the intervention and control groups often worked together which may have diluted the intervention effect. Psychological distress and job performance were self-reported measures and the job performance questionnaire was not validated. **Limitations identified by review team:** Significant differences between employees in occupational and education could have resulted in

Study design: RCT **Quality score** + **External Validity score:** ++	30.4% were women, 62% were <34 years of age, 66.3% were in white-collar and 33.7% in blue collar occupations. 53.3% had less than 15 years of education The intervention and control groups differed significantly according to occupation (p=0.028) (intervention group was more blue collar) and years of education (p=0.012). The intervention group also had lower job demand and lower job control than the control group. **Selected population:** **Inclusion criteria** All employees. **Excluded population/s:** From employees supervised by intervention group line-mangers, 4 were excluded at post-intervention stage because of retirement/sick leave. In the control group one employee was excluded because of retirement/sick leave.	basis, self-care recommendations and information on mental health problems.	outcomes, repeated measures of variance (ANOVA) was employed using the GLM scores.	(n=92) Pre-intervention: Mean 27.4 (SE 0.88), Post-intervention: 28.0 (SE 1.06) Job performance (n=87) Pre-intervention: Mean 66.9 (SE 0.80), Post-intervention: 66.4 (SE 0.89) <u>Intervention effect</u> Psychological distress: F 0.13 p=0.715 <u>Job performance</u>: F 0.00 P=0.969	biased findings. **Source of funding**: The Japan Industrial Safety and Health Association

Torp S (2008)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: Torp, S **Year**: 2008 **Citation**: Torp, S, 2008, How a health and safety management training program may improve the working environment in small- and medium-sized companies, Journal of Occupational and Environmental Medicine, Vol 50, Number 3, pp263-271 **Country of study:** Norway **Aim of study:** The objective of this controlled intervention study was to	**Setting** Motor vehicle repair garages in Norway (The inclusion criteria for the participating garages were being a member of the Association and having at least one employee.) **Sample characteristics**: The sample of managers was 226 (113 in intervention group, 113 in control group). Questionnaires completed: n=721; 363 in the intervention group and 358 in the comparison group. The average age among the respondents was 34 years at baseline (standard deviation _ 10, range 18 to 64), and 98% were men. A total of 83% worked as mechanics, panel beaters, or sprayers; 17% as supervisors or foremen; and 10% had other work tasks such as vulcanisation or auto electricity work. Some respondents reported	**Method of allocation**: "Because of practical constraints, this intervention study could not randomise the participants to an intervention group and a control group." The intervention group consisted of workers and managers at motor vehicle repair garages in which the manager participated in the H&S management training following an invitation to participate in the training sent to all the member companies of the Norwegian Association of Motorcar Dealers and Service Organization (NAMDSO). The comparison garages were selected from the Association's list of member companies and matched to the intervention garages for size and region. Not reported whether confounding was minimised. **Intervention/s description**: 4 1-day seminars over the course of 2 years. These were run by the NAMDSO and an insurance company covering: Internal Control Regulation, health and safety management, health and safety management procedures plus homework and a visit by a health and safety advisor. A H&S mgmt questionnaire was	**Outcomes**: Company level: H&S management index Worker level: Physical working environment, decision authority, Social support, Management Support, Musculoskeletal pain **Follow-up periods** End-point: unclear Intervention group(s): Baseline:363 workers and 113 garages Control group(s) Baseline: 358 and 113 garages Follow-up (all time points): approximately 2 years **Method of analysis:** T tests and analysis of covariance were used to measure the significance of changes from baseline to follow up and differences in changes between the intervention and comparison groups. The scores were standardised by	**Report results for all relevant outcomes**: The main outcome measures at the company level was changes in a health and safety management index, rated by managers using a 16-item questionnaire. The intervention group improved their health and safety management system significantly more than the comparison garages. The mean change in the standardised scores for the intervention group were 0.61 ($p<0.001$) and 0.26 ($p<0.01$) for the comparison group and the difference between the two had a p value of 0.02. At the level of the employee, the only significant change from baseline to follow-up among the intervention group workers was an increase in satisfaction with the physical working environment (the mean change in the intervention group was 0.19 ($p<0.001$) and 0.06 ($p>0.05$) for the comparison group and	**Limitations identified by author**: - study data does not show whether improvements in h&s systems led to increased h&s activities - garages were not randomised btw intervention and comparison groups Significant differences btw groups in changes from baseline to follow-up were modest so results should be interpreted cautiously as they may be explained by some external factors. - high turnover among garage workers in Norway may explain relatively low number of individuals who participated in both baseline and follow-up (despite high response rate at each). Some of the questionnaires in the first and 2nd survey were not possible to pair up as personal codes not filled in completely. Timing of questionnaires (first after the mgmt. training had started & 2nd

investigate the effects of a 2-year training program in health and safety (H&S) management for managers at small- and medium-sized companies. **Study design:** No-randomised intervention study Quality score[4] + External Validity score: +	having more than one occupation. At baseline, the intervention and comparison garages did not differ significantly in company size, and the workers employed in the two groups of garages did not differ in age, sex, or occupation. Further, the workers responding solely to the first questionnaire did not differ significantly from those responding twice on either the demographic variables or the effect measures. **Eligible population:** Garages were selected from member companies of the Norwegian Association of Motorcar Dealers and Service Organisations and having at least one employee. **Excluded population/s:** n/a	sent to managers after the 1st seminar (baseline) and before the 4th (follow-up). A questionnaire on the working environment and musculoskeletal pain was sent to garage workers after the managers for baseline and simultaneously to managers for follow-up. Control/comparison's description: (as above) Comparison garages had treatment as usual – no intervention. At baseline the intervention and comparison garages did not differ significantly in company size and workers did not differ in age, sex or occupation. Intervention group N = 363 workers (these numbers are a little unclear – text refers to number of questionnaires distributed – does not match the table info) Control group N = 358 workers (also as above) **Total sample**: Unclear – tables suggest numbers were as above throughout however text discusses questionnaire numbers and shows a drop out between baseline and follow up. Baseline: 821 Follow-up (all time points): unclear No information available about power calculations.	dividing each variables crude change score by the respective standard deviation. . Pearson correlation coefficients were calculated to investigate relationships between changes in H&S management and changes in the working environment and health measures. Level of significance was set at 0.05	the difference between the two had a p value of 0.02). In the same period of time the comparison group workers reported no significant improvements in any of the dependent variables, but significant worsening regarding social support ($p<0.001$), management support ($p<0.01$), and musculoskeletal pain ($p<0.01$). Further analysis showed that a positive change in the health and safety management index correlated significantly with a positive change in how the workers regarded management support +0.14, $p<0.001$) and a negative change in reported musculoskeletal pain ((-0.12, $p<0.01$).. The other correlations were not significant, but the relationship between change in the health and safety management and change in social support reached a probability level of 0.09.	before the training had finished) is likely to have reduced the potential to detect changes. **Limitations identified by review team:** There is a lack of clarity about sample sizes in general. The findings of this study may not be transferable to other workplaces because of high number of male workers in the industry. Intervention was 4 training sessions. Baseline was taken after first intervention and follow-up before 4th so the intervention was not complete when it was assessed and timeframe does not allow for incorporation of behaviours learned in training. **Source of funding**: A grant was provided by the Confederation of Norwegian Business and Industry.

Tsutsumi et al. (2005)

Study details	Population and setting	Method of allocation to Intervention/control	Outcomes and methods of analysis	Results	Notes by review team
Authors: Tsutsumi, A., Takao, S., Mineyama, S., Nishiuchi, K., Komatsu, H. and Kawakami, N. Year: 2005 **Citation:** Effects of a supervisory education for positive mental health in the workplace: A quasi-experimental study. Journal of Occupational Health; 45, 226-235. **Aim of study:** To evaluate the effect of supervisor education by comparing the	**Source population/s:** **Country of study :** Japan Setting: Prefectural (local government) office that had implemented an employee mental health programme and a liaison office for referral to medical help/counselling. Sample characteristics: A total of 473 supervisors were defined as the target supervisors of the supervisory education programme. Participation was not mandatory. A total of 267 supervisors (56%) volunteered to participate. Two surveys were conducted to evaluate the programme:	**Method of allocation:** Intervention and control groups were not assigned on a random basis. Depts. of the prefectural office were divided according to the proportion of supervisors who attended the education (no more than one-third = control and more than one-third = intervention). Researchers set up a control group without notifying the participants, in order to conduct a before and after comparison. **Intervention/s description:** After the pre-education survey, supervisors received guidelines for the promotion of mental health in the workplace and encouraged to improve their working environments according to the guidelines. All of the employees, including supervisors, received a brochure on mental health (including a general explanation of stress and stress reactions, information about recognising stress and guidelines for consulting with specialists). Supervisors were then invited to attend a single education session, taking place during	**Outcomes:** *Psychological stress reaction:* 18 item questionnaire from the Brief Job Stress Questionnaire measured employees' reaction to psychological stress. Listed psychological complaints experienced during last month, with 5 subscales: vigour, anger-irritability, fatigue, anxiety, and depression. Responses based on Likert scale, and ratings for respective items summed to provide an index for each psychological distress reaction. The coefficient alphas were .92 and .93 at the respective surveillances. *Job performance:* To assess behavioural outcome, a self-reported job performance checklist was given to employees. The checklist was taken from the World Mental Health Survey Instrument. A single index of job performance was derived by summing the individual ratings for this study. Internal consistency was found to be moderate, with an alpha coefficient of 0.75-0.78. *Job content questionnaire:* to evaluate the psychosocial job characteristics, a Japanese version of the Job Content Questionnaire was used, based on Karasek's demand-control model. Included: job demands; job control and skill	**Report results for all relevant outcomes:** Employees in the control group rated higher educational attainment, more overtime, more job strain and less supervisory support than those in the intervention departments Between pre and post education survey measurements, the degree of psychological distress decreased in the high attendance category, and remained the same in the low attendance category. Patterns replicated in both subgroups of supervisors and non supervisors. Higher attendance rates positively affected the outcome. Self-reported performance score improved among the non-supervisors of the high attendance category, but deteriorated among the same group in the low attendance group. Intervention category: paired sample t-tests showed significant improvements in psychological distress ($t=4,95$, $p<.001$) and to a	**Limitations identified by author:** Study design: The intervention and control groups were not assigned on a random basis. Possible that supervisors were prevented from attending the educational session due to a "hectic situation" and this adversely affected the psychological reactions of the employees. Voluntary participation in the supervisory education is likely to suffer from selection bias. Attendees were more eager to solve mental health problems than non-attendees. Outcome measures: only self-reported indices were used which may cause some response bias. Although the response rate of the survey was satisfactory, only half of the target population was analysed for this study. A comparison between the analysed and excluded subjects indicated no systematic differences in terms of psychosocial job characteristics, but this

psychological distress of employees and their self-reported job performance in departments where at least one third of the supervisors had attended education against those from employees whose supervisors had a lower attendance rate. **Study design:** Non randomised control before and after study **Quality score** + External Validity score: +	Baseline: Pre-education survey: 1,148 (70%) respondents of 1,644 employees. Post education survey: 1,112 (68%) respondents. Of these, 889 employees (286 supervisors and 603 non supervisors responded to both surveys with matching participant ID numbers). The final number of analysed subjects was 864 employees (53%), of which 286 were supervisors and 578 were non supervisors. Eligible population: Objectives of programme were described to all, and all were invited to attend sessions. **Excluded population/s :** 755 employees who did not respond to wither survey.	working hours, and offered on 5 separate days. The supervisory education included a basic lecture on mental health practices and a lecture on active listening. *The Basic lecture*: the 90 minute basic lecture was titled 'Positive Mental Health in the Workplace: Responsibilities of Supervisors', and framed according to guidelines for the promotion of mental health in the workplace. *Active listening*: This was aimed at showing supervisors how to apply what they have learnt, alongside how to counsel employees. Pre survey and educational sessions took place November-December 2002. Post-education survey was conducted in March 2003. **Survey populations:** The intervention group comprised 57 depts: 219 male supervisors, 13 female (average age 50.9); 388 male non supervisors and 54 female non supervisors (average age 37.9). 18 depts formed the control group: 54 supervisors (all men, average age 49.8) and 110 male non supervisors, and 26 female non-supervisors (average age 37.9).	discretion; and social support from supervisor and co-workers. The alpha coefficients were 0.68-0.72 for job demands, 0.71-0.75 for job control, 0.9-0.91 for supervisory support and 0.75-0.77 for co-worker support. Sum of the weighted item scores was used as the scale score, and job strain index was calculated as the ratio of job demands*2 to job control. *Supervisory questionnaire:* measured supervisors' knowledge, attitudes and behaviours towards current mental health practices. (alpha=.93). **Method of analysis**: Means of each measure compared by employing the t-test or the paired t-test where necessary. Differences in categorical variables were assessed using the x^2 test. An analysis of covariance of repeated measurements was used to assess the educational effects of psychological distress and job performance. To test for simple main effects, paired sample t-tests for the high and low attendance category was computed. The x^2 test was used to evaluate interactive effects of supervisors' knowledge, attitude and beliefs between supervisory attendees and non attendees, and for evaluating changes for pre and post education surveys within the same supervisory groups.	lesser extent in self-reported performance (t=-1.75, p=.080) in all employees. Significant improvements in psychological distress were found among both supervisors and non-supervisors (t=3.15, p=.002 and t=3.9, p<.001). For the control group, no significant main effects were shown. Results of supervisors' questionnaire showed statistically significant positive interactions in the knowledge and the total scales. Most psychosocial job characteristics scores decreased between pre and post education surveys: supervisory support decreased in all employees and among non-supervisors in the high attendance category (paired t-test, t=4.32, p<.001 and t=4.02, p<.001) and co-worker support decreased among supervisors in the low attendance group (t=2.68, p=.010) and among the non supervisors in the high attendance group (t=2.09, p=.038). Monthly overtime work decreased significantly among all employees and the non-supervisors of the high attendance group (t=2.15, p=.032 and t=2.02, p=.044, respectively).	sample attrition limited study validity. Lack of longer follow-up data means no conclusions can be reached about the long-term effects of the education. . **Limitations identified by review team:** There were more males then females in the study. **Source of funding**: Grant from the Japan Industrial Safety and Health Association.

Appendix 2: Sample search strategies

MEDLINE

1996 to present - OVID SP - 19 October 2013

Set number	Search term	Number of hits
1	exp Workplace/	11927
2	workplace.ti,ab	15016
3	worksite.mp.	1238
4	("work place*" or "work site*" or " work location*" or "work setting*").ti,ab	2485
5	((job* or employment) adj2 (place* or site* or setting* or location*)).ti,ab	592
6	(office* or factory or factories or shop* or business*).ti,ab	56948
7	(company or companies).ti,ab	25150
8	(worker* or employee* or staff*). ti,ab	141756
9	exp Employment/	33888
10	exp Work/	6463
11	employer*. ti,ab	8290
12	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11	245392
13	("line manager*" or manager* or supervisor*). ti,ab	25025
14	"Quality of Life"/ or “quality of life”. ti,ab	145082
15	health/ or men's health/ or mental health/ or occupational health/ or women's health/	55742
16	exp Job Satisfaction/	12574

17	(wellbeing or wellbeing or "well being" or wellness). ti,ab	34165
18	happiness/	1937
19	((mental or physical or general) adj1 health). ti,ab	65109
20	((employee* or staff) adj2 health). ti,ab	3444
21	((work or job) adj1 (contentment or happiness or fulfilment or engagement or satisfaction)). ti,ab	3776
22	14 or 15 or 16 or 17 or 18 or 19 or 20 or 21	279301
23	12 and 13 and 22	2827
24	limit 23 to (english language and yr="2000 -Current")	1998

Note: / means MESH term.

Note: ti, ab = title, abstract

ABI-Inform – from Proquest

SU.EXACT("Supervisors") OR SU.EXACT("Line managers") OR SU.EXACT("Middle management")
AND
SU.EXACT("Work environment") OR SU.EXACT("Occupational safety") OR SU.EXACT("Occupational health") OR SU.EXACT("Occupational accidents") OR SU.EXACT("Occupational diseases") OR SU.EXACT("Occupational psychology")
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Web of Science

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#5 AND #1
Refined by: Languages=(ENGLISH) AND [excluding] Web of Science Categories=(COMPUTER SCIENCE THEORY METHODS OR HOSPITALITY LEISURE SPORT TOURISM OR INFECTIOUS DISEASES OR CARDIAC CARDIOVASCULAR SYSTEMS OR ENGINEERING MECHANICAL OR TOXICOLOGY OR IMMUNOLOGY OR MEDICAL INFORMATICS OR ONCOLOGY OR INSTRUMENTS INSTRUMENTATION OR PERIPHERAL VASCULAR DISEASE OR COMPUTER SCIENCE HARDWARE ARCHITECTURE OR ENGINEERING BIOMEDICAL OR AUTOMATION CONTROL SYSTEMS OR MATERIALS SCIENCE MULTIDISCIPLINARY OR OPTICS OR ORTHOPEDICS OR CLINICAL NEUROLOGY OR TELECOMMUNICATIONS OR AUDIOLOGY SPEECH LANGUAGE PATHOLOGY OR BIOLOGY OR PEDIATRICS OR PHARMACOLOGY PHARMACY OR COMPUTER SCIENCE CYBERNETICS OR COMPUTER SCIENCE SOFTWARE ENGINEERING OR FAMILY STUDIES OR COMPUTER SCIENCE INTERDISCIPLINARY APPLICATIONS OR EDUCATION SPECIAL OR DERMATOLOGY OR MEDICINE RESEARCH EXPERIMENTAL OR EMERGENCY MEDICINE OR GENETICS HEREDITY OR CRIMINOLOGY PENOLOGY OR OBSTETRICS GYNECOLOGY OR NEUROSCIENCES OR PARASITOLOGY OR ENGINEERING ELECTRICAL ELECTRONIC OR PATHOLOGY OR GERONTOLOGY OR RHEUMATOLOGY OR COMPUTER SCIENCE INFORMATION SYSTEMS OR GERIATRICS GERONTOLOGY OR COMPUTER SCIENCE ARTIFICIAL INTELLIGENCE OR RESPIRATORY SYSTEM OR VETERINARY SCIENCES OR OTORHINOLARYNGOLOGY) AND [excluding] Web of Science Categories=(ENDOCRINOLOGY METABOLISM OR TROPICAL MEDICINE OR GASTROENTEROLOGY HEPATOLOGY OR HISTORY PHILOSOPHY OF SCIENCE OR MEDICAL ETHICS OR MICROBIOLOGY OR OPHTHALMOLOGY OR RADIOLOGY NUCLEAR MEDICINE MEDICAL IMAGING OR ANDROLOGY OR ANESTHESIOLOGY OR HEMATOLOGY OR GEOSCIENCES MULTIDISCIPLINARY OR HISTORY OR DENTISTRY ORAL SURGERY MEDICINE OR UROLOGY NEPHROLOGY OR SURGERY OR BIOCHEMISTRY MOLECULAR BIOLOGY OR VIROLOGY) AND [excluding] Countries/Territories=(PEOPLES R CHINA) AND [excluding] Countries/Territories=(KENYA OR GHANA OR MALAWI OR NEPAL OR MALAYSIA OR TANZANIA OR RUSSIA OR INDIA OR SRI LANKA OR INDONESIA OR U ARAB EMIRATES OR VIETNAM OR SOUTH AFRICA OR PAKISTAN OR AFGHANISTAN OR PHILIPPINES OR BOTSWANA OR ARGENTINA OR BRUNEI OR CAMEROON OR BANGLADESH OR CONGO OR SAUDI ARABIA OR GAMBIA OR UGANDA OR GUYANA OR ETHIOPIA OR KUWAIT OR TAIWAN OR MOZAMBIQUE OR LEBANON OR BRAZIL OR NIGERIA OR MADAGASCAR OR NAMIBIA OR THAILAND OR NETH

ANTILLES OR BENIN OR REP OF GEORGIA OR JORDAN OR RWANDA OR IRAN OR PERU OR SENEGAL OR SUDAN OR ZIMBABWE OR SYRIA OR SINGAPORE OR ZAIRE OR EGYPT OR ZAMBIA) ***DocType=All document types; Language=All languages;***	
#10	#5 AND #1 Refined by: Languages=(ENGLISH) AND [excluding] Web of Science Categories=(COMPUTER SCIENCE THEORY METHODS OR HOSPITALITY LEISURE SPORT TOURISM OR INFECTIOUS DISEASES OR CARDIAC CARDIOVASCULAR SYSTEMS OR ENGINEERING MECHANICAL OR TOXICOLOGY OR IMMUNOLOGY OR MEDICAL INFORMATICS OR ONCOLOGY OR INSTRUMENTS INSTRUMENTATION OR PERIPHERAL VASCULAR DISEASE OR COMPUTER SCIENCE HARDWARE ARCHITECTURE OR ENGINEERING BIOMEDICAL OR AUTOMATION CONTROL SYSTEMS OR MATERIALS SCIENCE MULTIDISCIPLINARY OR OPTICS OR ORTHOPEDICS OR CLINICAL NEUROLOGY OR TELECOMMUNICATIONS OR AUDIOLOGY SPEECH LANGUAGE PATHOLOGY OR BIOLOGY OR PEDIATRICS OR PHARMACOLOGY PHARMACY OR COMPUTER SCIENCE CYBERNETICS OR COMPUTER SCIENCE SOFTWARE ENGINEERING OR FAMILY STUDIES OR COMPUTER SCIENCE INTERDISCIPLINARY APPLICATIONS OR EDUCATION SPECIAL OR DERMATOLOGY OR MEDICINE RESEARCH EXPERIMENTAL OR EMERGENCY MEDICINE OR GENETICS HEREDITY OR CRIMINOLOGY PENOLOGY OR OBSTETRICS GYNECOLOGY OR NEUROSCIENCES OR PARASITOLOGY OR ENGINEERING ELECTRICAL ELECTRONIC OR PATHOLOGY OR GERONTOLOGY OR RHEUMATOLOGY OR COMPUTER SCIENCE INFORMATION SYSTEMS OR GERIATRICS GERONTOLOGY OR COMPUTER SCIENCE ARTIFICIAL INTELLIGENCE OR RESPIRATORY SYSTEM OR VETERINARY SCIENCES OR OTORHINOLARYNGOLOGY) AND [excluding] Web of Science Categories=(ENDOCRINOLOGY METABOLISM OR TROPICAL MEDICINE OR GASTROENTEROLOGY HEPATOLOGY OR HISTORY PHILOSOPHY OF SCIENCE OR MEDICAL ETHICS OR MICROBIOLOGY OR OPHTHALMOLOGY OR RADIOLOGY NUCLEAR MEDICINE MEDICAL IMAGING OR ANDROLOGY OR ANESTHESIOLOGY OR HEMATOLOGY OR GEOSCIENCES MULTIDISCIPLINARY OR HISTORY OR DENTISTRY ORAL SURGERY MEDICINE OR UROLOGY NEPHROLOGY OR SURGERY OR BIOCHEMISTRY MOLECULAR BIOLOGY OR VIROLOGY) AND [excluding] Countries/Territories=(PEOPLES R CHINA) *DocType=All document types; Language=All languages;*
#9	#5 AND #1 Refined by: Languages=(ENGLISH) AND [excluding] Web of Science Categories=(COMPUTER SCIENCE THEORY METHODS OR HOSPITALITY LEISURE SPORT TOURISM OR INFECTIOUS DISEASES OR CARDIAC CARDIOVASCULAR SYSTEMS OR ENGINEERING MECHANICAL OR TOXICOLOGY OR IMMUNOLOGY OR MEDICAL INFORMATICS OR ONCOLOGY OR INSTRUMENTS INSTRUMENTATION OR PERIPHERAL VASCULAR DISEASE OR COMPUTER SCIENCE

	HARDWARE ARCHITECTURE OR ENGINEERING BIOMEDICAL OR AUTOMATION CONTROL SYSTEMS OR MATERIALS SCIENCE MULTIDISCIPLINARY OR OPTICS OR ORTHOPEDICS OR CLINICAL NEUROLOGY OR TELECOMMUNICATIONS OR AUDIOLOGY SPEECH LANGUAGE PATHOLOGY OR BIOLOGY OR PEDIATRICS OR PHARMACOLOGY PHARMACY OR COMPUTER SCIENCE CYBERNETICS OR COMPUTER SCIENCE SOFTWARE ENGINEERING OR FAMILY STUDIES OR COMPUTER SCIENCE INTERDISCIPLINARY APPLICATIONS OR EDUCATION SPECIAL OR DERMATOLOGY OR MEDICINE RESEARCH EXPERIMENTAL OR EMERGENCY MEDICINE OR GENETICS HEREDITY OR CRIMINOLOGY PENOLOGY OR OBSTETRICS GYNECOLOGY OR NEUROSCIENCES OR PARASITOLOGY OR ENGINEERING ELECTRICAL ELECTRONIC OR PATHOLOGY OR GERONTOLOGY OR RHEUMATOLOGY OR COMPUTER SCIENCE INFORMATION SYSTEMS OR GERIATRICS GERONTOLOGY OR COMPUTER SCIENCE ARTIFICIAL INTELLIGENCE OR RESPIRATORY SYSTEM OR VETERINARY SCIENCES OR OTORHINOLARYNGOLOGY) AND [excluding] Web of Science Categories=(ENDOCRINOLOGY METABOLISM OR TROPICAL MEDICINE OR GASTROENTEROLOGY HEPATOLOGY OR HISTORY PHILOSOPHY OF SCIENCE OR MEDICAL ETHICS OR MICROBIOLOGY OR OPHTHALMOLOGY OR RADIOLOGY NUCLEAR MEDICINE MEDICAL IMAGING OR ANDROLOGY OR ANESTHESIOLOGY OR HEMATOLOGY OR GEOSCIENCES MULTIDISCIPLINARY OR HISTORY OR DENTISTRY ORAL SURGERY MEDICINE OR UROLOGY NEPHROLOGY OR SURGERY OR BIOCHEMISTRY MOLECULAR BIOLOGY OR VIROLOGY) *DocType=All document types; Language=All languages;*
#8	#5 AND #1 Refined by: Languages=(ENGLISH) AND [excluding] Web of Science Categories=(COMPUTER SCIENCE THEORY METHODS OR HOSPITALITY LEISURE SPORT TOURISM OR INFECTIOUS DISEASES OR CARDIAC CARDIOVASCULAR SYSTEMS OR ENGINEERING MECHANICAL OR TOXICOLOGY OR IMMUNOLOGY OR MEDICAL INFORMATICS OR ONCOLOGY OR INSTRUMENTS INSTRUMENTATION OR PERIPHERAL VASCULAR DISEASE OR COMPUTER SCIENCE HARDWARE ARCHITECTURE OR ENGINEERING BIOMEDICAL OR AUTOMATION CONTROL SYSTEMS OR MATERIALS SCIENCE MULTIDISCIPLINARY OR OPTICS OR ORTHOPEDICS OR CLINICAL NEUROLOGY OR TELECOMMUNICATIONS OR AUDIOLOGY SPEECH LANGUAGE PATHOLOGY OR BIOLOGY OR PEDIATRICS OR PHARMACOLOGY PHARMACY OR COMPUTER SCIENCE CYBERNETICS OR COMPUTER SCIENCE SOFTWARE ENGINEERING OR FAMILY STUDIES OR COMPUTER SCIENCE INTERDISCIPLINARY APPLICATIONS OR EDUCATION SPECIAL OR DERMATOLOGY OR MEDICINE RESEARCH EXPERIMENTAL OR EMERGENCY MEDICINE OR GENETICS HEREDITY OR CRIMINOLOGY PENOLOGY OR OBSTETRICS GYNECOLOGY OR NEUROSCIENCES OR PARASITOLOGY OR ENGINEERING ELECTRICAL ELECTRONIC OR PATHOLOGY OR GERONTOLOGY OR

		RHEUMATOLOGY OR COMPUTER SCIENCE INFORMATION SYSTEMS OR GERIATRICS GERONTOLOGY OR COMPUTER SCIENCE ARTIFICIAL INTELLIGENCE OR RESPIRATORY SYSTEM OR VETERINARY SCIENCES OR OTORHINOLARYNGOLOGY) *DocType=All document types; Language=All languages;*
	#7	#5 AND #1 Refined by: Languages=(ENGLISH) *DocType=All document types; Language=All languages;*
	#6	#5 AND #1 *DocType=All document types; Language=All languages;*
	#5	#4 OR #3 OR #2 *DocType=All document types; Language=All languages;*
	#4	TS=(stress OR illness) *DocType=All document types; Language=All languages;*
	#3	Topic=("quality of life") *DocType=All document types; Language=All languages;*
	#2	Topic=(health OR happiness OR contentment) *DocType=All document types; Language=All languages;*
	#1	TS=("line manager*" OR "middle manage*" OR supervisor* OR foreman OR foremen) *DocType=All document types; Language=All languages;*

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☐	S13	AB (employee* OR staff) N2 health	Search modes - Find all my search terms	Rerun View Details Edit
☐	S12	AB (work OR job) N2 (contentment OR happiness OR fulfilment OR engagement OR satisfaction OR well*)	Search modes - Find all my search terms	Rerun View Details Edit
☐	S11	((DE "Job Satisfaction") OR (DE "Happiness")) OR (DE "Employee Engagement")	Search modes - Find all my search terms	Rerun View Details Edit
☐	S10	(DE "Well Being") OR (MM "Health" OR MM "Holistic Health" OR MM "Mental Health" OR MM "Occupational Health" OR MM "Physical Health" OR MM "Public Health")	Search modes - Find all my search terms	Rerun View Details Edit
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☐	S7	TI (("line manager*" or manager* or Supervisor* or foreman or foremen)) OR AB (("line manager*" or manager* or Supervisor* or foreman or foremen))	Search modes - Find all my search terms	Rerun View Details Edit
☐	S6	DE "Middle Level Managers" OR DE "Industrial Foremen"	Search modes - Find all my search terms	Rerun View Details Edit
☐	S5	S1 OR S2 OR S3 OR S4	Search modes - Find all my search terms	Rerun View Details

				Edit
☐	S4	TI (staff* OR employ*) OR AB (staff* OR employ*)	Limiters - Publication Year: 2000-2013; English Search modes - Find all my search terms	Rerun View Details Edit
☐	S3	TI ((company OR companies)) OR AB ((company OR companies))	Limiters - Publication Year: 2000-2013; English Search modes - Find all my search terms	Rerun View Details Edit
☐	S2	TI ((office* OR factory OR factories OR shop* OR business*)) OR AB ((office* OR factory OR factories OR shop* OR business*))	Limiters - Publication Year: 2000-2013; English Search modes - Find all my search terms	Rerun View Details Edit
☐	S1	TI (work* OR job* OR employment*) OR AB (work* OR job* OR employment*)	Limiters - Publication Year: 2000-2013; English Search modes - Find all my search terms	

Appendix 3: Inclusion and quality checklists

Inclusion/exclusion checklist

Population

Does the study population include:

	Yes	No		
adults over age 16?			No >	exclude
in full or part-time employment, paid or unpaid?			No >	exclude
who work for an organisation with at least one employee?			No >	exclude

Setting

Is the study exclusively set in:

	Yes	No		
OECD countries?			No >	exclude
the workplace?			No >	exclude

Relevance

Does the study examine:

	Yes	No
the influence of line managers' actions on the health and wellbeing of the people they manage?		

the influence of organisational culture and/or workplace practices on how line managers influence the health and wellbeing of their employees?				
			No to both	> exclude

Does the study focus on:

	Yes	No		
specific interventions to promote physical activity, mental wellbeing and smoking cessation in the workplace, and to manage sickness absence and the return to work of those who have been on long-term sick leave?			Yes >	exclude
intervention or support that employees accesses on their own, without input from the employer, organisation or line manager?			Yes >	exclude
statutory provision to employees?			Yes >	exclude

Intervention

Does the study examine:

	Yes	No	
a) one or more specific interventions conducted by line managers with the people they manage?			tag as Review Question 1
b) one or more specific interventions conducted by the employing organisation with line managers			tag as Review Question 2
c) workplace or organisational factors which can influence the ability of line managers to enhance the health and wellbeing of the people they manage?			tag as Review Question 3

IF No to a-c = exclude

Study information

Is the study design:

	RQ1	RQ2	RQ3	
Review Yes > Q1, Q2, Q3				
Experimental Yes > Q1, Q2				All Q1 and Q2 studies may also be relevant to Q3
Longitudinal Yes > Q1, Q2				All Q1 and Q2 studies may also be relevant to Q3
Observational Yes > Q1, Q2				All Q1 and Q2 studies may also be relevant to Q3
Economic Yes > Q1, Q2				All Q1 and Q2 studies may also be relevant to Q3
Qualitative Yes > Q3				
Does the study provide good practice guidance? Yes > Q3				

IF Q1, Q2

Outcomes

	Yes	No		
Does the study assess the impact of the intervention (policy or workplace practice) on employee health and wellbeing?			No >	exclude
Does the study include an explicit measure(s) of employee health and wellbeing outcomes?			No >	exclude

Quality

	Yes	No
Does the study include some form of		

comparison between a treatment and a non-treatment group?			
Does the study include at least two measurement points (ie at baseline and subsequently)?			
			No to both > exclude

Other information

	Yes	No
Is the study a book?		

Is the study set in:

	Yes	No
USA?		
UK?		
Europe?		
Other OECD?		
No particular location?		

Quality Appraisal Checklist

Study identification: (Include full citation details)		
Reference number:		
Study design: Refer to the glossary of study designs (appendix D) and the algorithm for classifying experimental and observational study designs (appendix E) to best describe the paper's underpinning study design		
Guidance topic:		
Assessed by:		
Section 1: Population		
1.1 Is the source population or source area well described? Was the country (eg developed or non-developed, type of healthcare system), setting (primary schools, community centres etc.), location (urban, rural), population demographics etc. adequately described?	++ + – NR NA	Comments:
1.2 Is the eligible population or area representative of the source population or area? Was the recruitment of individuals, clusters or areas well defined (eg advertisement, birth register)? Was the eligible population representative of the source? Were important groups under-represented?	++ + – NR NA	Comments:

1.3 Do the selected participants or areas represent the eligible population or area? Was the method of selection of participants from the eligible population well described? What % of selected individuals or clusters agreed to participate? Were there any sources of bias? Were the inclusion or exclusion criteria explicit and appropriate?	++ + − NR NA	Comments:
Section 2: Method of allocation to intervention (or comparison)		
2.1 Allocation to intervention (or comparison). How was selection bias minimised? Was allocation to exposure and comparison randomised? Was it truly random ++ or pseudo-randomised + (eg consecutive admissions)? If not randomised, was significant confounding likely (−) or not (+)? If a cross-over, was order of intervention randomised?	++ + − NR NA	Comments:
2.2 Were interventions (and comparisons) well described and appropriate? Were interventions and comparisons described in sufficient detail (ie enough for study to be replicated)? Was comparisons appropriate (eg usual practice rather than no intervention)?	++ + − NR NA	Comments:
2.3 Was the allocation concealed? Could the person(s) determining allocation of participants or clusters to intervention or comparison groups have influenced the allocation? Adequate allocation concealment (++) would include centralised allocation or computerised allocation systems.	++ + − NR NA	Comments:

2.4 Were participants or investigators blind to exposure and comparison? Were participants **and** investigators – those delivering or assessing the intervention kept blind to intervention allocation? (Triple or double blinding score ++) If lack of blinding is likely to cause important bias, score −.	++ + – NR NA NA	Comments:
2.5 Was the exposure to the intervention and comparison adequate? Is reduced exposure to intervention or control related to the intervention (eg adverse effects leading to reduced compliance) or fidelity of implementation (eg reduced adherence to protocol)? Was lack of exposure sufficient to cause important bias?	++ + – NR NA	Comments:
2.6 Was contamination acceptably low? Did any in the comparison group receive the intervention or vice versa? If so, was it sufficient to cause important bias? If a cross-over trial, was there a sufficient wash-out period between interventions?	++ + – NR NA	Comments:
2.7 Were other interventions similar in both groups? Did either group receive additional interventions or have services provided in a different manner? Were the groups treated equally by researchers or other professionals? Was this sufficient to cause important bias?	++ + – NR NA	Comments:
2.8 Were all participants accounted for at study conclusion?	++	Comments:

Were those lost-to-follow-up (ie dropped or lost pre-,during or post-intervention) acceptably low (ie typically <20%)? Did the proportion dropped differ by group? For example, were drop-outs related to the adverse effects of the intervention?	+ – NR NA	
2.9 Did the setting reflect usual UK practice? Did the setting in which the intervention or comparison was delivered differ significantly from usual practice in the UK? For example, did participants receive intervention (or comparison) condition in a hospital rather than a community-based setting?	++ + – NR NA	Comments:
2.10 Did the intervention or control comparison reflect usual UK practice? Did the intervention or comparison differ significantly from usual practice in the UK? For example, did participants receive intervention (or comparison) delivered by specialists rather than GPs? Were participants monitored more closely?	++ + – NR NA	Comments:
Section 3: Outcomes		
3.1 Were outcome measures reliable? Were outcome measures subjective or objective (eg biochemically validated nicotine levels ++ vs self-reported smoking −)? How reliable were outcome measures (eg inter- or intra-rater reliability scores)? Was there any indication that measures had been validated (eg validated against a gold standard measure or assessed for content validity)?	++ + – NR NA	Comments:

3.2 Were all outcome measurements complete? Were all or most study participants who met the defined study outcome definitions likely to have been identified?	++ + – NR NA	Comments:
3.3 Were all important outcomes assessed? Were all important benefits and harms assessed? Was it possible to determine the overall balance of benefits and harms of the intervention versus comparison?	++ + – NR NA	Comments:
3.4 Were outcomes relevant? Where surrogate outcome measures were used, did they measure what they set out to measure? (eg a study to assess impact on physical activity assesses gym membership – a potentially objective outcome measure – but is it a reliable predictor of physical activity?)	++ ++ + – NR NA	Comments:
3.5 Were there similar follow-up times in exposure and comparison groups? If groups are followed for different lengths of time, then more events are likely to occur in the group followed-up for longer distorting the comparison. Analyses can be adjusted to allow for differences in length of follow-up (eg using person-years).	++ + – NR NA	Comments:
3.6 Was follow-up time meaningful?	++	Comments:

Was follow-up long enough to assess long-term benefits or harms? Was it too long, eg participants lost to follow-up?	+ – NR NA	
Section 4: Analyses		
4.1 Were exposure and comparison groups similar at baseline? If not, were these adjusted? Were there any differences between groups in important confounders at baseline? If so, were these adjusted for in the analyses (eg multivariate analyses or stratification). Were there likely to be any residual differences of relevance?	++ + – NR NA	Comments:
4.2 Was intention to treat (ITT) analysis conducted? Were all participants (including those that dropped out or did not fully complete the intervention course) analysed in the groups (ie intervention or comparison) to which they were originally allocated?	++ + – NR NA	Comments:
4.3 Was the study sufficiently powered to detect an intervention effect (if one exists)? A power of 0.8 (that is, it is likely to see an effect of a given size if one exists, 80% of the time) is the conventionally accepted standard. Is a power calculation presented? If not, what is the expected effect size? Is the sample size adequate?	++ + – NR NA	Comments:
4.4 Were the estimates of effect size given or calculable? Were effect estimates (eg relative risks, absolute risks) given or possible to calculate?	++ +	Comments:

	– NR NA	
4.5 Were the analytical methods appropriate? Were important differences in follow-up time and likely confounders adjusted for? If a cluster design, were analyses of sample size (and power), and effect size performed on clusters (and not individuals)? Were subgroup analyses pre-specified?	++ + – NR NA	Comments:
4.6 Was the precision of intervention effects given or calculable? Were they meaningful? Were confidence intervals or p values for effect estimates given or possible to calculate? Were CI's wide or were they sufficiently precise to aid decision-making? If precision is lacking, is this because the study is under-powered?	++ + – NR NA	Comments:
Section 5: Summary		
5.1 Are the study results internally valid (ie unbiased)? How well did the study minimise sources of bias (ie adjusting for potential confounders)? Were there significant flaws in the study design?	++ + –	Comments:
5.2 Are the findings generalisable to the source population (ie externally valid)? Are there sufficient details given about the study to determine if the findings are generalisable to the source population? Consider: participants, interventions and comparisons, outcomes, resource and policy implications.	++ + –	Comments:

Appendix 4: Bibliography of included studies

Amos, M.A., HU, J. and Herrick, C.A., 2005, The impact of team building on communication and job satisfaction of nursing staff, Journal for Nurses in Staff Development, Vol 21, Issue 1, 10-16.

Aust, B., Rugulies, R., Finken, A., & Jensen, C. (2010). When workplace interventions lead to negative effects: Learning from failures. Scandinavian journal of public health, 38(3), 106-119.

Dejoy, D. M., Wilson, M. G., Vandenberg, R. J., Mcgrath-Higgins, A. L. AND GRIFFIN-BLAKE, C. S., 2010, Assessing the impact of healthy work organization intervention, Journal of Occupational and Organizational Psychology, Vol 83, 139-165

Del Chiaro, S, 2006, The Effect of Training Supervisors to Use Positive Verbal Reinforcement on Employee Job Satisfaction, PhD dissertation, UMI Microform.

Hammer, L, Kossek, E, Anger, W, Bodner, T and Zimmerman, K, 2011 Clarifying Work–Family Intervention Processes: The Roles of Work–Family Conflict and Family-Supportive Supervisor Behaviors, Journal of Applied Psychology, Vol 96 No 1, 134-150.

Kawakami, N, Kobayashi, Y, Takao, S, and Tsutsumi, A, 2005, Effects of web-based supervisor training on supervisor support and psychological distress among workers: a randomized controlled trial, Preventive Medicine, Vol 41, 471-478

Mikkelsen, A, Saksvik, P, & Landsbergis, P, 2000, The impact of a participatory organizational intervention on job stress in community health care institutions, Work & Stress: An International Journal of Work, Health & Organisations, Vol 14, Issue 2, 156-170

Swallow, J, 2008, How Managers' Discovery and Awareness of Their Behavioral Characteristics Affect Their Employees' Satisfaction, PhD dissertation, ProQuest.

Takao, S, Tsutsumi, A, Nishiuchi, K, Mineyama, S, and Kawakami, N, 2006, Effects of the job stress education for supervisors on psychological distress and job performance among their immediate subordinates: a supervisor-based randomized controlled trial, Journal of Occupational Health, Vol 48, 494-503.

Torp, S, 2008, How a health and safety management training program may improve the working environment in small- and medium-sized companies, Journal of Occupational & Environmental Medicine, Vol 50, Number 3, 263-271

Tsutsumi, A, Takao, S, Mineyama, S, Nishiuchi, K, Komatsu, H, and Kawakami, N, 2005, Effects of a supervisory education for positive mental health in the workplace: a quasi-experimental study, Journal of Occupational Health, Vol 47, 226-235

Appendix 5: Bibliography of excluded studies with reasons for exclusion

Population

Arnold, K. A. 2004. Dirty work and wellbeing. 65, ProQuest Information & Learning.

Billikopf, G. The Negotiated Performance Appraisal Model: Enhancing Supervisor-Subordinate Communication and Conflict Resolution. Group Facilitation: A Research & Applications Journal, 10, 32-42.

Billington, D., Hallinan, C. & Robinson, A. 2005. Propelling towards professional supervision. Occupational Health, 57, 24-31.

Burton, J., Hoobler, J. & Scheuer, M. Supervisor Workplace Stress and Abusive Supervision: The Buffering Effect of Exercise. Journal of Business & Psychology, 27, 271-279.

Poelmans, S. & Beham, B. 2008. The moment of truth: Conceptualizing managerial work-life policy allowance decisions. Journal of Occupational and Organizational Psychology, 81, 393.

Setting

For example, not fully set in an OECD country.

Amador-Rodezno, R. 2005. An overview to CERSSO's self evaluation of the cost-benefit on the investment in occupational safety and health in the textile factories: 'A step by step methodology'. Journal of Safety Research, 36, 215-229.

Cooper, D. 2006. The impact of Management's Commitment on Employee Behavior: A Field Study. American Society of Safety Engineers Middle East Chapter 7th Professional Development Conference

Hassan, R. A., Fuwad, B. A. & Rauf, A. I. Pre-Training Motivation and the Effectiveness of Transformational Leadership Training: An Experiment. Academy of Strategic Management Journal, 9, 1-8.

Zhang, R.-P., Tsingan, L. & Zhang, L.-P. Role Stressors and Job Attitudes: A Mediated Model of Leader-Member Exchange. Journal of Social Psychology, 153, 560-576.

Relevance

Albrecht, S. L. The Influence of Job, Team and Organizational Level Resources on Employee Wellbeing, Engagement, Commitment and Extra-Role Performance: Test of a Model. International Journal of Manpower, 33, 840-853.

Arkin, A. 2008. The C Word. People Management.

Aten, J. D., Madson, M. B., Rice, A. & Chamberlain, A. K. 2008. Postdisaster Supervisor Strategies for Promoting Supervisee Self-Care: Lessons Learned From Hurricane Katrina. Training and Education in Professional Psychology, 2, 75-82.

Bennett, J. B., Aden, C. A., Broome, K., Mitchell, K. & Rigdon, W. D. Team resilience for young restaurant workers: research-to-practice adaptation and assessment. Journal of Occupational Health Psychology, 15, 223-36.

Bennett, J. B. & Lehman, W. E. K. 2002. Supervisor tolerance-responsiveness to substance abuse and workplace prevention training: use of a cognitive mapping tool. Health Education Research, 17, 27-42.

Beutell, N. J. 2010. Work schedule, work schedule control and satisfaction in relation to work-family conflict, work-family synergy, and domain satisfaction. The Career Development International, 15, 501-518.

Brannon, D., Barry, T., Kemper, P., Schreiner, A. & Vasey, J. 2007. Job perceptions and intent to leave among direct care workers: evidence from the better jobs better care demonstrations. Gerontologist, 47, 820-9.

Brashear, T. G., Boles, J. S., Bellenger, D. N. & Brooks, C. M. 2003. An Empirical Test of Trust-Building Processes and Outcomes in Sales Manager-Salesperson Relationships. Journal of the Academy of Marketing Science, 31, 189-200.

Brennan, W. 2007. Keep health in mind. Occupational Health, 59, 18-19.

Brohan, E., Henderson, C., Little, K. & Thornicroft, G. Employees with mental health problems: Survey of U.K. employers' knowledge, attitudes and workplace practices. Epidemiologia e Psichiatria Sociale, 19, 326-32.

Bush, D., Paleo, L., Baker, R., Dewey, R., Toktogonova, N. & Cornelio, D. 2009. Restaurant supervisor safety training: evaluating a small business training intervention. Public Health Reports, 124 Suppl 1, 152-9.

Dellve, L., Skagert, K. & Eklof, M. 2008. The impact of systematic occupational health and safety management for occupational disorders and long-term work attendance. Social Science & Medicine, 67, 965-970.

Earle, A. & Heymann, J. Protecting the health of employees caring for family members with special health care needs. Social Science & Medicine, 73, 68-78.

Fisker, A., Langberg, H., Petersen, T. & Mortensen, O. S. Early coordinated multidisciplinary intervention to prevent sickness absence and labour market exclusion in patients with low back pain: study protocol of a randomized controlled trial. BMC Musculoskeletal Disorders, 14, 93.

Francis, S. D. 2006. Middle management wellbeing in Maritime Forces Pacific. MR14104, Royal Roads University (Canada).

Frick, K. Worker influence on voluntary OHS management systems, a review of its ends and means. Safety Science, 49, 974-987.

Harter, J. K., Schmidt, F. L., Asplund, J. W., Killham, E. A. & Agrawal, S. Causal impact of employee work perceptions on the bottom line of organizations. Perspectives on Psychological Science, 5, 378-389.

Koolhaas, W., Brouwer, S., Groothoff, J. W. & Van Der Klink, J. J. L. Enhancing a sustainable healthy working life: design of a clustered randomized controlled trial. Bmc Public Health, 10.

Randall, R., Nielsen, K. & Tvedt, S. D. 2009. The development of five scales to measure employees' appraisals of organizational-level stress management interventions. Work & Stress, 23, 1-23.

Reavley, N. J., Ross, A., Killackey, E. J. & John, A. F. Development of guidelines to assist organisations to support employees returning to work after an episode of anxiety, depression or a related disorder: a Delphi consensus study with Australian professionals and consumers. BMC Psychiatry, 12, 135-141.

Roy, M. 2003. Self-directed work teams and safety: a winning combination? Safety Science, 41, 359-376.

Sussman, D. 2005, Improving Work Life, T+D, American Society for Training and Development, March 2005, 49 – 51.

Tamminga, S. J., Verbeek, J., Bos, M., Fons, G., Kitzen, J., Plaisier, P. W., Frings-Dresen, M. H. W. & De Boer, A. Effectiveness of a Hospital-Based Work Support Intervention for Female Cancer Patients - A Multi-Centre Randomised Controlled Trial. Plos One, 8.

Tjulin, A., Stiwne, E. E. & Ekberg, K. 2009. Experience of the Implementation of a Multi-Stakeholder Return-to-Work Programme. Journal of Occupational Rehabilitation, 19, 409-418.

Intervention

Did not study a specific workplace intervention, policy or practice.

2005c. Poor Managers Hurt Productivity, Morale, and Worker Engagement. HR Focus, 82, 8-8.

Barrett, A, Piatek, C,Korber, S and Padula, C, 2009, Lessons learned from a lateral violence and team-building intervention, Nursing Administration Quarterly, Vol 33, No 4, 342-351.

Bourbonnais, R., Brisson, C., Vinet, A., Vezina, M. & Lower, A. 2006b. Development and implementation of a participative intervention to improve the psychosocial work environment and mental health in an acute care hospital. Occupational & Environmental Medicine, 63, 326-34.

Brouwer, S., Franche, R. L., Hogg-Johnson, S., Lee, H., Krause, N. & Shaw, W. S. Return-to-work self-efficacy: development and validation of a scale in claimants with musculoskeletal disorders. Journal of Occupational Rehabilitation, 21, 244-58.

Brunetto, Y., Farr-Wharton, R., Ramsay, S. & Shacklock, K. Supervisor relationships and perceptions of work-family conflict. Asia Pacific Journal of Human Resources, 48, 212-232.

Fleischmann, P. Working to help mental health. Mental Health Today, January/February 2012, pp.16-17.

Hewison, A. 2009. Do we expect too much of our leaders? Journal of Nursing Management, 17, 913-916.

Hogan, T. 2005, The impact of staff case manager-case management supervisor relationship on job satisfaction and retention of RN case managers, Lippincott's Case Management, Vol. 10, No. 5, 246–253.

Luby, V. L. B. 2002. Out in left-field: A comparison of contributors towards employee satisfaction in distributed and traditional work settings. 62, ProQuest Information & Learning.

Snow, T. 2006. HSE workshops urge trusts to implement anti-stress standards. Nursing Standard, 20, 7-7.

Lack of methodological information

Either lacked clear outcome data on wellbeing or contained insufficient information about the method used.

2011, Surviving a bad boss, Managing People at Work, Nov2011, Issue 356, p3

Angelo, R. P. and Chambel, M. J., 2010, An intervention with firefighters to promote psychological occupational health according to the Job Demands-Resources Model, Revista De Psicologia Social

Bajnok, I., Puddester, D., Macdonald, C. J., Archibald, D. & Kuhl, D. Building positive relationships in healthcare: evaluation of the Teams of Interprofessional Staff interprofessional education program. Contemporary Nurse, 42, 76-89.

Barski-Carrow, B. 2000. Using study circles in the workplace as an educational method of facilitating readjustment after a traumatic life experience. Death Studies, 24, 421-39.

Bratby, K. Registered nurse and supervisor spirituality, honesty, humility, service to others, job satisfaction, and commitment to the nursing profession. 70, ProQuest Information & Learning.

Breneman, C. C. Evaluation of the implementation of the mentoring program for behavioral health service coordinators in Allegheny county. 72, ProQuest Information & Learning.

Buller, D.B., Andersen, P.A., Walkosz, B. J., Scott, M. D., Cutter, G. R., Dignan, M. D.,Kane, I. L., and Zhang,X, 2012, Enhancing industry-based dissemination of an

occupational sun protection program with theory-based strategies employing personal contact, American Journal of Health Promotion, July/August 2012, Vol. 26, No. 6, 356-365.

Chapin, M., Brannen, S. J., Singer, M. I. & Walker, M. 2008. Training Police Leadership to Recognize and Address Operational Stress. Police Quarterly, 11, 338-352.

Dewa, C, Burke, A, Hardaker, D, Caveen, M, Baynton, M, 2006, Mental Health Training Programs for Managers: What do managers find valuable?, Canadian Journal of Community Mental Health, Vol 25, No 2, p 221-239.

Dutton, J. E., Frost, P. J., Worline, M. C., Lilius, J. M. & Kanov, J. M. 2002. Leading in times of trauma. Harvard Business Review, 80, 54-61, 125.

Elias, S. M. & Mittal, R. The importance of supervisor support for a change initiative: An analysis of job satisfaction and involvement. International Journal of Organizational Analysis, 19, 305-316.

Newnam, S, Lewis, I, and Watson, B, 2012, Occupational driver safety: Conceptualising a leadership-based intervention to improve safe driving performance, Accident Analysis & Prevention, 45, 49-38

Reese, L. A. & Lindenberg, K. E. 2004. Employee Satisfaction with Sexual Harassment Policies: The Training Connection. Public Personnel Management, 33, 99-119.

Renton, S. J., Lightfoot, N. E. & Maar, M. A. Physical activity promotion in call centres: employers' perspectives. Health Education Research, 26, 1050-9.

Rorrer, R. A. L. 2006. talking back. Mechanical Engineering, 128, 30-31.

Russell, K., Hobson, A. & Watts, R. The Team Leader Model: an alternative to preceptorship. Australian Journal of Advanced Nursing, 28, 5-13.

Shaw, W.S., Robertson, M.M., Mclellan, R.K., Verma, S, and Pransky, G, 2006, A controlled case study of supervisor training to optimize response to injury in the food processing industry, Work, Vol 26, 107–114

Turja, J, Kaleva, S, Kivisto, M, and Seitsamo, J, 2012, Effects of early support intervention on workplace ergonomics - a two- year follow up study, Work, Vol 41, 809-811

Wreder, A. 2007. Successful management methodologies for achieving co-worker health in a large organization. Total Quality Management & Business Excellence, 18, 823-844.

Woods, V. & Buckle, P. 2006. Musculoskeletal ill health amongst cleaners and recommendations for work organisational change. International Journal of Industrial Ergonomics, 36, 61-72.

Author not contactable

Abdullah, M. C., 2009, Leadership and psycap: A study of the relationship between positive leadership behaviors and followers' positive psychological capital, PhD dissertation, ProQuest

Allen, J. A. Promoting employee engagement through managers' strategic use of meetings. 72, ProQuest Information & Learning.

Beaton, R, Johnson, L.C., Infield, S, Ollis, T and Bond, G, 2001, Outcomes of a leadership intervention for a metropolitan fire department, Psychological Reports, Vol 88(3 Pt 2), 1049-66.

Brazil K., Wakefield D. B., Cloutier M. M., Tennen H. and Hall C. B., 2010, Organizational culture predicts job satisfaction and perceived clinical effectiveness in paediatric primary care practices, Health Care Management Review, Vol 35, Issue 4, 365-371

Brunetto, Y, and Farr-Wharton, R, 2006, The importance of effective organisational relationships for nurses: a social capital perspective, International Journal of Human Resources Development & Management, Vol 6, Issue 2, 232-247.

Karsten, M, Baggot, D, Brown, A, and Cahill, M, 2010, Professional coaching as an effective strategy to retaining frontline managers, Journal of Nursing Administration, March 2010, Volume 40, Issue 3, 140-144.

Pransky, G, Shaw, W, and Mclellan, R, 2001, Employer attitudes, training, and return-to-work outcomes: A pilot study, Assistive Technology, Vol 13, Issue 2, 131-138.

Scott, L. D., Hofmeister, N., Rogness, N., and Rogers, A. E., 2010, Implementing a Fatigue Countermeasures Program for Nurses, Journal of Nursing Administration, Vol 40, Issue 5, 233-240.

Venkataramani, V., Green, S. G., and Schleicher, D. J., 2010, Well-connected leaders: the impact of leaders' social network ties on LMX and members' work attitudes, Journal of Applied Psychology, Vol 95, Number 6, 1071-1084.

Papers relating to studies already included in Review 1

Luria, G, Zohar, D, and Erev, I, 2008, The effect of workers' visibility on effectiveness of intervention programs: supervisory-based safety interventions, Journal of Safety Research, Vol 39, 273–280

Nielsen, K, and Randall, R, 2009, Managers' active support when implementing teams: The impact on employee well-being, Applied Psychology: Health and Well-Being, Vol 3, 374–390

Appendix 6: Other References

Bevan S (April 2010). The Business Case for Employees Health and Wellbeing. A report prepared for Investors in People UK. The Work Foundation.

Black C (March 2008). Working for a Healthier Tomorrow. Dame Carol Black's Review of the health of Britain's working age population. Department of Work and Pensions.

Briner, R. (2011) Systematic Review and Evidence Synthesis as a Practice and Scholarship. Oxford Handbook of Evidence-Based Management. Oxford: Oxford University Press.

Business Disability Forum. www.realising-potential.org/stakeholder-factobox. Accessed on 26.6. 2013.

Department of Work and Pensions (2007). Welfare Reform.

GCC Global Corporate Challenge (2013). Global Workplace and Wellness Report. A Global analysis of how organisations are implementing wellness initiatives to create long-term employee health behaviour change.

Hamberg-van Reenen H, Proper K, van den Berg M (2012). Worksite mental health interventions: a systematic review of economic evaluations. Occupational and Environmental Medicine 69: 837-845.

Hemp, P (2004) Presenteeism: At Work – But Out of it. Harvard Business Review.

McCann L, Hassard J and Morris J (2004) *Middle managers, the new organisational ideology and corporate restructuring: comparing Japanese and Anglo-American management systems* Competition and Change Vol 8, Issue 1, 2004.

MacLeod D & Clarke N (July 2009). Engaging for Success. Enhancing performance through employee engagement. IPA.

Marmot M (2010) *Fair Society, Healthy Lives: The Marmot Review,* www.ucl.ac.uk/marmotreview, February 2010

NICE, (2009), Promoting mental wellbeing through productive and healthy working conditions: guidance for employers. NICE public health guidance 22, National Institute for Health and Clinical Excellence, November 2009.

NICE, (2012) Methods for the development of NICE public health guidance (third edition), National Institute for Health and Clinical Excellence, September 2012

Office of National Statistics (ONS) 2009. http://www.ons.gov.uk/ons/rel/social-trends-rd/social-trends/social-trends-41/index.html

Palmer KT, Harris EC, Linaker C, Barker M, Lawrence W, Cooper C, Coggon D (2012). Effectiveness of community- and workplace-based interventions to manage musculoskeletal-related sickness absence and job loss: a systematic review. Rheumatology 51: 230-242.

Patterson, M., Rick, J., Wood, S., Carroll, C., Balain, S. and Booth, A. (2007) *Review of the Validity and Reliability of Measures of Human Resource Management.* Report for the NHS SDO No.

PriceWaterHouseCoopers LLP (February 2008). *Building the case for wellness*. The Health Work Wellbeing Executive.

Rayton B, Dodge T and D'Analeze, G, *The Evidence. Employee Engagement Task Force "Nailing the evidence" workgroup*. Engage for Success, 2012. http://www.engageforsuccess.org/wp-content/uploads/2012/09/The-Evidence.pdf

Tyers C, Speckesser S, Hicks B, Baxter K, Gilbert M, Ball E *Occupational Hygiene at the Olympic Park and Athletes' Village: Can workplace health management be cost effective*?; Report 497, Institute for Employment Studies; July 2012

Vaughan-Jones H, Barham L (2009). *Healthy Work; Challenges and Opportunities to 2030*. The Oxford Health Alliance, The Work Foundation and RAND Europe, available at http://www.bupa.com

Vaughan-Jones H, Barham L (2010). *Healthy Work; Evidence into Action*. The Oxford Health Alliance, The Work Foundation and RAND Europe, available at http://www.bupa.com

Waddell, G., & Burton, A. K. (2006). *Is work good for your health and wellbeing*? London: Department for Work and Pensions.