National Institute for Health and Care Excellence

Draft for Consultation

Mental wellbeing at work

Evidence review B: Manager interventions

NICE guideline <number>

Evidence reviews underpinning recommendations 1.1.5, 1.5.1 – 1.5.8, 1.6.2, 1.11.3, and research recommendations in the NICE guideline

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These evidence reviews were developed by Public Health Internal Guideline development team

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1.1 Review question

RQ 2.1 What training to help managers to understand, promote and support mental wellbeing is effective and cost-effective?

RQ 2.2 What training is effective and cost-effective to help managers to improve their knowledge and skills in recognising employees who experience or are at risk of poor mental wellbeing?

RQ 2.3 What training is effective and cost-effective in helping managers to improve their knowledge and skills in responding to mental wellbeing issues?

RQ 2.4 Are approaches to training managers in employee mental wellbeing acceptable to:

- managers receiving them.
- employees who will interact with managers.
- employers.
- those delivering them.

1.1.1 Introduction

Many employers know the value of positive mental wellbeing but do not know how to promote it. For example, the 2018 Business in the Community report Mental Health at Work found that only 30% of managers have received training on mental wellbeing at work.

Therefore, the objective of this review is to identify what - training for managers - is effective and acceptable to help them to:

- understand mental wellbeing.
- support and promote their employees' mental wellbeing.
- recognise employees who experience, or are at risk of, poor mental wellbeing.
- responding to their employees' mental wellbeing.

The relationship between training for manager and health outcomes of employees is complex and can be influenced by a range of factors including work stressors and work-related resources. Managers may influence some of these stressors, but this also depends on the organisational, structural, cultural and other environmental conditions.

1.1.2 Summary of the protocol

Table 1: PICO for universal approaches for managers

Population	All employees or employers who have management responsibilities for other employees aged 16 years or older in full or part time employment, including employees who are: • on permanent, training, temporary or zero hours contracts • self-employed • volunteers
Intervention	Training delivered to managers (in addition to usual practice) that aims to help them: • to (at least one of): understand, support and improve their employees' mental wellbeing. • to recognise employees who experience, or who are at risk of, poor mental wellbeing. • to help them to respond to employees who are at risk of or experiencing poor mental wellbeing
Comparator	Usual practice (this may be called a control group or waiting list control group or other terms in the individual studies)
Outcomes	**Manager outcomes:** • Manager mental health literacy, such as knowledge, attitudes and awareness about mental health and mental wellbeing • Confidence to discuss mental health. • Confidence identifying employees experiencing or at risk of poor mental wellbeing. • Skills and confidence responding to mental wellbeing issues. • Awareness of support services and referral pathways • Communication skills **Employee outcomes:** • Any measure of mental wellbeing (using objective measures and/ or validated self-report measures) • Job stress, burnout or fatigue (using objective measures and/ or validated self-report measures) • Symptoms of mental health conditions such as depression, anxiety, insomnia (using validated self-report measures) • Absenteeism • Presenteeism • Job satisfaction, engagement or motivation • Uptake of support services • Quality of life **Employer outcomes** • Productivity **Secondary outcomes:** • Patient and public safety • Employee retention • Methods and levels of employee consultation and participation • Incidence of discrimination, ill-treatment • De-stigmatisation • Adherence to mental wellbeing policies

	• Mental health literacy, such as knowledge and awareness about mental wellbeing • Adverse effects or unintended consequences **Qualitative outcomes** The views and experiences of: • Managers receiving the interventions • Employees who will interact with managers • Employers Those delivering the interventions

1.1.3 Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual.

For the analyses, the following points were taken into consideration:

Outcomes were divided in three main categories:

- Manager outcomes
- Employee outcomes
- Employer outcomes

In some reviews, the units of randomization were individuals (managers) and clusters (workplaces) and we dealt with outcome data as follows:

- When the unit of randomization was the cluster then outcome data at manager, employee and employer level were adjusted for cluster effect as outlined above.
- When the unit of randomisation was the individual then outcomes data for employee and employer level were adjusted for cluster effect as outlined above but no adjustment was performed for manager outcomes.

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual. Methods specific to this review question are described in the review protocol in appendix A and the methods document.

Declarations of interest were recorded according to NICE's conflicts of interest policy.

1.1.4 Evidence identification

1.1.4.1 Included studies

In total 19,377 references were identified through systematic searches. Of these, 97 references were considered relevant based on title and abstract screening and were ordered. After the full text screening of these references, 26 were eligible for inclusion in the systematic review and 71 were excluded.

A total of 26 references incorporating 18 studies were included in this review. Of these studies, 6 were cluster randomised controlled trials (one of which was a mixed-methods study covering review questions 2.1, 2.2, and 2.4, where quantitative and qualitative data were separately extracted)., 8 were individual randomised controlled trials and 4 were non-randomised studies. Several of the studies addressed more than one research question, and 14 studies were identified for RQ2.1, 6 studies were identified for RQ2.2, and 6 studies were identified for RQ2.3. The characteristics of the 18 included studies are presented in Table 2 and a brief summary of the interventions presented in Table 3. See Appendix D for full evidence tables.

1.1.4.2 Excluded studies

See Appendix J for a full list of excluded studies and reason for exclusion.

1.1.5 Summary of studies included in the effectiveness evidence

Table 2: Summary of studies

Study [Country]	Study design	Setting	Population	Intervention	Comparator	Outcome(s)
Angelo 2013 [Portugal]	Non RCT	National Firefighters School	Employees (subordinates and supervisors) of a firefighter elite worked in small teams. Only subordinates assessed in the study.	Leadership stress management intervention	No intervention	**Employee outcomes** • Burnout-as Emotional exhaustion • Engagement **Manager outcomes** • Not reported **Employer outcomes** • Not reported
Dimoff 2019 [USA]	RCT	2 organizations: (small publishing company, small property management company)	Managers & employees in two organizations who spend a minimum of 10 hr per week in the same office space with employees	Mental Health Awareness leader training	Waitlist control group	**Employee outcomes** • Uptake of support services (as resource use) **Manager outcomes** • Awareness of support services and communication skills • De-stigmatisation • Confidence identifying employees experiencing or at risk of poor mental wellbeing. **Employer outcomes** • Not reported
Dimoff 2016a [USA] (Study 1)	RCT	A small university	Managers in the university or in the organization	Mental Health Awareness leader training	Waitlist control group	**Employee outcomes** • Not reported **Manager outcomes** • Manager mental health literacy (reported as knowledge) • De-stigmatisation **Employer outcomes** • Not reported

Study [Country]	Study design	Setting	Population	Intervention	Comparator	Outcome(s)
Dimoff 2016b [USA] (Study 2)	RCT	A large organization (experiencing rising costs associated with short- and long-term mental health disability)	Managers in the university or in the organization	Mental Health Awareness leader training	Waitlist control group	**Employee outcomes** • Not reported **Manager outcomes** • Manager mental health literacy (reported as knowledge) • De-stigmatisation **Employer outcomes** • Not reported
Elo 2014 [Finland]	Non RCT	A public sector organization	Employees (managers & subordinates of the organization)	Leadership intervention	No intervention	**Employee outcomes** • Burnout-as Emotional exhaustion **Manager outcomes** • Not reported **Employer outcomes** • Not reported
Gayed 2019 [Australia]	Cluster RCT	3 Organizations (state-specific ambulance Services, wide building equipment hire company)	Clusters of Managers (supervise ≥3 employees) of 3 organizations. Their direct report employees were also included	Online training intervention	Waitlist control group	**Employee outcomes** • Proxy of Job stress (as psychological distress) **Manager outcomes** • Skills and confidence responding to MWB. **Employer outcomes** • Not reported
Hardre 2009 [USA]	RCT	A large, multinational company	Managers and employees of the company	Autonomy supportive training	Waitlist control group	**Employee outcomes** • Job engagement **Manager outcomes** • Not reported **Employer outcomes** • Not reported
Jeon 2015 [Australia]	Cluster RCT	A collaborating aged care organization	Care staff employed for ≥ 6 months at the aged care sites	Clinical Leadership training in Aged Care	No intervention	**Employee outcomes** • Job stress • Job satisfaction **Manager outcomes**

Study [Country]	Study design	Setting	Population	Intervention	Comparator	Outcome(s)
						• Not reported **Employer outcomes** • Employee retention
Kawakami 2005 [Japan]	Cluster RCT	Software engineering company	Managers ranked higher than section chief	Supervisor training	Relaxation advice	**Employee outcomes** • Job stress • Perception of supervisor support **Manager outcomes** • Not reported **Employer outcomes** • Not reported
Kawakami 2006 [Japan]	Cluster RCT	Sales and servicing company	Supervisors	Supervisor training	No intervention	**Employee outcomes** • Job stress • Perception of supervisor support **Manager outcomes** • Not reported **Employer outcomes** • Not reported
Ketelaar 2017 [The Netherlands]	Cluster RCT	3 organisations (a steel factory, a university medical center, a university)	Supervisors and their employees aged ≥ 18 years	Supervisor Training program	Wait list control group (information only of the program)	**Employee outcomes** • Absenteeism **Manager outcomes** • Skills and confidence to respond to mental wellbeing. **Employer outcomes** • Not reported
Milligan-Saville 2017 [Australia]	Cluster RCT	A fire and rescue service.	Managers & employees of a fire and rescue service. Only employees assessed in the study	RESPECT (manager training program)	Wait list control group	**Employee outcomes** • Not reported **Manager outcomes** • Manager mental health literacy (as knowledge) • De-stigmatisation • Communication skills **Employer outcomes**

Study [Country]	Study design	Setting	Population	Intervention	Comparator	Outcome(s)
						• Not reported
Nishiuchi 2007 [Japan]	RCT	Old established sake brewery	Employees (supervisors & subordinates) of a sake brewery	Supervisor education program	Waitlist control group	**Employee outcomes** • Not reported **Manager outcomes** • Manager mental health literacy (knowledge) • **Attitude** **Employer outcomes** • Not reported
Shann 2019 [Australia]	RCT	Mixed organisations	Organisational leaders	Beyondblue	Wait-list	**Employee outcomes** • Not reported **Manager outcomes** • Attitude **Employer outcomes** • Not reported
Stansfeld 2015 [UK]	Mixed methods (Cluster RCT and qualitative interview study)	3 Workplace services	Employees and managers of an NHS Mental Health Trust.	E-learning supervisor intervention	No intervention	**Employee outcomes** • Mental well-being • Job stress • Absenteeism **Manager outcomes** • Not reported **Employer outcomes** • Not reported
Tafvelin 2019 [Sweden]	Non RCT	Midsized municipality	First line newly employed managers employed in various sections and their employees.	Leadership training	Waitlist control group	**Employee outcomes** • Job stress • Job satisfaction **Manager outcomes** • Not reported **Employer outcomes** • Productivity as: Work performance

Study [Country]	Study design	Setting	Population	Intervention	Comparator	Outcome(s)
Theorell 2001 [Sweden]	Non RCT	Insurance company experiencing a period of uncertainty	Employees (supervisors & subordinates) of the company	Management education program	No intervention	**Employee outcomes** • Job stress • Methods and levels of employee consultation and participation **Manager outcomes** • Not reported **Employer outcomes** • Not reported
Wilson 2019 [UK]	RCT	Rail transport industry	Managers	Mental health training Electronic Mental Health training	Wait-list	**Employee outcomes** • Not reported **Manager outcomes** • Mental health knowledge • Preparedness to take action. **Employer outcomes** • Not reported

1 **Table 3: Summary of interventions included in RQ2**

Brief name	Studies	Rationale, theory or goal	Materials used	Procedures used	Provider	Delivery method	Duration/ intensity
Leadership stress management intervention RQ2.1, RQ2.3	Angelo Rui 2013	To promote psychological occupational health of firefighters. The Job Demand-Resource Model as the theoretical model	An educational part and an action part	Participants formed mixed problem-solving teams to design and implement plans of action to manage stressful situations. These plans focused on providing support to a subordinate returning to work after experiencing a critical incident and developing positive attitudes to improve work culture.	Author of the paper (researcher)	Small teams (4-6 people), questionnaire for the assessment	3-day training

Brief name	Studies	Rationale, theory or goal	Materials used	Procedures used	Provider	Delivery method	Duration/ intensity
MHAT RQ2.2, RQ2.3	Dimoff 2019	RUM (process-oriented resource model) as a theoretical framework focused on early recognition & resource utilization process. Goal: a) early recognition of warning signs, (b) identification of resources, (c) appropriate engagement or action, and (d) ongoing monitoring or evaluation	Leaders provided with a 20-item checklist-style measurement tool & received a training binder (lecture slides and information about organizational resources)	Active learning strategies, such as case studies and interactive video activities. Case studies: leader received feedback video activities Video with role play scenarios	Not reported	Groups	3-hr training program
MHAT RQ2.2, RQ2.3	Dimoff 2016a, Dimoff 2016b	Recommendations of the National Institute for Occupational Safety and Health (NIOSH) for intervention research were followed Goal of training: early identification and recognition, (b) early and appropriate engagement or action, and (c) assessment, planning and monitoring.	Lecture-based modules and two interactive case studies	Training sessions consisted of two lecture-based modules to educate leaders on • warning signs associated with stress • their role as sources of support for struggling employees • stress-reducing activities and practices and case studies: a case scenario of an employee with warning signs of stress and other mental health problems to practice their skills	Facilitator (graduate student with background in occupational health and safety interventions)	Groups	3-hr training program
A leadership intervention RQ2.1	Elo 2014	To test whether a leadership intervention improves their subordinates' perceptions of the psychosocial work environment, leadership and well-being (stress symptoms)	Creativity exercises (painting and self-collected materials were used)	Various exercises and sources of learning, role playing, individual and group feedback (sociodrama) and group discussions, short lectures were applied to	External consultants	Small groups	7.5 days 1-3 daily sessions

Brief name	Studies	Rationale, theory or goal	Materials used	Procedures used	Provider	Delivery method	Duration/ intensity
				develop self-awareness through self-exploration.			
HeadCoach RQ2.1, RQ2.2, RQ2.3	Gayed 2019	An online intervention to improve managers' confidence to effectively respond to the needs of staff experiencing mental health issues and to implement evidence-based responsive and preventive managerial techniques that promote a more mentally healthy workplace. • Covers 3 topics: introduction to MWB • Ways identify & support people with MWB risk • managerial skills in reducing mental health risk factors Based on Self-Efficacy Theory	Not reported	Each topic comprises between three and seven 10-min modules featuring text, activities, short videos, and practical exercises for individuals to complete.	Self- guided online intervention	Delivered online through a mobile responsive Website.	2.5 hours to complete the entire programme
Autonomy supportive motivation training RQ2.1	Hardre 2009	Training based on based on motivation theory (self-determination theory). Goal: To help managers adopt autonomy-supportive motivating style for employees.	A training booklet.	The intervention consisted of: a group-delivered informational training session; a group-delivered question-and-answer session to refine managers' efforts to support employees' autonomy and a study specific booklet.	Researchers trainers	Small groups	1 hour opening session 1-hour question-and-answer follow-up session Booklet provided for 5 weeks

Brief name	Studies	Rationale, theory or goal	Materials used	Procedures used	Provider	Delivery method	Duration/ intensity
CLiAC RQ2.1	Jeon 2015	Program based on a clinical leadership framework for aged care middle managers. Goal: promote safe, high-quality person-centred and evidence-based care to help managers develop effective team relationships.	A set of learning resources (templates for team building activities, developing team-based action plans, providing education sessions, and undertaking the clinical care improvement project	The program includes: an action learning technique, 360-degree feedback, case scenarios, one-on-one interactions with a program facilitator, and individual practice improvement projects.	Facilitator	Groups. Also, individual or peer support meetings with facilitator	12 months (no further info)
Participatory approach RQ2.1	Ketelaar 2017, Ketelaar 2019	Goal: To identify and solve employees' work functioning problems due to health complaints.	Not reported	2-hour working group meeting by an OHP. After, the training included an oral presentation, group discussions, and role-playing to practice application of the PA protocol. Supervisor could act as both participant and leader.	In company occupational health practitioner (OHP)	Groups meetings& sessions	2-hour working group meeting 4-hour training Optional: 2h follow up training
RESPECT RQ2.1, RQ2.2, RQ2.3	Milligan - Saville 2017	Training consisted of key features and effects of common mental health issues in the workplace; roles and responsibilities of senior officers in terms of employee mental health; and development of effective skills for discussing mental health matters with staff.	Not reported	An interactive face to face training. First part focused on recognition in the workplace of symptoms of depressions, anxiety, stress, alcohol misuse. Second part focused on positive communication techniques. Third part focused on implementation of principles (regular contact, supportive communication, encourage help seeking)	Clinical psychologist or a consultant psychiatrist	Small groups	4-hour face to face session

Brief name	Studies	Rationale, theory or goal	Materials used	Procedures used	Provider	Delivery method	Duration/ intensity
				when contacting employees with mental health problems			
Education program RQ2.1	Nishiuchi 2007, Takao 2006	Education for supervisors, by enhancing communication skills & interpersonal relationships, may favourably affect subordinates' positive health outcomes (psychological distress and job performance)	Employees received: Informational brochure on MH Supervisors received: guidelines for MH promotion	Education program included a presentation Active listening training involved a lecture and practice session with role play	Occupational physician; psychologist	Presentation (through lectures)	1 x 60-minute presentation 1x 60 - minute lecture. 1x 120-minute practical session
Beyondblue RQ2.1	Shann 2019	To provide leaders with information, tools, and practical actions to create a mentally healthy workplace, reduce depression stigma, and look after their own mental health.	Reading material, videos, and interactive exercises	Participants could access the intervention and could download summaries if the intervention along with a completed action plan	Via the website for an Australian mental health charity	Online	30 to 45 minutes
GEM RQ2.1, RQ2.2	Stansfeld 2015	Focus on 6 management standard domains: Change, Control, Demands, Relationship, Role and Support. Goal: To help managers understand and identify sources of stress and the link with mental and psychical health, and improve managers' capacity to spot and support employees who experience problems	Not reported	The e- learning programme included a series of linked topics with case examples, and additional activities Consultation with facilitators. Online quiz before- after the intervention.	Online, also a facilitator	Online, face to face sessions, support by telephone/e-mail	Weekly to 2 weekly modules over 3 months
Leadership training RQ2.1	Tafvelin 2019	Self-determination theory. To test a leadership training that aims to improve managers' need-supportive behaviours	Managers were handed a training booklet for individual study.	Program started with initial activities (participants discussions & brief presentations). A	Consultant, 2 leadership developers	Group sessions	5 months 2-day sessions:

Brief name	Studies	Rationale, theory or goal	Materials used	Procedures used	Provider	Delivery method	Duration/ intensity
		toward employees and increase employee need satisfaction.	Employees received a copy of a book on need-supportive leadership.	presentation also given by a consultant with workplace examples to cover manager need- supportive motivating style. Small group discussions and participants received also feedback on their employees' ratings of the managers' need-supportive behaviours and their need satisfaction at work. Role play using many activities (active listening, need supportive communication of newly imposed rules and regulations) were practiced using role play			1month apart Half-day session 3 months after 2nd session
Education management improvement program RQ2.1	Theorell 2001	A program to improve work environment and employee health. Rational: Increasing feelings of control and authority over decision making at work will have positive impacts upon health. Increasing competence on higher level managers will have positive impacts on the work climate.	Not reported	Sessions included a lecture and group-based discussions focused on social psychological knowledge.	A consultant	Groups of 7-8 people	2- hour sessions every 2 weeks for 1 year
Mental Health Training (face-to-face or E-learning)	Wilson 2019	For individuals to learn how to manage your own mental health; to understand how mental ill health in the workplace affects employees, and how it can be prevented; to	Face-to-face: Presentations, discussion, signposting and group work	Face-to-face: Training took place in 5 locations E-learning: Participants were sent an invitation to the course with a link to a login	MIND	Face-to-face: groups (numbers not specified per group)	Face-to-face: Single session of 3.5 hours

Brief name	Studies	Rationale, theory or goal	Materials used	Procedures used	Provider	Delivery method	Duration/ intensity
RQ2.1, RQ2.3		learn how to support team members who are experiencing mental health problems; to learn to embed mental health into policy and practice to make it 'business as usual'	E-learning: Interactive media including a quiz, videos, real-life scenarios and animations	page that requested their email address. The e-learning could be accessed from anywhere in the UK and was supported by most devices with an internet connection		E-learning: individual	E-learning: 2-3 hours over a maximum 7-week timeframe

See Appendix D for full evidence tables.

1.1.6 Summary of studies included in the qualitative evidence

Table 4: Summary of study characteristics

Study	Setting	Informants	Intervention	Method	Themes in study
Stansfeld, 2015	NHS Mental Health Trust	Managers	GEM (Guided E-learning)	In-depth interventions (narrative orientation) Thematic analysis	Learning style Learning from peers Learning in a safe space Time needed to do activities Disconnect between policy mandated support and perception of available support Disconnect between competencies and life skills Disconnect from senior management Managers keen to take a 'whole-person' approach to workplace stress

1.1.7 Economic evidence

A guideline wide search of published cost-effectiveness evidence was carried out for review questions (RQ) 1, 2, 3, 4 and 5. There were no eligible studies for RQ 1.

1.1.7.1 Included studies

3432 records were assessed against the eligibility criteria.

3351 records were excluded based on information in the title and abstract. Both reviewers assessed all the records. The level of agreement between the two reviewers was 100%.

The full-text papers of 81 documents were retrieved and assessed. 15 studies were assessed as meeting the eligibility criteria. Of these, 2 studies were assessed as meeting the eligibility criteria for RQ 2. Both reviewers assessed all the full texts. The level of agreement between the two reviewers was 100%. For RQ 2, 2 studies were included.

1.1.7.2 Excluded studies

66 full text documents were excluded for this guideline. The documents and the reasons for their exclusion are listed in Appendix J – Excluded studies. Documents were excluded for the following reasons: review (n=32), no economic evaluation (n=18), ineligible outcomes (n=6), ineligible intervention (n=5), ineligible study design (n=2), and ineligible setting (n=2). The selection process is shown in Appendix G.

1.1.8 Summary of included economic evidence

1 **Table 5: Summary of included economic evidence**

Study	Limitations	Applicability	Other comments	Incremental			Uncertainty
				Costs	Effects	Cost-effectiveness	
Milligan-Saville (2017) 4-hour face-to-face RESPECT mental health training programme for managers vs. 6-month delayed training for the control group	Minor limitations [a]	Partly applicable [b]	The study conducted a randomised controlled trial (RCT) alongside a cost-benefit analysis with a 6-month time horizon from an employer's perspective. The primary outcome measure was change in sickness absence among those supervised by each of the managers.	**Incremental costs; AUD $ (GBP £):** Total work-related sickness absence cost per manager Intervention vs. control - 10,151.53 (- 6,243.60) (=£6,967.76 in 2020 GBP) [i] Intervention cost per manager; AUD$ (GBP £): Intervention 1017.13 (625.55) (=£698.13 in 2020 GBP) [i]	**Absolute % point change (relative to baseline):** Work-related sick leave Intervention -0.28 (-18%) Control 0.28 (29%) Standard sick leave Intervention 0.48 (10%) Control 0.169 (6%)	**Return on investment [c]; £:** 9.98 for every pound spent on manger mental health training	Not reported
Stansfeld (2015) A psychosocial e-learning program, Managing Employee Pressure at Work, for managers designed	Minor limitations [d]	Partly applicable [e]	A mixed methods study consisting of a pilot cluster randomised controlled trial (RCT), an economic evaluation and a	Incremental costs were not reported [f] **Total healthcare cost**	Incremental effects were not reported [f] **Total QALYs; mean (SD):**	**Net benefit [h]; £:** £81 intervention -596 (=-£712.48 in 2020 GBP) [i]	Not reported

Study	Limitations	Applicability	Other comments	Incremental			Uncertainty
				Costs	Effects	Cost-effectiveness	
to improve well-being and reduce sickness absence among employees vs. control group with no intervention			qualitative study with a 3-month time horizon. The perspective is not clearly stated but the cost-benefit analysis is assumed to be from an employer perspective. The health-related quality of life of employees was compared using both the EQ-5D-3L descriptive system and the visual analogue scale (VAS). However, ICERs were not calculated.	**per person; mean, £ (SD):** Intervention 139 (496) Control 117 (394) Intervention costs [d]; £: Total 20,963 (=£25,059.76 in 2020 GBP) [i] Per manager 494 to 1,062 (=£590.54 to £1,269.54 in 2020 GBP) [i] Per employee 71 to 153 (=£84.88 to £182.90 in 2020 GBP) [i]	Intervention 0.2205 (0.0335) Control 0.2156 (0.0477) Human resources-reported sickness; mean days (SD): Intervention 4.44 (13.36) Control 4.47 (15.56)	£153 intervention -665 (=-£794.96 in 2020 GBP) [i] Control -471 (=-£563.05 in 2020 GBP) [i] The results indicate that the intervention did not have a positive impact on the net cost. However, a full trial is required for a definitive and detailed cost–benefit analysis.	

Abbreviations: RCT: randomised controlled trial; EQ-5D-3L: European Quality of Life-5 Dimensions three-level version; ICER: incremental cost-effectiveness ratio; QALY: quality-adjusted life-year; RCT: randomised controlled trial; VAS: visual analogue scale

a. The trial had a short time-horizon that may not have captured the full effects of the intervention. Other work-related costs were not included, such as staff turnover, and could have influenced results. Sensitivity was not explored.

b. The intervention considered is relevant to the UK context, but caution is required when transferring the results of the study given the difference in prices and healthcare systems between the UK and Australia.

c. Return on investment is calculated as the incremental the cost of work-related sickness absence per manager divided by the intervention cost per manager

d The trial had a short time-horizon that may not have captured the full effects of the intervention. Other work-related costs were not included, such as staff turnover, and could have influenced results. Sensitivity was not explored.

e. The study was conducted in the UK. However, the perspective of the study was unclear. An employer perspective is assumed since net benefit is calculated using costs relating to the intervention and sickness absence (both of which affect the employer).

f. The study did not compare costs and outcomes between the intervention group and the control group as adjusting the data for clustering effects would be problematic because of the small number of clusters.

g Given that the intervention consisted of several parts with different numbers of managers involved, the estimations of cost per participant were based on two figures: the number of managers randomised to the intervention group (49 managers supervising 349 employees) and the lowest number of managers who attended any one of the three parts of the intervention (18 managers supervising 125 employees).

h Net benefit was calculated using intervention costs per employee and the average HR-reported sickness absence over 3 months at follow-up only. The use of 2 estimates for intervention costs (£81 and £153) reflects variation in the numbers of managers involved in the different parts of the intervention d. Note, the lowest intervention cost per employee is reported as £71 whereas a lowest cost of £81 is used for net benefit. This difference is not explained by the author. However, based on the costing table, it is assumed £81 includes the facilitator training cost.

i Converted by YHEC using historical exchange rates and PSSRU inflation indices.

1.1.9 Economic model

A simple cost-consequence model was developed which covers more than 1 evidence review in the guideline so the full write up is contained in a separate report (Evidence Review G).

The model was used to establish the impact of mental wellbeing interventions at work over a one-year time horizon from both the employer perspective and a wider perspective including employee outcomes. The model synthesized evidence from a range of sources including the effectiveness and cost-effectiveness reviews, and other relevant studies.

The number of employees receiving the intervention was multiplied by each category in the model: the cost of the intervention, the cost of absenteeism, the cost of presenteeism, and the cost of staff turnover. These figures were then summed in order to produce the net cost impact of the intervention.

A hypothetical case study was modelled using a combination of published data and assumptions. In addition, several hypothetical scenarios were considered which were based on entirely assumption-based inputs. It is intended that the model will be used as an interactive cost-calculator for employers who are considering implementing a mental health intervention at work, or other interested parties. The model allows users to input values and generate bespoke results, specific to their workplace.

The hypothetical case study analysis (based on a combination of published evidence and assumptions) showed that mental health interventions at work can be cost saving for an employer. However, the results depend on a myriad of factors such as the size of the organisation and the cost of absenteeism.

From an employer's perspective, an intervention is more likely to result in cost savings when: (i) the baseline level of absenteeism is high, (ii) baseline presenteeism is relatively low, (iii) baseline staff turnover is high, (iv) the intervention is low cost, and (iv) the intervention is demonstrated to have a positive influence on absenteeism, presenteeism or turnover. Every single employer will have a unique set of characteristics and, therefore, it is not possible to make a generalised statement about which interventions are likely to be cost-effective.

1.1.10 Summary of the quality of the effectiveness evidence, certainty of the qualitative evidence and qualitative evidence statements

Quantitative evidence

GEM compared to control for managers.

See Forest plots GEM E1.1 to E1.3 and GRADE profile F.1.1

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**GEM**				
Job stress - Employee		The mean job stress - employee in the intervention groups was **0 standard deviations higher** (0.39 lower to 0.39 higher)		152 (1 study)	**low**[1,2,3,4]	No difference
Absenteeism		The mean absenteeism in the intervention groups was **0.17 standard deviations higher** (0.1 lower to 0.45 higher)		350 (1 study)	**moderate**[2,3,4,5]	No difference
Mental wellbeing - Employee		The mean mental wellbeing - employee in the intervention groups was		284 (1 study)	**low**[1,2,3,4]	No difference

		0.03 higher (0.26 lower to 0.31 higher)				

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect
[5] No concerns over risk of bias

1 **RESPECT compared to control for managers.**

2 See Forest plots RESPECT E2.1 to E2.3 and GRADE profile F.1.2

Outcomes	**Illustrative comparative risks* (95% CI)**		**Relative effect (95% CI)**	**No of Participants (studies)**	**Quality of the evidence (GRADE)**	**Direction of effect**
	Assumed risk	Corresponding risk				
	Control	**RESPECT**				
De-stigmatisation		The mean de-stigmatisation in the intervention groups was **0.07 standard deviations lower** (0.66 lower to 0.53 higher)		44 (1 study)	**low**[1,2,3,4]	No difference
confidence discussing mental wellbeing		The mean confidence discussing mental wellbeing in the intervention groups was **0.07 standard deviations higher** (0.53 lower to 0.66 higher)		44 (1 study)	**low**[1,2,3,4]	No difference
Mental health knowledge - Manager		The mean mental health knowledge - manager in the intervention groups was **0.2 standard deviations lower** (0.79 lower to 0.4 higher)		44 (1 study)	**low**[1,2,3,4]	No difference

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect

3 **Workplace mental health training for managers Absenteeism** (No forest plot or GRADE
4 profile)

5 Milligan-Saville 2017 showed a decrease in work-related sick leave in the intervention group
6 and an increase in the control group, and this group difference was significant (p= 0.049).

1 **MHAT compared to control for managers.**

2 See Forest plots MHAT (E3.1 to E3.5) and GRADE profile F.1.3

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**MHAT**				
Confidence identifying employees experiencing or at risk of poor mental wellbeing (reported as recognising warning symptoms among employees)		The mean confidence identifying employees experiencing or at risk of poor mental wellbeing (reported as recognising warning symptoms among employees) in the intervention groups was **0.74 standard deviations lower** (1.44 to 0.04 lower)		37 (1 study)	**moderate**[1,2,3,4]	Benefit
Uptake of support services		The mean uptake of support services in the intervention groups was **1.34 standard deviations lower** (1.87 to 0.8 lower)		82 (1 study)	**moderate**[1,2,3,4]	Benefit
Communicate about MH and awareness of resources (reported as: communicate about mental health and health resources)		The mean communicate about MH and awareness of resources (reported as: communicate about mental health and health resources) in the intervention groups was **1.28 standard deviations lower** (2.02 to 0.54 lower)		37 (1 study)	**moderate**[1,2,3,4]	Benefit
Manager mental health knowledge		The mean manager mental health knowledge in the intervention groups was **1.45 standard deviations lower** (2.08 to 0.83 lower)		185 (2 studies)	**low**[1,3,4,5]	Benefit
De-stigmatisation		The mean de-stigmatisation in the intervention groups was **0.5 standard deviations lower** (0.78 to 0.23 lower)		222 (3 studies)	**moderate**[1,3,4,6]	Benefitn

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI do not cross the line of no effect
[5] Serious concern as |-squared is between 50% and 75%
[6] No concerns as I-squared is less than 50%

3 **Educational program compared to control for managers.**

4 See Forest plots Educational program (E4.1 to E4.2) and GRADE profile F.1.4

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**Educational program**				
methods and level of employee consultation and participation (decision authority)		The mean methods and level of employee consultation and participation (decision authority) in the intervention groups was		216 (1 study)	**very low**[1,2,3]	Benefit

		0.3 standard deviations lower (0.57 to 0.03 lower)				
Job stress		The mean job stress in the intervention groups was **0.04 standard deviations higher** (0.23 lower to 0.3 higher)		213 (1 study)	**very low**[1,2,4,5]	No difference

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Population, intervention, comparator and outcome match the review protocol
[3] 95% CI do not cross the line of no effect
[4] Single study analysis
[5] 95% CI cross the line of no effect

1 Leadership and management program

2 See Forest plots Leadership and management program (E5.1 to E5.2) and GRADE profile
3 F.1.5

Outcomes	**Illustrative comparative risks* (95% CI)**		**Relative effect (95% CI)**	**No of Participants (studies)**	**Quality of the evidence (GRADE)**	**Direction of effect**
	Assumed risk	Corresponding risk				
	Control	**Leadership and management program**				
Job satisfaction, engagement or motivation	**727 per 1000**	**749 per 1000** (654 to 865)	**RR 1.03** (0.9 to 1.19)	277 (1 study)	**low**[1,2,3,4]	No difference
Employee retention (reported as employee intention to leave)	**320 per 1000**	**285 per 1000** (214 to 381)	**RR 0.89** (0.67 to 1.19)	454 (1 study)	**low**[1,2,3,4]	No difference

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect

4

5 Evidence not suitable for GRADE: Leadership and management program vs control

Outcome	Study (no. of participants)	Risk of bias	Control	Leadership and management program	*P* value
Job stress	Jeon 2015 (566)	Medium	Mean Work Stressors Index (WSI) 19.3	Mean Work Stressors Index (WSI) 18.8	0.59 No difference

1 **Training to support employee autonomy.**

2 See Forest plots Training to support employee autonomy (E6.1) and GRADE profile F.1.6

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**Training to support employee autonomy**				
Job satisfaction, engagement or motivation		The mean job satisfaction, engagement or motivation in the intervention groups was **0.36 standard deviations higher** (0.04 lower to 0.76 higher)		98 (1 study)	**moderate**[1,2,3,4]	No difference

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Serious concerns over use of self-report measures
[4] 95% CI cross the line of no effect

3 **Stress management**

4 See Forest plots Stress management (E.7.1to E.7.2) and GRADE profile F.1.7

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**Stress management**				
Job stress		The mean job stress in the intervention groups was **0.13 standard deviations higher** (0.28 lower to 0.53 higher)		104 (1 study)	Very low[1,2,3,4]	No difference
Job satisfaction, engagement or motivation		The mean job satisfaction, engagement or motivation in the intervention groups was **0.05 standard deviations higher** (0.35 lower to 0.45 higher)		104 (1 study)	Very low [1,2,3,4]	No difference

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely

to change the estimate. **Very low quality:** We are very uncertain about the estimate.
[1] Serious concerns over use of self-report measures [2] Single study analysis [3] Population, intervention, comparator and outcome match the review protocol [4] 95% CI cross the line of no effect

1 Leadership intervention

2 See Forest plots Leadership intervention E.8.1 and GRADE profile F.1.8

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**Leadership intervention**				
Job stress		The mean job stress in the intervention groups was **0.62 standard deviations higher** (0.27 to 0.97 higher)		145 (1 study)	**very low**[1,2,3,4]	Harm

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI do not cross the line of no effect

3 Supervisor training

4 See Forest plots Supervisor training (E9.1 to E9.2) and GRADE profile F.1.9

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**Supervisor training**				
Job stress - RCT		The mean job stress - RCT in the intervention groups was **0.19 standard deviations lower** (0.49 lower to 0.11 higher)		172 (1 study)	**low**[1,2,3,4]	No difference
Job stress - cRCT		The mean job stress - cRCT in the intervention groups was **0.13 standard deviations higher** (0.16 lower to 0.42 higher)		189 (1 study)	**very low**[1,2,3,5]	No difference
Perception of supervisor support - RCT		The mean perception of supervisor support - RCT in the intervention groups was **0.1 standard deviations lower** (0.4 lower to 0.2 higher)		172 (1 study)	**low**[1,2,4]	No difference
Perception of supervisor support - cRCT		The mean perception of supervisor support - cRCT in the intervention groups was **0.41 standard deviations lower** (0.7 to 0.12 lower)		195 (1 study)	**low**[1,2,3,6]	Benefit

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect
[5] 95% CI cross the line of no effect and no adjustment for cluster effect possible
[6] No adjustment for cluster effect possible

1 Beyondblue

2 See Forest plots Beyondblue (E10.1) and GRADE profile F.1.10

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**Beyondblue**				
Attitude		The mean attitude in the intervention groups was **0.23 standard deviations lower** (0.53 lower to 0.07 higher)		196 (1 study)	**low**[1,2,3,4]	No difference

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect

3 Supervisor stress reduction

4 See Forest plots Supervisor stress reduction vs control for managers (E11.1 to E11.2) and
5 GRADE profile F.1.11

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**Supervisor stress reduction**				
Mental Health Knowledge		The mean mental health knowledge in the intervention groups was **0.12 standard deviations lower** (0.72 lower to 0.48 higher)		43 (1 study)	**very low**[1,2,3,4]	No difference
Attitude		The mean attitude in the intervention groups was **0.21 standard deviations higher** (0.39 lower to 0.81 higher)		43 (1)	**very low**[1,2,3,4]	No difference

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
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Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect

1 **MH Training**

2 See Forest plots MH training (E12.1 to E12.2) and GRADE profile F.1.12

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**MH Training**				
Mental health knowledge		The mean mental health knowledge in the intervention groups was **0.7 standard deviations lower** (1.11 to 0.3 lower)		101 (1 study)	**moderate**[1,2,3,4]	Benefit
Preparedness to take action		The mean preparedness to take action in the intervention groups was **1.17 standard deviations lower** (1.64 to 0.69 lower)		82 (1 study)	**moderate**[1,2,3,4]	Benefit

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI do not cross the line of no effect

3 **E-MH Training**

4 See Forest plots E-MH training (E13.1 to E13.2) and GRADE profile F.1.13

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**E-MH Training**				
Mental health knowledge		The mean mental health knowledge in the intervention groups was **0.02 standard deviations lower** (0.46 lower to 0.41 higher)		87 (1 study)	**low**[1,2,3,4]	No difference
Preparedness to take action		The mean preparedness to take action in the intervention groups was **1.14 standard deviations lower** (1.65 to 0.62 lower)		68 (1 study)	**moderate**[1,2,3,5]	Benefit

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect
[5] 95% CI do not cross the line of no effect

1 Multi-faceted implementation strategy for mental wellbeing at work

2 See Forest plots E-MH training (E14.1 to E14.2) and GRADE profile F.1.14

Multi-faceted implementation strategy for Mental wellbeing at work

Patient or population: patients with Mental wellbeing at work
Settings:
Intervention: Multi-faceted implementation strategy

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Direction of effect
	Assumed risk	Corresponding risk				
	Control	**Multi-faceted implementation strategy**				
Skills and confidence to respond to mental wellbeing Follow-up: 6 months		The mean skills and confidence to respond to mental wellbeing in the intervention groups was **0.26 standard deviations higher** (0.15 lower to 0.68 higher)		89 (1 study)	**moderate**[1,2]	No difference
Absenteeism mean number of days Follow-up: 6 months		The mean absenteeism in the intervention groups was **0.08 standard deviations lower** (0.41 lower to 0.26 higher)		139 (1 study)	**moderate**[1,2]	No difference

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Single study analysis
[2] 95% CI cross the line of no effect

Evidence not suitable for GRADE: Online Mental Health Training for managers vs control

Outcome	Study (no. of participants)	Risk of bias	Control	Headcoach	*P* value
Managers' confidence to respond	Gayed 2019 (118)	High	-	-	Post-intervention: 0.004 - benefit 4-month follow-up: 0.082 – no difference
Responsive behaviour to staff experiencing mental ill-health	Gayed 2019 (118)	High	-	-	Post-intervention: 0.012 - benefit 4-month follow-up: 0.036 - benefit
Preventive behaviour	Gayed 2019 (118)	High	-	-	Post-intervention: 0.003 - benefit 4-month follow-up: 0.026 - benefit
Mental health symptoms	Gayed 2019 (173)	Medium	-	K6 scores at 4-month follow-up: F[1, 184.65]	0.57 – no difference

Leadership intervention (No forest plot or GRADE profile)

Outcome	Study (no. of participants)	Risk of bias	Wait list	Leadership intervention	*P* value
Job satisfaction	Tafvelin 2019 (not reported)	Critical	Mean COPSOQ II score: 2.81	Mean COPSOQ II score: 2.73	Not significant
Productivity	Tafvelin 2019 (not reported)	Critical	Mean work performance: 7.53	Mean work performance: 7.85	Not significant

Qualitative evidence

Table 5: Summary of key themes in qualitative evidence

Review theme and subthemes	Studies contributing (Study theme)	Informants	Summary	Supporting statements	CERQual confidence in the evidence
What contributed to intervention working					

Review theme and subthemes	Studies contributing (Study theme)	Informants	Summary	Supporting statements	CERQual confidence in the evidence
Learning styles	Stansfeld 2015	Manager	Managers put greater value on reinforcement of their own existing knowledge and validating their existing practices	*"I quite enjoyed the course because I didn't really see things that were totally shocking to me or, 'Oh! You should be doing that'. It reinforced that my way of doing it is alright, it's acceptable … So I found that course sort of validated some of the stuff that I already do and sort of sends a message to me to carry on doing it that way". (Manager, M4)*	Low
Learning from peers	Stansfeld 2015	Manager	Group learning was regarded as a welcome opportunity to learn from peers and to share experiences and concerns	*"It was quite good to hear the other people in the room were having similar things, similar issues, similar thoughts, similar concerns" (Manager, M8)*	Low
Learning in a safe space	Stansfeld 2015	Manager	Managers value the importance of having a safe environment where a manager can feel comfortable discussing issues.	*"And it was good to express those concerns, I suppose, in a safe environment with no people higher up from myself looking down on you and judging you. So from that perspective, … it felt like a safe environment, just to discuss openly some of the issues that as managers we were concerned about and had raised." (Manager, M8)*	Low
Barriers					
Time needed to complete training activities	Stansfeld 2015	Manager	Even managers who adhered to e-learning completed at least 3 of the 6 modules) reported that they did not have time to complete the suggested activities.	*"It was finding the time in the day just to sit down and be able to do it sat at my desk without some other priority or somebody knocking at my door with another question. That was really it, it wasn't time consuming or anything necessarily it was just literally finding enough time … I found it was useful, it was something I would want … I didn't get far enough through to really be able to say actually, 'this could have been done differently …" (Manager, M9)*	Moderate
Importance of context					

Review theme and subthemes	Studies contributing (Study theme)	Informants	Summary	Supporting statements	CERQual confidence in the evidence
Disconnect between policy mandated support and perception of available support	Stansfeld 2015	Manager	While training materials stated that managers will be given the support they need, managers reported feeling powerless to effectively manage stress and help their employees.	*"So I did listen and I did what I could but he could accept I was limited because the expectation on the team from higher management."….. "But I felt my hands were tied, I'd done as much as I could because I tried to support him through it … that came out on his exit interview and everything and when he resigned saying the job was untenable … "(Manager, M1)*	Moderate
Disconnect between competences and life skills	Stansfeld 2015	Manager	It was apparent that there was a difference between the required behavioural competencies suggested by the training content such as monitoring workloads and helping people prioritise and the life skills identified by managers and employees when discussing example of work stress, such as tacit knowledge, integrity and compassion.	*"And I suppose a lot of it for me was being able to empathise with her; having gone through bereavement of a close family member myself. You can think what would've been good for me at that time". (Manager, M2)*	Moderate
Disconnect from senior management	Stansfeld 2015	Manager	Managers saw themselves as being in the middle between senior management and staff. They also	*'the damp proof course in the organisation, nothing permeates in either (Key Informant, KI2)*	Moderate

Review theme and subthemes	Studies contributing (Study theme)	Informants	Summary	Supporting statements	CERQual confidence in the evidence
			saw themselves as being responsible for their employees but not always having the authority or support from their own managers to enable them to support their staff?		
Managers keen to take a 'whole-person' approach to workplace stress					
Managers keen to take a 'whole-person' approach to workplace stress	Stansfeld 2015	Manager	It was noted how commonly conversations on stress started with a description of the employee as a person who has stress in their personal life and how this filters into the workplace	*"It's not really work stress so much as it's personal stress. But of course it does have an impact on one's work life" (Key Informant, KI13).*	Moderate

See Appendix F for full GRADE and/or GRADE-CERQual tables

Mixed methods

The committee discussed the quantitative and qualitative evidence and highlighted that the findings from the qualitative evidence from one mixed methods study (Stansfeld 2015) lacked generalisability to other sectors beyond the NHS but were not considered to contradict the findings of the quantitative data (14 RCTs and 4 non-RCT) which demonstrated effectiveness for mental health awareness training (MHAT) (Dimoff 2019, Dimoff 2016a, Dimoff 2016b) for confidence in identifying employees experiencing or at risk of poor mental wellbeing, uptake of support services, communication about mental health and awareness of resources, mental health knowledge and de-stigmatisation; Educational program intervention (Theorell 2003) which demonstrated effectiveness for methods and levels of employee consultation and participation; Supervisor training (Kawakami 2006) which demonstrated an effect for perceptions of supervisor report; Mental health training (Wilson 2019) which demonstrated an effect for mental health knowledge and preparedness to take action; and E-mental health training (Wilson 2019) which demonstrated effectiveness for preparedness to take action. However, the effectiveness of these interventions was not explained in the qualitative evidence. One study (Elo 2014) which considered a leadership intervention demonstrated an effect for the control over the intervention for job stress this was finding was not explained in the qualitative evidence (Stansfeld 2015).

The qualitative evidence included in the review (Stansfeld 2015) consisted of the qualitative element of a mixed-method study which focused on an e-learning supervisor intervention within in an NHS setting. The committee agreed that the findings of the study whilst generalisable to other NHS settings may not be transferable to the private sector and does not explain the differences in the direction and size of effect across all the included quantitative studies (apart from the corresponding quantitative element of the mixed method study from which the qualitative evidence has been derived, Stansfeld 2015). PHAC did observe that within studies that demonstrated a beneficial effect on manager outcomes, the duration of the training was relatively short, at up to 3.5 hours which aligns with an identified theme in the qualitative evidence (Stansfeld 2015) regarding barriers to manager training, specifically that 'time' is needed to complete training activities. The 'relatively short' duration of training may have impacted managers ability to engage and influenced intervention engagement and thus effectiveness.

Themes from the qualitative data (Stansfeld 2015) highlighted that learning styles, learning from peers and learning in a safe space were key to interventions working. The committee acknowledged that there was evidence of effectiveness for manager training for the employee outcome of job stress (Kawakami 2005), and that MHAT (Dimoff 2019, Dimoff 2016a, Dimoff 2016b) showed most benefit in terms of raising awareness, which was consistent with the committees own experiences but is not explained fully by the qualitative evidence (Stansfeld 2015). However manager training interventions included in the quantitative evidence for example leadership stress management intervention (Angelo Rui 2013) or Mental Health Awareness training (Dimoff 2016a, Dimoff 2016b, Dimoff 2019), do make considerations regarding tailoring to managers needs and availability of space which were identified themes in the qualitative evidence (Stansfeld 2015) but this cannot be directly attributable to the effects demonstrated in the quantitative evidence as these factors were not outcomes within the identified quantitative studies. The committee agreed that when there is an increase in managers' awareness be it through increases in manager mental health knowledge through MHAT (Dimoff 2019, Dimoff 2016a, Dimoff 2016b) or mental health training (Wilson 2019), then it is much more likely to have an impact on the behaviour of the managers, improve their confidence and therefore lead to a positive change in manager outcomes.

The qualitative evidence (derived from the qualitative element of a mixed methods study) explores the acceptability of a e-learning health promotion program (Stansfeld 2015). Six quantitative studies considered a web-based or e-learning type intervention, one of which was the corresponding quantitative element of the mixed method study from which the qualitative evidence has been derived (Stansfeld et al 2015), one where e-learning was used as an option for the delivery of mental health training (Wilson et al 2019), one that assessed the effectiveness of web-based supervisor training on increasing supervisor support of other workers, and workers subsequent psychological well-being (Kawakami et al 2005), one that assessed the effects of a web-based supervisor training on selected job stressors and psychological distress among subordinate workers and one that assessed the effectiveness of an online intervention (HeadCoach) to improve managers' confidence in implementing evidence-based responsive and preventive managerial techniques to create a mentally healthy workplace (Gayed et al 2019). The committee concluded that the qualitative evidence could be generalisable to other NHS settings but not the private sector. The mixed method study from which the qualitative evidence has been derived was the only intervention undertaken in an NHS setting and whilst themes within the qualitative evidence might be applicable to other web-based or e-learning interventions none of these occurred in NHS settings and the outcomes within these 5 studies and

the remaining 12 quantitative studies for example employee burnout, manager awareness of support services and communication skills or employee retention were not explored in the qualitative evidence. The qualitative evidence did not explore the positive effects of the e-learning intervention as these elements were explored in the corresponding quantitative element of this mixed methods study. Cost-effectiveness

Milligan-Saville (2013) found a mental health training programme for managers produced a return on investment of £9.98 for every pound spent compared with a control group. The study only considered the costs relating to sickness absence. Considering other work-related costs, such as presenteeism or staff turnover, could affect the results. Sensitivity analysis was not conducted. The analysis was assessed as partly application to the review question, with minor limitations.

Stansfeld (2015) found that a management e-learning intervention to improve well-being and reduce sickness absence among employees did not have a positive impact on the net cost compared with no intervention. The net benefit of the intervention was -£596 and -£665 (-£712.48 and -£794.96 in 2020 GBP) assuming a £81 and £153 intervention cost, respectively. The net benefit for the control group was -£471 (-£563.05 in 2020 GBP). This was a pilot study that was not powered to test the effectiveness of the intervention. Hence the lack of a positive effect of the intervention on well-being and sickness absence must be interpreted in this context. The author comments that the high costs of the e-learning intervention would be expected to reduce with a larger sample. The study did not compare costs and outcomes between the intervention group and the control group, as adjusting the data for clustering effects would be problematic because of the small number of clusters. However, the piloted methods for collecting sickness absence data and data for economic evaluation were found to be feasible. A full trial is required for a detailed cost-benefit analysis. The analysis was assessed as partly application to the review question, with minor limitations.

De novo economic modelling was undertaken for this guideline. The cost-consequences analysis demonstrated scenarios in which mental health interventions are cost saving and scenarios in which they are not. The results depended on a myriad of factors and, as such, the analysis could not produce generalisable results. The model is intended to be used by decision makers to generate bespoke results, specific to their workplace. The analysis was assessed as directly applicable and with minor limitations

1.1.11 The committee's discussion and interpretation of the evidence.

1.1.11.1. The outcomes that matter most

The linkage between manager training on mental health in the workplace and employee health outcomes is complex and is impacted by several factors. Manager training is thought to work by increasing mental health knowledge and literacy, reducing work stressors and promoting work-related resources and therefore have an impact on employee outcomes.

Outcomes were divided into three main categories the committee considered important: manager, employee and employer outcomes. In the manager category the main outcomes of interest were mental health literacy, confidence to discuss mental health, confidence identifying employees experiencing or at risk of poor mental wellbeing, increase in skills and confidence in responding to mental wellbeing issues and awareness of support services and communication skills. Outcomes in the employee category included job stress, engagement, employee mental wellbeing, symptoms of employee mental health conditions (depression, anxiety), absenteeism, presenteeism and uptake of support services. Outcomes in the employers category were productivity, absenteeism and presenteeism.

The committee was interested in the effects of the manager training on the managers' knowledge, awareness and confidence in discussing mental health and the employer outcomes outlined but put a greater emphasis on employee outcomes. Outcomes in studies with the longest follow up were considered to be stronger than short term outcomes as the committee was interested in the sustainability of employee outcomes following manager training interventions.

The committee discussed the complexity of these interventions and they agreed that as well as increasing manager awareness of mental health it was also important that managers were able to communicate with their staff about these issues. They also discussed that when employees talk to their managers about their mental health concerns, managers should be able to respond appropriately and know how to signpost to additional support if needed. The committee indicated that a multifaceted approach is needed when dealing with mental wellbeing of employees, and not limited to manager training.

1.1.11.2 The quality of the evidence

Quantitative evidence

The evidence came from 14 RCTs (of which 6 were cluster RCTs) and 4 non- randomised controlled trials. The quality of the evidence ranged from high to very low with the majority of evidence graded as low or very low. The main reasons for downgrading were concerns of risk of bias (due to high attrition rates and lack of blinding), inconsistency (percentage of heterogeneity ≥50%), and imprecision (the confidence intervals of the pooled studies cross the line of no effect).

The committee discussed the evidence and highlighted that studies were carried out in several different countries (1 in Portugal; 4 in USA; 1 in Finland; 4 in Australia; 1 in Netherlands; 3 in Japan; 2 in Sweden; 2 in UK).

The duration of the training, where specified, varied from 2 to 56 hours. Most of the studies used active components for the delivery of the manager training such as action planning, active learning, role playing as well as video activity. However, the committee noticed that in studies that demonstrated a beneficial effect on manager outcomes (evidence from 4 studies: Dimoff 2019, Dimoff 2016a, Dimoff 2016b, Wilson 2019) the duration of the training was relatively short, at up to 3.5 hours. The committee observed that there was no evidence of effectiveness of the training interventions on outcomes of interest to employers, such as productivity.

The follow up for the studies showing beneficial effects of the training on managers, was from 8-12 weeks. The committee discussed that a 3-month follow up was adequate to show an improvement on manager outcomes such as awareness raising. However, this time period was not long enough for considering employee outcomes, or for determining the sustainability of the intervention. Therefore, the committee drafted a research recommendation around the long-term effectiveness of manager training on employee mental health in the workplace.

The committee discussed the variation in the total evidence base which covered both large and small organisations, as well as public and private sectors. The committee discussed that this variation in the evidence was not adequate to make definite conclusions; however, they acknowledged that for the most part the evidence did not show negative effects to be associated with the training interventions.

The committee highlighted some information that was not included in the studies, which they would have found useful, such as, type of employee work contracts and salary level. The committee confirmed that this information would have been helpful when considering the impact of manager training on employees who are on permanent, part or full time, training, temporary or zero hours contracts. Furthermore, the committee was interested in the level of

management responsibilities that the managers had; but this level of detail was lacking in the studies considered.

The committee also noted several gaps in the evidence. No evidence was found for the following employee outcomes: presenteeism, quality of life and symptoms of mental health conditions such as depression, anxiety, insomnia. There was also no evidence for secondary outcomes, including patient and public safety, incidence of discrimination, ill treatment, or for adverse effects or unintended consequences. The committee noted that there was lack of detail on socioeconomic status and location of the workforce/employees or on the seniority of management within included studies.

Qualitative evidence

One UK mixed methods study contributed to the qualitative findings (Stansfeld 2015). This study focused on the views of the managers who underwent online training in order to improve the mental wellbeing of their employees and prevent sickness absence. The study had poor follow-up rates and also poor adherence to the intervention. The committee accepted the findings of the study and felt that the identified lack of time to undertake the training to be a key consideration for employers. The committee agreed that if dedicated time were allowed for managers participating in training, the impact of the training would likely be greater.

The committee was interested in the context of this study, as it was in an NHS setting which experienced a major reorganisation. The committee noted that the staff were likely to be under a high level of stress, but also agreed that the findings of this study are generalisable to other similar NHS organisations, where periods of high stress are common. However, the committee discussed that the findings of the qualitative study were not generalizable to the private sector. The committee noted the limitations of this study, which include a lack of information from several key respondents, such as the employer and those delivering the training in the study.

1.1.11.3 Benefits and harms

Quantitative evidence

Manager outcomes

Ten studies provided evidence on manager outcomes. In taking into account the quality of the evidence, the committee acknowledged that there was evidence of the effectiveness for manager training in mental health in the workplace on manager outcomes, such as mental wellbeing literacy, confidence identifying employees experiencing or at risk of poor metal wellbeing, awareness and uptake of support services and communication skills, destigmatising attitudes, and preparedness to action. They further discussed that there was a variability of different types of interventions (stress management training, mental health awareness training, autonomy supportive training and manager education program). Therefore, the committee took the above considerations into account, when considering the generalisability of the findings of the review. The evidence highlighted that amongst all the interventions reviewed, mental health awareness training (MHAT) showed most benefit in terms of raising awareness, where moderate quality evidence showed improvements in confidence identifying employees experience or at risk of poor mental wellbeing, uptake of support services, ability to communicate about mental health and health resources, and de-stigmatisation, and low quality evidence indicated improvements in manager mental health knowledge. The committee agreed that this was consistent with their own experiences. The committee also agreed that when there is an increase in managers' awareness, then it is much more likely to have an impact on the behaviour of the managers, improve their confidence and therefore lead to a positive change in manager and employee outcomes. Therefore, the committee recommended that when externally commissioning an intervention to train managers in mental health in the workplace, employers should choose interventions

that have evidence of effectiveness on manager outcomes [rec 1.5.8]. The committee also recommended that when employers use mental health training for managers, that they should evaluate this and feed the results back into future training and strategy [rec 1.5.9]. However, the committee acknowledged that most of the evidence demonstrating intervention effects was from the three Dimoff studies conducted in Canada (Dimoff 2019, Dimoff 2016a, Dimoff 2016b).

Mixed evidence was found regarding the impacts of mental health training on manager mental health literacy (reported as knowledge). Moderate quality evidence from 1 RCT (Wilson 2019: mental health training), and low-quality evidence from 2 RCTs (MHAT) indicated beneficial impacts of mental health training. However, low quality evidence from 1 cRCT (Milligan -Saville 2017) and 1 RCT (Wilson 2019: E-mental health training) and very low quality from 1 non-RCT (Nishiuchi, 2007) indicated no difference.

Mixed evidence was found in 2 RCTs and 3 cRCTs on various aspects of manager abilities to identify and/or engage with employees regarding mental wellbeing at work. Moderate quality evidence from 1 RCT (Dimoff 2019) showed that managers who received mental health awareness training had higher confidence in identifying employees who experience or are at risk of poor mental wellbeing and in communicating about mental health and awareness of resources compared to the control group. Low quality evidence from 1 cRCT (Gayed 2019) indicated that managers participating in an online training intervention had significantly improved confidence in engaging in preventive and responsive behaviours to support the mental health of staff they supervise over time compared to a waiting list control, but this difference was not significant at 4-month follow-up. Moderate quality evidence from 1 cRCT (Ketelaar, 2017) outlined that managers participating in a supervisor training program (multifaceted) experienced no difference in their skills and confidence to respond to employee mental wellbeing compared to a waiting list control. Moderate quality evidence from 1 RCT (Wilson 2019) demonstrated that managers who received mental health training either face-to-face or as E-learning were more prepared to take action as a manager on mental health. However, low quality evidence from 1 cRCT (Milligan -Saville 2017) indicated no difference for participants engaged in a mental health manager training programme and waiting list control on manager confidence to discuss mental health.

Three RCTs and 1 cRCT provided evidence on the effectiveness of mental health training on de-stigmatisation. Moderate quality evidence from 3 RCTs outlined that managers who were in the intervention group were more likely to have de-stigmatization behaviour compared to those in the control group, and low quality evidence from 1 cRCT (Milligan -Saville 2017) demonstrated no difference.

Very low to low quality evidence from remaining studies showed no difference between the intervention and control group in increasing communication about mental wellbeing and awareness of the available resources, manager attitudes towards mental wellbeing at work.

None of the studies showed any significant worsening for any of the manager outcomes.

Employee outcomes

Two RCTs, 6 cRCTs and 4 non-RCTs reported on employee outcomes. The committee acknowledged that there was evidence of effectiveness for manager training for some employee outcomes such as methods and levels of employee consultation and participation and perception of supervisor support. Moderate quality evidence from 1 RCT (Dimoff 2019) showed an increase in the uptake of support services among employees whose managers participated in the intervention compared to the control group. Very low-quality evidence from 1 non-RCT (Theorell 2003) indicated that manager training may improve employees' authority over decisions in the workplace, compared to the control group. Moderate quality evidence from 1 RCT (Dimoff 2019) showed an effect for participants engaged in mental health awareness leader training compared to control for the uptake of support services.

However, very low to moderate quality evidence from 5 studies indicated no difference between the intervention and the control group in relation to the following employee outcomes: job satisfaction, and employee mental wellbeing. Moderate quality evidence from 2 cRCTs (Ketelaar, 2017 and Stansfeld, 2015) did not find that manager training had any effect on absenteeism. Mixed evidence was found for employee perceptions of supervisor support with low quality evidence from 1 cRCT (Kawakami 2005) demonstrating no effect for supervisor training compared to relaxation advice and low-quality evidence from 1 cRCT (Kawakami, 2006) indicating an improvement in employee perceptions of supervisor support for supervisor training compared to no intervention.

Very low-quality evidence from 1 non-RCT (Elo 2014) that studied a leadership intervention showed a benefit towards the control for the employee outcome of job stress. However, the study described that job stress was significantly higher in the intervention group pre-intervention.

Employer outcomes

Only two studies provided data for outcomes of interest to employers (Jeon, 2015 and Tafvelin, 2019). Specifically, no evidence of effectiveness was found for either employee retention, or productivity. None of the studies showed any significant worsening of any of the employer outcomes.

Qualitative evidence

Only one qualitative study was identified which was concerned with online training for managers with additional group support/ sessions. Themes in the data indicated that managers found different aspects of the training important. Managers put greater value on reinforcement of their own existing knowledge and validation of their existing practices. The managers also valued the importance of having a safe environment where managers were able to feel comfortable discussing mental wellbeing issues. This study highlighted some barriers; that is, the time constraints and work pressure on the managers, which led to low adherence and participation in the e-learning training intervention. Additionally, the committee discussed that the average training lasted 3-hours in the quantitative evidence and they agreed that this could make it difficult for managers to participate in the training as part of the working day. The committee agreed that managing pressure at work was an important barrier that contributed to the low adherence of the managers to participating in the online intervention. Therefore, the committee made a recommendation that employers should ensure that managers have time to attend relevant training sessions [rec 1.5.4]. The committee further discussed that the poor adherence of the managers to the intervention in the qualitative evidence, may be because it was online and not face-to-face training. The committee noted that group interventions seemed to be more beneficial, and this was supported by the qualitative data in the face-to-face group sessions undertaken in the study. However, expert testimony described that online and face-to-face line manager training is equally effective, and therefore, the committee recommended that a group approach to mental health training should be considered, but that this could be delivered either face to face, or online [rec 1.5.7].

Expert testimony

Expert testimony highlighted that line managers play an important role in promoting mental wellbeing at work, and that managers should be provided with training to identify those who may need support, and to discuss mental health concerns. This was also supported by the evidence, and by the committee's experience, and therefore the committee drafted recommendations that employers should offer support to managers in the form of line-manager training and communication skills training [recs 1.5.1 and 1.11.3]. The committee further discussed that a holistic approach to mental wellbeing at work and manager training is important. The committee discussed that multifaced interventions seemed to have greater effect than isolated individual interventions. Therefore, the committee drafted

recommendations around the knowledge, tools, skills, and resources that managers should be provided with [rec 1.5.2], and possible topics that should be included in manager training [rec 1.5.3].

Expert testimony highlighted that line managers should not be isolated. Expert testimony suggested that managers should have systematic 'wrap around' support from HR and occupational health, and that manager training should be supported with peer support. The committee agreed that managers have additional pressures related to their roles as a line manager, and recommended that employers should encourage peer-to-peer support for managers [rec 1.5.6]. The committee highlighted that peer-to-peer support would be aided by a group approach to manager mental health training [rec 1.5.7]. The committee agreed with expert testimony that stated that line managers should be empowered to make small adjustments to employees' workload and intensity [rec 1.5.5], as this would relieve pressures on employees more quickly compared with scenarios where any changes need to be signed off at a higher level. Expert testimony also highlighted the importance of 'small talk' for encouraging empathy, and for employees to discuss any mental health concerns. The committee also agreed that the manager-employee relationship was very important for the effectiveness of the interventions, as interventions were more likely to be effective in a supportive environment. Therefore, the committee drafted a recommendation around employers encouraging managers to create opportunities for fostering good relationships with employees [rec 1.6.2]. Overall, the committee agreed that managers are important for supporting employees who have poor mental wellbeing or are at risk of poor mental wellbeing as a result of external factors. Therefore, the committee drafted a recommendation to highlight the strategic importance of creating systems to support employees through supportive line management [rec 1.1.5].

1.1.11.4 Cost effectiveness and resource use

The committee discussed evidence from 2 studies, the first was a randomised control trial which included a cost benefit analysis (Milligan-Saville, 2017); the second was a pilot cluster randomised controlled trial (RCT) with cost-benefit analysis (CBA) and qualitative study (Stansfeld, 2015).

The study by Milligan-Saville compared a 4-hour face-to-face RESPECT mental health training programme with a deferred training control group. The population were managers employed within Fire and Rescue New South Wales. The primary outcome measure was change in sickness absence among those supervised by the managers though work-related and standard sick leave analysed separately. By the 6 month follow up a significant reduction in work-related sickness absence was observed and a small, but non-significant rise in standard sick leave. The associated return on investment was £9.98 for each pound spent on such training. The committee noted a number of limitations of this economic analysis e.g. it only considered intervention costs and costs saved by the employer due to sickness absence, it did not include other important outcomes such as employee wellbeing, it adopted a short time horizon and had a low completion rate at follow up. The committee agreed that although the analysis had not captured the full effects of the intervention they thought it reasonable to assume the effects are positively correlated with sickness outcomes i.e. that fewer days off sick may mean a higher health related quality of life for employees.

The study by Stansfeld compared a facilitated e-learning programme on work-related stress with no intervention. The programme comprised two face-to-face educational sessions with a facilitator, a 6 modular e-learning program and ongoing e-mail or telephone support from the facilitator. The population were managers of an NHS Mental Health Trust. The authors report a small effect on employee wellbeing but no effect on sickness absence. The committee noted this was a very small feasibility study which was not powered to detect a difference between the intervention and control group and the lack of effect should be interpreted in that context. They considered whether it should form the basis of a research recommendation. In addition, because of the small sample size, the committee noted this meant the intervention

costs were high whereas in practice they may be spread more thinly over a wider population thereby lowering the average cost per participant. They also noted a low adherence to the intervention, a short follow up period which meant there might not have been sufficient time for managers to implement any changes and that the study took place during a period of considerable organisational change making it a less-than-ideal context for an intervention to reduce work stress in employees. As with the Milligan-Saville study, by focusing on sickness absence and excluding wellbeing in the economic analysis the committee considered it had not captured the full effects of the intervention.

Overall, the committee were disappointed by the paucity of the published cost effectiveness evidence and agreed that a bespoke economic analysis was needed to explore the cost effectiveness of universal interventions at organisational level for managers.

With that in mind a generalised model was built to explore the impact of mental wellbeing interventions at work over a one-year time horizon from the employer perspective. A wider perspective capturing employee outcomes was also incorporated in the model in the form of a cost-consequences analysis. The latter was necessary due to an absence of quantitative data.

The committee noted that interventions could be cost saving for the employer but that the results varied greatly by key model inputs such as the cost and effectiveness of the intervention as well as the cost of absenteeism, presenteeism and staff turnover.

The committee also noted that employee outcomes could be positive or negative or a combination of the two. For positive outcomes they considered the model may have under-estimated the overall benefits whereas for negative outcomes it may have overestimated the total benefit. In addition, they were mindful that some negative outcomes can be difficult to interpret e.g. an increase in incidence might indicate an improvement in the workplace environment where employees are able to discuss issues and seek help without judgement. Nevertheless, the committee believed it crucially important that employers take account of any potential adverse consequences in deciding whether to fund an intervention. They highlighted that employers have a legal duty to properly address mental health issues – that is to promote mental wellbeing and prevent ill mental health.

1.1.11.5 Other factors the committee took into account

Considerations on COVID-19 and lockdown

The committee discussed the impact of COVID-19 and the subsequent lockdown on the evidence and agreed that the role of managers had changed dramatically due to the changes in working arrangements for both employees and managers. The committee were also mindful that the new ways of working had positive impacts for some people and negative for others. The committee acknowledged that different groups, for example, health and social care professionals, office workers are now working from home and those unable to work from home such as self-employed tradespeople/contractors will have been affected differently by the pandemic and also noted that health inequalities have been highlighted and exacerbated by the pandemic and lockdown. For example, those in some low-income occupations, may not be able to work from home and as a result may have had to continue to go to work or have been ‘furloughed’, whereas those in higher income occupations may have had the opportunity to work from home.

Low-income groups may also have other risk factors for negative outcomes of COVID-19 as subgroups, such as those from BAME backgrounds, those living in deprived areas, those living in over-crowded accommodation, which will also increase the risk of poorer mental wellbeing at work. The committee also discussed the impact on tradespeople or those who work on a contract basis in people’s homes.

The committee considered that the rapid changes in how organisation work had a direct impact on managers by emphasizing the importance of communication and clarity on how managers communicate with their teams and the frequency of the communication. The flexibility of manager-staff communication is even more important in this new environment, to ensure that managers are able to identify staff who may need additional support and are able to provide support or signpost to further support as needed. However, the committee also stressed that manager responsibilities have not changed due to COVID-19, but how work is organised may have changed. The committee also agreed that identifying and supporting people with ongoing stress and post-traumatic stress following COVID-19 is a concern for managers. Managers will need training in how to recognise these and also know where to signpost to additional support.

Given the impact that COVID-19 has had on how work is organised, the committee re-emphasised that an organisation's culture and climate is key to the success of manager training in mental health in the workplace.

The committee also acknowledged that all organisations had to change working practices to take account of social distancing and health and safety concerns and referred to guidance and advice from a variety of sources, such as Public Health England (PHE), Health and Safety Executive (HSE), Acas, as well as professional bodies such as Royal colleges, Chartered Institute of Personnel Development (CIPD) and Chartered Management Institute (CMI).

Mental wellbeing at work

The committee acknowledged the complexity of the mental wellbeing interventions discussed and agreed that wider factors, including personal and wider individual factors, should also be considered. The committee agreed that if people are stressed, the training may not make a difference and will not impact on people's lives. They further explained that manager training will probably have no impact on employee outcomes if there are no consequential changes to poor working environments and arrangements. The committee agreed that manager training could potentially have an effect on employees. However, the committee acknowledged that other wider factors can also play an important role. The committee agreed that even when training was beneficial for managers, it would not have a benefit for employees, if there was no change to other elements of work such as, poorly designed jobs, workplace culture and/or environment or job insecurity.

The committee explained that employee personal pressures for example stress or bereavement, also need to be taken into account when managing mental wellbeing in the workplace. However, the committee discussed the practical limitations to research on employees' personal issues and circumstances. They acknowledged based on their experience that flexible working policies and living wages were important factors that affect mental wellbeing in general, as well as in the workplace.

The committee highlighted that the interventions focused on prevention, discussed that employers would be interested in reduction of absenteeism or sick leave that these interventions may foster in real life.

1.1.12 Recommendations supported by this evidence review

This evidence review supports recommendations 1.1.5, 1.5.1 – 1.5.8, 1.6.2, 1.11.3, and the research recommendation on Training for managers and supervisors, Addressing study reporting and Supportive work environment. Other evidence supporting these recommendations can be found in the evidence reviews on organisational universal level approaches: Review A; targeted organisational level approaches: Review C; individual

universal approaches: Review D; and barriers and facilitators to the implementation and delivery of interventions to improve and protect mental wellbeing at work: Review F.

1.1.13 References – included studies

1.1.13.1 Effectiveness

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1.1.13.2 Economic

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Appendices

Appendix A – Review protocols

Review protocol for Evidence reviews for manager interventions.

ID	Field	Content
0.	**PROSPERO registration number**	Not submitted
1.	**Review title** *(50 Words)*	Universal training to help managers understand, recognise, improve and promote the mental wellbeing of their employees
2.	**Review question** (250 words)	Quantitative 2.1 What training to help managers to understand, promote and support mental wellbeing is effective and cost-effective? 2.2 What training is effective and cost-effective to help managers to improve their knowledge and skills in recognising employees who experience or are at risk of poor mental wellbeing? 2.3 What training is effective and cost-effective in helping managers to improve their knowledge and skills in responding to mental wellbeing issues? Qualitative 2.4 For the following groups in relation to approaches to training managers in employee mental wellbeing, what are their views and experiences of what and why certain approaches may or may not work, and how it could be improved: • managers receiving them

		• employees who will interact with managers • employers • those delivering them?
3.	**Objective** NB – this section does not appear in the submission on the Prospero system	<u>Quantitative</u> To identify what training for managers is effective to help them: • To understand mental wellbeing • To support and promote their employees' mental wellbeing • To recognise employees who experience, or are at risk of, poor mental wellbeing • In responding to their employees' mental wellbeing <u>Qualitative</u> To understand the views and experiences (including acceptability of and barriers & facilitators to) to training delivered to managers to help them: – Understand, promote or support mental wellbeing – Recognise employees who experience or are at risk of poor mental wellbeing – Respond to their employees' mental wellbeing issues <u>Quantitative and qualitative</u> To examine how effectiveness, cost effectiveness, views and experiences of manager training varies according to a range of factors including how the training is delivered and by whom, and by the nature of the organisation.
4.	**Searches** (300 words)	The following databases will be searched: • Cochrane Central Register of Controlled Trials (CENTRAL) • Cochrane Database of Systematic Reviews (CDSR) • Embase • MEDLINE • Psycinfo

		• Econlit • Epistemonikos • ASSIA • HealthEvidence.org Search strategies will be adapted to take account of the limitations of each database. The same search strategy will be used for questions 1-5 for this guideline, with all retrieved studies potentially being includable in each review. Searches will be limited by the use of • validated filters as follows: o Date : Studies published from 2007 to present (though included studies from the previous NICE guideline, PH22, will also be considered for inclusion) o Language : English language o Study design : RCT filter • Search strategies o OECD countries plus Brazil, China, Russia, India and South Africa o Non-randomised controlled studies Searches will exclude the following publication types: • Editorials • news articles • Letters • Conference abstracts • “Notes” • Other non-research publications

		Other searches: Forwards and backwards citation searching will be carried out in Web of Science using any included studies or relevant systematic reviews as a starting point. The What Works Wellbeing and Department for Work and Pensions research reports websites will also browsed for relevant evidence The searches will be re-run 6 weeks before final submission of the review and further studies retrieved for inclusion. The full search strategies for MEDLINE database will be published in the final review.
5.	**Condition or domain being studied** (200 words)	Mental wellbeing in the workplace
6.	**Population** (200 words)	Inclusion: Quantitative and qualitative All employees or employers who have management responsibilities for other employees aged 16 years or older in full or part time employment, including employees who are: • on permanent, training, temporary or zero hours contracts • self-employed • volunteers Qualitative only • employees who will interact with managers • employers • those delivering training

		Exclusion: <u>Quantitative and qualitative</u> Employees or employers who have management responsibility for any of the following groups only: • prisoners who engage in work activities • inpatients in mental health institutions who engage in work activities • military personnel Employees or employers who do not have management responsibilities

7.	**Intervention** (200 words)	Inclusion:
		
		<u>Quantitative and Qualitative</u>
		
		Training delivered to managers (in addition to usual practice) that aims to help them
		• to (at least one of): understand, promote, support and improve their employees' mental wellbeing
		• to recognise employees who experience, or who are at risk of, poor mental wellbeing
		• to help them to respond to employees who are at risk of or experiencing poor mental wellbeing.(This may include approaches such as:
		  ○ training to improve skills and confidence to respond to employees experiencing or who they identify being at risk of poor mental wellbeing
		  ○ training to improve awareness of what support is available and how to support employees to access it)

		Training that is delivered in a workplace setting, or outside of a workplace where there is employer involvement in the intervention is eligible (Employer involvement may include the initiation, design, delivery, management, funding of, or signposting to, an intervention, including those delivered online or digitally.) Exclusion: <u>Quantitative and qualitative</u> • Training to improve manager competencies in areas other than those listed above. • Training delivered outside of a workplace without employer involvement.
8.	**Comparator/Reference standard/Confounding factors** (200 words)	<u>Quantitative</u> Inclusion: Usual practice (this may be called a control group or waiting list control group or other terms in the individual studies) <u>Qualitative</u> Not applicable
9.	**Types of study to be included** (150 words)	Inclusion: <u>Quantitative</u> Effectiveness studies that include one or more intervention groups and a comparison group including: • Randomised controlled trials • Non-randomised comparative studies

		Qualitative Studies with a qualitative component including focus groups and interview-based studies. Mixed-methods studies will also be included provided they contain relevant qualitative data Exclusion: Quantitative • Correlation studies • Cross-sectional studies • Case studies • Single arm studies
10.	**Other exclusion criteria** (no separate section for this to be entered on PROSPERO – it gets included in the section above so within that word count)	Quantitative and qualitative • Papers published in languages other than English • Studies not published in full (e.g. study protocols where no results are published, summary articles) • Studies published before 2007 will be excluded, with the exception of effectiveness studies that were included in PH22. Quantitative only • Studies carried out in non-OECD and non-BRICS countries Qualitative only • Studies conducted outside the UK
11.	**Context** (250 words)	Since NICE guideline PH22 Mental wellbeing at work was published in 2009, the nature of the workforce has changed in the UK. Increasing amounts of employees are on part-time, temporary or zero-hours contracts. The variations between workplaces and differences in the nature of

		employment are important to consider when looking at approaches to improve and protect employee mental wellbeing. Since 2009 there has been increasing recognition of mental wellbeing and how it is associated with the workplace and work outcomes. Experiences in the workplace can affect mental wellbeing positively and negatively. Good employee mental wellbeing is positive for employees and their employers. For example, better mental wellbeing and job satisfaction are associated with increased workplace performance and productivity. Poorer mental wellbeing however is associated with increased absenteeism and presenteeism and lost output costs the economy upwards of £74 billion annually. It is therefore important to implement interventions in the workplace to promote and improve mental wellbeing, and to prevent poor mental wellbeing amongst the workforce.
12.	**Primary outcomes (critical outcomes)** (200 words)	<u>Quantitative</u> **Manager outcomes:** • Manager mental health literacy, such as knowledge, attitudes and awareness about mental health and mental wellbeing • Confidence to discuss mental health • Confidence identifying employees experiencing or at risk of poor mental wellbeing • Skills and confidence responding to mental wellbeing issues • Awareness of support services and referral pathways • Communication skills

		Employee outcomes: • Any measure of mental wellbeing (using objective measures and/ or validated self-report measures) • Job stress, burnout or fatigue (using objective measures and/ or validated self-report measures) • Symptoms of mental health conditions such as depression, anxiety, insomnia (using validated self-report measures) • Absenteeism • Presenteeism • Job satisfaction, engagement or motivation • Uptake of support services • Quality of life **Employer outcomes** • Productivity • Absenteeism • Presenteeism <u>Qualitative</u> Eligible studies will include as outcomes the views and experiences (including acceptability, barriers an facilitators) of: – Managers receiving the interventions – Employees who will interact with managers – Employers – Those delivering the interventions
12a	**Timing**	**Timing and measures:** <u>Quantitative</u> We will consider outcomes at any follow up. Priority will be given to the longest follow up time for an outcome.

		For interventions with a defined period of delivery (for example a training programme), the follow up period refers to the length of time since the delivery of the intervention was completed. For ongoing interventions with no specific completion point (for example the implementation of a new policy), the follow up period refers to the length of time since the intervention was implemented. Qualitative We will consider outcomes at any time point following implementation.
13.	**Secondary outcomes (important outcomes)** (200 words) As above a separate entry for the timing and measures of these additional outcomes (200 words)	Quantitative • Patient and public safety • Employee retention • Methods and levels of employee consultation and participation • Incidence of discrimination, ill-treatment • De-stigmatisation • Adherence to mental wellbeing policies • Mental health literacy, such as knowledge and awareness about mental wellbeing • Adverse effects or unintended consequences • Implementation of mental wellbeing policies Qualitative Not applicable
14.	**Data extraction (selection and coding)** (300 words)	All references identified by the searches and from other sources will be uploaded into EPPI-R5 and de-duplicated. This review will use the EPPI-R5 priority screening functionality. At least 60%-70% of the identified abstracts will be screened. After this point,

		screening will only be terminated if a pre-specified threshold is met for a number of abstracts being screened without a single new include being identified. This threshold is set according to the expected proportion of includes in the review (with reviews with a lower proportion of includes needing a higher number of papers without an identified study to justify termination) and is always a minimum of 250 A random 10% sample of the studies remaining in the database when the threshold is met will be additionally screened, to check if a substantial number of relevant studies are not being correctly classified by the algorithm, with the full database being screened if concerns are identified 10% of the abstracts will be reviewed by two reviewers, with any disagreements resolved by discussion or, if necessary, a third independent reviewer. The full text of potentially eligible studies will be retrieved and will be assessed in line with the criteria outlined above. A standardised EPPI-R5 template will be used when extracting data from studies (this is consistent with the Developing NICE guidelines: the manual section 6.4). Details of the intervention will be extracted using the TIDieR checklist in EPPI-R5. Outcome data will be extracted into EPPI-R5 as reported in the full text. Study investigators may be contacted for missing data where time and resources allow.
15.	**Risk of bias (quality) assessment** (200 words)	Risk of bias will be assessed using the appropriate preferred checklist as described in Developing NICE guidelines: the manual.

		For randomised controlled trials we will use Cochrane Risk of Bias Tool 2.0. For non- randomised controlled trials we will use the ROBINS-I tool
16.	**Strategy for data synthesis** (300 words)	Quantitative Studies will be grouped according to the type of intervention as appropriate. It is anticipated that the studies included will be heterogenous with respect to study designs, settings, interventions and outcomes. As a result, we expect that we will not be able to pool studies statistically and therefore we anticipate that findings will be synthesised narratively. Findings will be presented in a narrative format with sufficient information to make judgements about study effectiveness. Tables and other forms of visual presentation may be used to summarise data where appropriate. In the event that meta-analysis is appropriate, the data will be pooled within the categories above using a random effects model to allow for the anticipated heterogeneity. • Dichotomous data will be pooled where appropriate and the effect size will be reported using risk ratios in a standard pair-wise meta-analysis. • Continuous outcomes reported on the same scale will be pooled in a standard pair-wise meta-analysis using mean difference where possible. • Continuous outcomes not reported on the same scale will be pooled using a standardised mean difference in a standard pair-wise meta-analysis. Methods for pooling cluster randomised controlled trials will be considered where appropriate. Unit of analysis issues will be dealt with according to the methods outlined in the Cochrane Handbook.

		Unexplained heterogeneity will be examined where appropriate with a sensitivity analysis based on risk of bias. Where appropriate, the quality or certainty across all available evidence will be evaluated for each outcome using an the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group http://www.gradeworkinggroup.org/ Qualitative The key themes from the studies will be categorised into themes relevant to the review across all studies using a thematic analysis. Supporting quotations and summaries of data will be included. Where possible we will categorise groups views and experiences relating to acceptability into the following categories: • affective attitude (how the participant feels about the intervention) • burden (perceptions about the amount effort required to participate) • perceived effectiveness • ethicality (whether the intervention fits within the participant's value system) • intervention coherence (whether the participant understands the intervention) • opportunity costs for engaging • self-efficacy to participate The quality or certainty across all available evidence will be evaluated for each outcome using the GRADE CERQual approach. Integration of data As we have included different types of data from different sources as follows:

		• Quantitative
		  ○ effectiveness data from intervention studies
		• Qualitative
		  ○ View and experiences data related to interventions
		
		An inductive convergent segregated approach will be undertaken to combine findings from each review. Where possible qualitative and quantitative data will be integrated using tables.
		
		Where quantitative and qualitative data comes from
		• the same study, the technical team will present the qualitative analytical themes next to quantitative effectiveness data for the committee to discuss.
		• different studies, the committee will be asked to interpret both sets of finding using a matrix approach for the committee discussion section.

17.	**Analysis of sub-groups** (250 words)	<u>Quantitative</u> Where evidence allows, subgroup analyses will be conducted. The following factors will be explored in any subgroup analyses: – Gender – Age – Employee disability – Socioeconomic status (e.g. type of industry: manual, semi-skilled, skilled) – Work sector (voluntary, public, private) – Organisation size (micro, small, medium and large) – Manager experience – Other groups for consideration listed in the EIA <u>Qualitative</u> Not applicable

18.	**Type of method of review**	Intervention
19.	**Language**	English
20.	**Country**	England

1

2

3

Appendix B – Literature search strategies

Database name: MEDLINE ALL

Ovid MEDLINE(R) ALL <1946 to November 27, 2019>

Search Strategy:

---

1 exp Occupational Stress/ (12210)

2 "Burnout, Professional"/ (11097)

3 Job Satisfaction/ (24227)

4 "job satisfaction".ti,ab. (8115)

5 (satisf* adj3 (work* or job*)).ti,ab. (11804)

6 work engagement/ (268)

7 (engage* adj3 (work* or job*)).ti,ab. (4632)

8 ((motivation or motivated) adj3 (work* or job*)).ti,ab. (2482)

9 or/1-8 (44936)

10 Absenteeism/ (8888)

11 absenteeism.ti,ab. (5473)

12 Presenteeism/ (259)

13 presenteeism.ti,ab. (1058)

14 Work Performance/ (716)

15 (work adj3 performance).ti,ab. (4840)

16 (job adj3 performance).ti,ab. (1826)

17 or/10-16 (18716)

18 wellbeing.ti,ab. (14101)

19 "well-being".ti,ab. (70539)

20 Mental Health/ (35700)

21 mental*.ti,ab. (336910)

22 Resilience, Psychological/ (5045)

23 Adaptation, Psychological/ (91995)

24 psych*.ti,ab. (782656)

25 or/18-24 (1118787)

26 17 and 25 (3957)

27 wellbeing.ti. (2658)

28 "well-being".ti. (12299)

29 exp *Stress, Psychological/ (80371)

30 stress.ti. (220203)

31 burnout.ti. (5697)

32 exp *Fatigue/ (15333)

33 fatigue*.ti. (25455)

34 tired*.ti. (581)

35 *Depression/ (68937)

36 (depression or depressed).ti. (106831)

37 *Anxiety/ (39891)

38 anxiety.ti. (47931)

39 *"Sleep Initiation and Maintenance Disorders"/ or *Sleep/ or *"Sleep Deprivation"/ (44654)

40 insomnia.ti. (6758)

41 sleep.ti. (85871)

42 productivity.ti. (9274)

43 exp *Efficiency/ (13386)

44 (confidence not "confidence interval*").ti. (5174)

45 *self concept/ (24625)

46 *self efficacy/ (7866)

47 "self esteem".ti. (4036)

48 (mental adj9 (literacy or knowledge or attitude* or awareness or communicat* or skill* or competen* or uptake or "take-up")).ti. (2886)

49 ("quality of life" or "quality adjusted life" or qaly* or qald* or qale* or qtime*).ti. (66024)

50 *Quality of Life/ or *Quality-Adjusted Life Years/ (86097)

51 or/27-50 (714521)

52 employment/ or employment, supported/ (46007)

53 (employee* or employment or employed).ti,ab,jw. (409350)

54 Workplace/ (21696)

55 (work or worker* or workload*).ti,ab,jw. (1089406)

56 (workplace* or worksite*).ti,ab,jw. (41474)

57 occupational.ti,ab,jw. (162851)

58 (job or jobs).ti,ab,jw. (59058)

59 (organi?ations or organi?ational or company or companies or corporation*).ti,ab,jw. (182856)

60 personnel.ti,ab,jw. (70639)

61 exp occupational groups/ (582779)

62 profession*.ti,jw. (88636)

63 (staff or staffing).ti,ab,jw. (156931)

64 (colleague* or coworker*).ti,ab,jw. (36316)

65 "Occupational Diseases"/ (82525)

66 Job Satisfaction/ (24227)

67 Occupational Health/ (32403)

68 Occupational Health Services/ (10461)

69 "Personnel Staffing and Scheduling"/ (16823)

70 "Organizational Culture"/ (16981)

71 or/52-70 (2411691)

72 51 and 71 (103094)

73 wellbeing.ti,ab. (14101)

74 "well-being".ti,ab. (70539)

75 exp Stress, Psychological/ (126254)

76 stress.ti,ab. (697607)

77 burnout.ti,ab. (10098)

78 exp Fatigue/ (29157)

79 fatigue*.ti,ab. (90010)

80 tired*.ti,ab. (5537)

81 Depression/ (113329)

82 (depression or depressed).ti,ab. (372857)

83 Anxiety/ (77344)

84 anxiety.ti,ab. (178055)

85 "Sleep Initiation and Maintenance Disorders"/ or Sleep/ or "Sleep Deprivation"/ (67186)

86 insomnia.ti,ab. (19444)

87 sleep.ti,ab. (155689)

88 productivity.ti,ab. (54789)

89 exp Efficiency/ (34558)

90 (confidence not "confidence interval*").ti,ab. (70839)

91 self concept/ (55303)

92 self efficacy/ (19258)

93 "self esteem".ti,ab. (19848)

94 (mental adj9 (literacy or knowledge or attitude* or awareness or communicat* or skill* or competen* or uptake or "take-up")).ti,ab. (12768)

95 ("quality of life" or "quality adjusted life" or qaly* or qald* or qale* or qtime*).ti,ab. (261257)

96 Quality of Life/ or Quality-Adjusted Life Years/ (194169)

97 or/73-96 (1923289)

98 *employment/ or *employment, supported/ (25579)

99 (employee* or employment or employed).ti,jw. (25336)

100 *Workplace/ (10847)

101 (work or worker* or workload*).ti,jw. (157895)

102 (workplace* or worksite*).ti,jw. (13038)

103 occupational.ti,jw. (104324)

104 (job or jobs).ti,jw. (14929)

105 (organi?ations or organi?ational or company or companies or corporation*).ti,jw. (27925)

106 personnel.ti,jw. (17328)

107 exp *occupational groups/ (423598)

108 profession*.ti,jw. (88636)

109 (staff or staffing).ti,jw. (30461)

110 (colleague* or coworker*).ti,jw. (2609)

111 *"Occupational Diseases"/ (68659)

112 *Job Satisfaction/ (11348)

113 *Occupational Health/ (23490)

114 *Occupational Health Services/ (7783)

115 *"Personnel Staffing and Scheduling"/ (9688)

116 *"Organizational Culture"/ (5349)

117 or/98-116 (836219)

118 97 and 117 (103483)

119 9 or 26 or 72 or 118 (186369)

120 randomized controlled trial.pt. (495256)

121 randomi?ed.mp. (848189)

122 placebo.mp. (209564)

123 intervention.ti,ab. (563261)

124 interventions.ti,ab. (425973)

125 program.ti,ab. (420235)

126 programme.ti,ab. (92383)

127 trial.ti,ab. (566779)

128 or/120-127 (2235608)

129 119 and 128 (40154)

130 limit 129 to english language (38334)

131 limit 130 to (comment or congress or consensus development conference or consensus development conference, nih or editorial or letter or news) (312)

132 130 not 131 (38022)

133 Animals/ not (Humans/ and Animals/) (4613687)

134 132 not 133 (37817)

135 afghanistan/ or exp "africa, northern"/ or exp "africa, central"/ or exp "africa, eastern"/ or angola/ or botswana/ or lesotho/ or malawi/ or mozambique/ or namibia/ or swaziland/ or zambia/ or zimbabwe/ or exp "africa, western"/ or albania/ or andorra/ or antarctic regions/ or argentina/ or exp asia, central/ or exp asia, northern/ or exp asia, southeastern/ or exp atlantic islands/ or bahrain/ or bangladesh/ or Bhutan/ or bolivia/ or borneo/ or "bosnia and Herzegovina"/ or bulgaria/ or exp central america/ or colombia/ or "Commonwealth of Independent States"/ or croatia/ or "Democratic People's Republic of Korea"/ or ecuador/ or gibraltar/ or guyana/ or indonesia/ or iran/ or iraq/ or jordan/ or kosovo/ or kuwait/ or lebanon/ or liechtenstein/ or macau/ or "macedonia (republic)"/ or exp melanesia/ or moldova/ or monaco/ or mongolia/ or montenegro/ or nepal/ or Netherlands Antilles/ or New Guinea/ or oman/ or pakistan/ or paraguay/ or peru/ or philippines/ or qatar/ or "republic of Belarus"/ or romania/ or saudi arabia/ or serbia/ or sri lanka/ or suriname/ or syria/ or taiwan/ or exp transcaucasia/ or ukraine/ or uruguay/ or united arab emirates/ or exp ussr/ or venezuela/ or yemen/ (626180)

136 "Organisation for Economic Co-Operation and Development"/ (215)

137 oecd*.ti,ab. (3994)

138 "Organisation for Economic Co-operation and Development".ti,ab. (618)

139 "Organisation for Economic Cooperation and Development".ti,ab. (154)

140 "Organization for Economic Co-operation and Development".ti,ab. (299)

141 "Organization for Economic Cooperation and Development".ti,ab. (562)

142 (BRIC or BRICS).ti,ab. (536)

143 australasia/ or exp australia/ or austria/ or exp Baltic States/ or belgium/ or exp canada/ or chile/ or czech republic/ or europe/ or exp france/ or exp germany/ or greece/ or hungary/ or ireland/ or Israel/ or exp italy/ or exp japan/ or korea/ or luxembourg/ or mexico/ or netherlands/ or new zealand/ or north america/ or poland/ or portugal/ or exp "republic of korea"/ or exp "Scandinavian and Nordic Countries"/ or slovakia/ or slovenia/ or spain/ or switzerland/ or turkey/ or exp united kingdom/ or exp united states/ or Brazil/ or exp Russia/ or exp India/ or exp China/ or South Africa/ (3492300)

144 European Union/ (15721)

145 Developed Countries/ (20307)

146 or/136-145 (3509293)

147 135 not (135 and 146) (518413)

148 134 not 147 (36146)

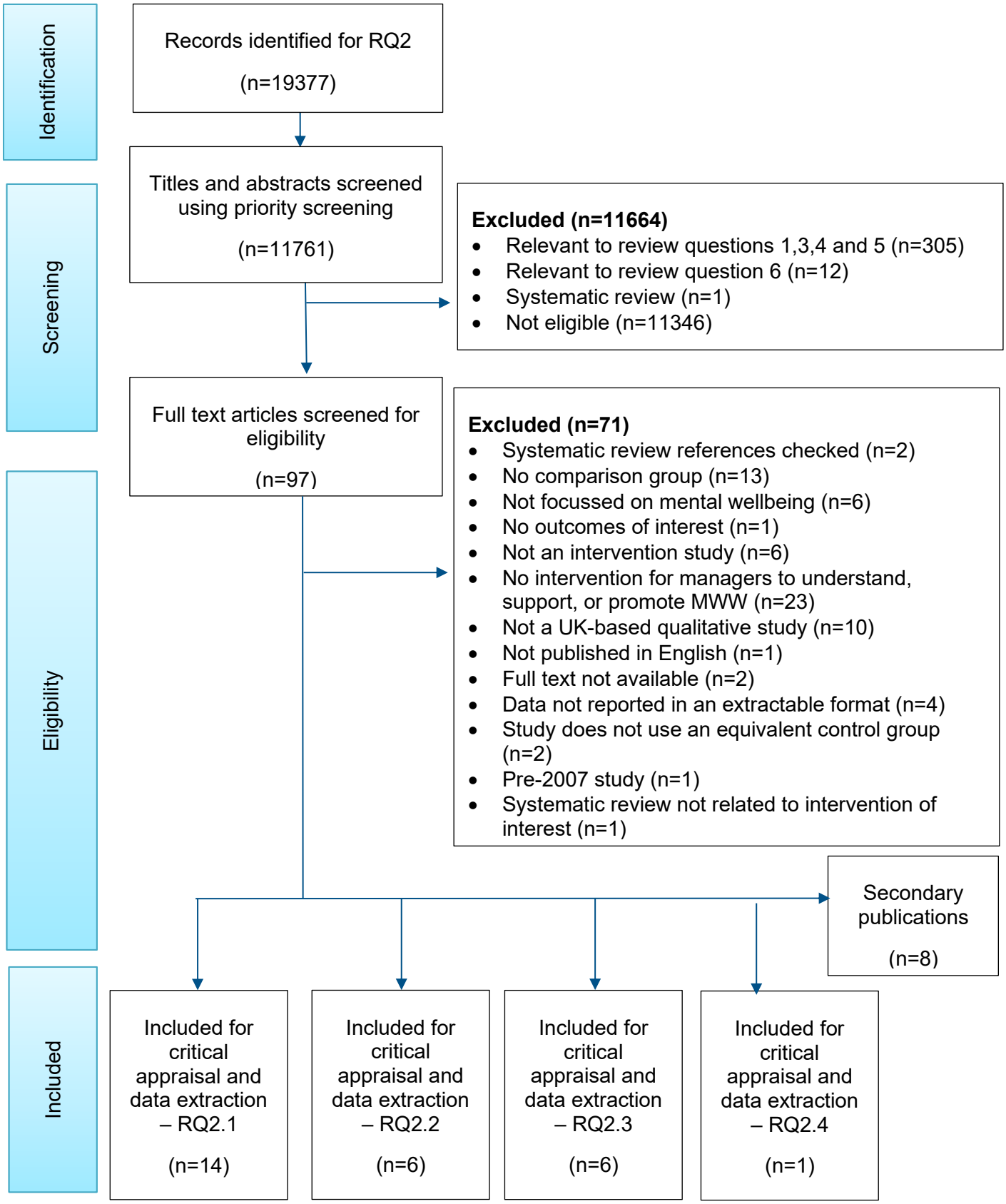
149 limit 148 to yr="2007 -Current" (26917)

150 (manage* or supervis* or "team leader*" or "line leader*").ti,ab. (1277713)

151 149 and 150 (5808)

152 149 not 150 (21109)

Appendix C – Effectiveness evidence study selection



Appendix D – Effectiveness evidence

D.1 Angelo, 2013

Angelo, 2018

Bibliographic Reference	Angelo, Rui-Pedro; Chambel, Maria-Jose; An intervention with firefighters to promote psychological occupational health according to the Job Demands-Resources Model.; Revista de Psicologia Social; 2013; vol. 28 (no. 2); 197-210

Study details

Study design	Non-Randomised Controlled Trial
Trial registration number	Not reported
Study start date	Apr-2009
Study end date	Sep-2009
Aim	The aim of this study is to analyse the effects of an intervention program to promote job resources (social support), and consequently firefighters psychological well-being (decrease burnout and increase engagement).
Country/geographical location	Portugal
Setting	Training school: • Sector: Public • Industry: Emergency services • Organisation size: Medium • Contract type: not reported • Seniority: managers

	• Income: Not reported
Inclusion criteria	Supervisory role
Exclusion criteria	None reported
Method of randomisation	Not applicable
Method of allocation concealment	Not applicable
Unit of allocation	Territorial district unit
Unit of analysis	Individual (employee)
Statistical method(s) used to analyse the data	Mann–Whitney U test was used to evaluate the scores at both pre-and post-interventions. A further repeated measure analysis of variance (ANOVA) was performed to test whether significant differences were due to time or to interventions.
Attrition	All participants provided data at last follow up
Study limitations (author)	• Population was not representative of the general working population (firefighters of an organization) • This study was based on a small sample size. • Not direct access to objective measures of job demands. • Absence of physiological measures to analyse stress levels objectively.
Study limitations (reviewer)	• ICC was not reported in the study
Source of funding	None reported

Study arms

Stress management (N = 67)

Wait list (N = 47)

Characteristics

Study-level characteristics

Characteristic	Study (N = 104)
Age Mean (SD)	27.36 (NR)
Male Nominal	100
Female Nominal	4

Outcomes

Study timepoints

- Baseline
- 3 month (After the intervention was completed)

Outcomes

Outcome	Stress management, Baseline, N = 67	Stress management, 3 month, N = 67	Wait list, Baseline, N = 37	Wait list, 3 month, N = 37
Job Stress Reported as emotional exhaustion (MBI) Mean (SD)	1.9 (1.38)	2.03 (1.46)	1.45 (1.18)	1.84 (1.56)
Work engagement Reported as dedication using Utrecht Work Engagement Scale	5.24 (0.85)	5.32 (0.76)	5.4 (0.76)	5.28 (0.79)

Outcome	Stress management, Baseline, N = 67	Stress management, 3 month, N = 67	Wait list, Baseline, N = 37	Wait list, 3 month, N = 37
Mean (SD)				

Job Stress - Polarity - Lower values are better
Work engagement - Polarity - Higher values are better

Critical appraisal - ROBINS-I

Job Stress --Stress management vs Wait list (4 month follow-up)

Section	Question	Answer
1. Bias due to confounding	Risk of bias judgement for confounding	Low
2. Bias in selection of participants into the study	Risk of bias judgement for selection of participants into the study	Low
3. Bias in classification of interventions	Risk of bias judgement for classification of interventions	Low
4. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
5. Bias due to missing data	Risk of bias judgement for missing data	Low
6. Bias in measurement of outcomes	Risk of bias judgement for measurement of outcomes	Moderate *(Self-reported outcomes)*
7. Bias in selection of the reported result	Risk of bias judgement for selection of the reported result	Low

Section	Question	Answer
Overall bias	Risk of bias judgement	Moderate *(No information on confounding and use of self-reported outcome measures)*

Study arms

Stress management (N = 67)

Brief name	Stress management workshop [Page 200)
Rationale/theory/Goal	The Job Demand-Resource Model as the theoretical model [Abstract]
Materials used	Workshop in small group format [Page 200]
Procedures used	Participants formed mixed problem-solving teams to design and implement plans of action to manage stressful situations. These plans focused on providing support to a subordinate returning to work after experiencing a critical incident and developing positive attitudes to improve work culture. [Page 201]
Provider	Researchers [Page 200]
Method of delivery	Face to face small group format [Page 201]
Setting/location of intervention	Off site location [Page 201]
Intensity/duration of the intervention	3 days [Page 201]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Wait-list (N = 37)

Brief name	Wait list [Page 201]
Rationale/theory/Goal	Not reported
Materials used	Not reported
Procedures used	Firefighters of control group were invited to receive the same training in the following year. [Page 201]
Provider	Not reported
Method of delivery	Not reported
Setting/location of intervention	Not reported
Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

D.2 Dimoff, 2019

Dimoff, 2019

Bibliographic Reference	Dimoff, J.K.; Kelloway, E.K.; With a little help from my boss: The impact of workplace mental health training on leader behaviors and employee resource utilization; Journal of Occupational Health Psychology; 2019; vol. 24 (no. 1); 4-19

Study details

Study design	Randomised controlled trial (RCT)
Trial registration number	Not reported
Aim	To evaluate the effectiveness of a training intervention on employee resource use and on leaders' communication on mental health and on available resources.
Country/geographical location	Canada
Setting	Workplace • Sector: private • Industry: Mixed - publishing & property management • Organisation size: Medium • Contract type: not reported • Seniority: managers • Income: not reported
Inclusion criteria	Companies with less than 200 employees were included. Managers and employees spend a minimum of 10 hr per week in the same office space.
Exclusion criteria	Not reported
Method of randomisation	Not reported
Method of allocation concealment	Not reported
Unit of allocation	individual
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Two separate repeated measure multivariate analysis of variance (MANOVA) were used to test group differences on the dependent variables over three time points for managers and employees.

	ITT imputed the group mean for the individual at time 1 and afterwards time 1 data was used for following timepoint if data were missing Power calculation not reported
Attrition	From the 40 leaders; 37 responded to all three time points. In total, 82 (51.25%) employees responded to the survey at all three time points
Study limitations (author)	The quality of the pre-existing relationship between employees and their managers was not assessed. The period of investigation was relatively short.
Study limitations (reviewer)	
Source of funding	Not reported

Study arms

MHAT (N = 84)

Wait list (N = 35)

Characteristics

Arm-level characteristics

Characteristic	**MHAT (N = 84)**	**Wait list (N = 35)**
Age	42.58 (8.82)	44 (10.77)

Characteristic	MHAT (N = 84)	Wait list (N = 35)
Mean (SD)		
Male Nominal	15	9
Female Nominal	9	4

Outcomes

Study timepoints

Baseline

3 month (After the intervention)

Outcomes

Outcome	MHAT, Baseline, N = 84	MHAT, 3 month, N = 84	Wait list, Baseline, N = 35	Wait list, 3 month, N = 35
Uptake of support services Reported as employee resource use Sample size	n = 84 ; % = 100	n = 60 ; % = 71.4	n = 35 ; % = 100	n = 22 ; % = 62.9
Uptake of support services Reported as employee resource use Mean (SD)	1.55 (0.81)	2.2 (0.68)	1.73 (0.83)	1.32 (0.57)

Outcome	MHAT, Baseline, N = 84	MHAT, 3 month, N = 84	Wait list, Baseline, N = 35	Wait list, 3 month, N = 35
De-stigmatisation Reported using Measured using a modified version of the 9-item Personal Depression Stigma Scale Sample size	n = 40	n = 24	n = 20	n = 13
De-stigmatisation Reported using Measured using a modified version of the 9-item Personal Depression Stigma Scale Mean (SD)	1.89 (0.33)	1.77 (0.44)	1.88 (0.41)	1.9 (0.36)
Awareness of support services and communication skills Using a six-item behavioural checklist to rate their behaviors related to resource promotion and communication about mental health at work Sample size	n = 40	n = 24	n = 20	n = 13
Awareness of support services and communication skills Using a six-item behavioural checklist to rate their behaviors related to resource promotion and communication about mental health at work Mean (SD)	1.55 (0.56)	2.61 (0.87)	1.54 (0.55)	1.6 (0.54)
Confidence identifying employees experiencing or at risk of poor mental well-being Using the 20-item Signs of Struggle scale [SOS] Sample size	n = 40	n = 24	n = 20	n = 13

Outcome	MHAT, Baseline, N = 84	MHAT, 3 month, N = 84	Wait list, Baseline, N = 35	Wait list, 3 month, N = 35
Confidence identifying employees experiencing or at risk of poor mental well-being Using the 20-item Signs of Struggle scale [SOS] Mean (SD)	1.52 (0.42)	1.83 (0.44)	1.45 (0.32)	1.52 (0.34)

Uptake of support services - Polarity - Higher values are better
De-stigmatisation - Polarity - Lower values are better
Awareness of support services and communication skills - Polarity - Higher values are better
Confidence identifying employees experiencing or at risk of poor mental well-being - Polarity - Higher values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) - RCT

Awareness of support services and communication skills - MHAT training vs Wait list (3 month follow-up)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self-reported outcomes)*

Section	Question	Answer
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Some concerns *(Self-reported outcomes)*
Overall bias and Directness	Risk of bias judgement	Low

Uptake of support services - MHAT vs Wait list (3 month follow-up)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self-reported outcomes)*
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Some concerns *(Self-reported outcomes)*
Overall bias and Directness	Risk of bias judgement	Low

De-stigmatisation - MHAT vs Wait list (3 month follow-up)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self-reported outcomes)*
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Some concerns *(Self-reported outcomes)*
Overall bias and Directness	Risk of bias judgement	Low

Confidence identifying employees experiencing or at risk of poor mental well-being - MHAT vs Wait list (3 month follow-up)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low

Section	Question	Answer
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self-reported outcomes)*
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Some concerns *(Self-reported outcomes)*
Overall bias and Directness	Risk of bias judgement	Low

Study arms

MHAT (N = 84)

Brief name	Mental health awareness training (MHAT) [Page 6]
Rationale/theory/Goal	Based on the resource-utilization model (RUM) as a theoretical framework: focused on early recognition & resource utilization process. [Page 6]
Materials used	Lecture based modules and interactive case studies and videos. A checklist tool (Signs of Struggle scale was also provided and participants also received a training binder that included lecture slides and information about organizational resources. [Page 6]
Procedures used	A training program to provide leaders with the skills and confidence to engage in the resource utilization process and support employees who are struggling via (a) early recognition of warning signs, (b) identification of resources, (c) appropriate engagement or action, and (d) ongoing monitoring or evaluation. [Page 6]
Provider	Not reported
Method of delivery	Face to face [Page 6]
Setting/location of intervention	Not reported

Intensity/duration of the intervention	3 hours in 1 session [Page 6]
Tailoring/adaptation	None reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Wait list (N = 35)

Brief name	Wait list [Abstract]
Rationale/theory/Goal	Not applicable
Materials used	Not applicable
Procedures used	Intervention was not provided to the control group participated in the training until data collection was complete. {Page 7]
Provider	Not applicable
Method of delivery	Not applicable
Setting/location of intervention	Not applicable
Intensity/duration of the intervention	Not applicable
Tailoring/adaptation	Not applicable
Unforeseen modifications	Not applicable
Planned treatment fidelity	Not applicable

Actual treatment fidelity	Not applicable
Other details	

D.3 Dimoff, 2016

Dimoff, 2016

Bibliographic Reference	Dimoff, Jennifer K; Kelloway, E. Kevin; Burnstein, Matthew D; Mental health awareness training (MHAT): The development and evaluation of an intervention for workplace leaders. [STUDY B]; International Journal of Stress Management; 2016; vol. 23 (no. 2); 167-189

Study details

Study design	Randomised controlled trial (RCT)
Trial registration number	Not reported
Aim	As a replication of study A in same publication
Country/geographical location	Canada
Setting	Workplace • Sector: Private • Industry: Telecommunications • Organisation size: Large • Contract type: not reported • Seniority: managers • Income: not reported

Inclusion criteria	Line management of at least 1 employee
Exclusion criteria	Not reported
Method of randomisation	Block randomisation
Method of allocation concealment	Not reported
Unit of allocation	Individual
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Power calculation: not reported Intention to treat: not reported
Attrition	88 out of 114 (77.2%) in the intervention group and 54 out of 69 (78.3%) in the control group provided data at all timepoints
Study limitations (author)	Lack of objective outcome data Data from a single source
Study limitations (reviewer)	Lack of detail on randomisation and analysis
Source of funding	None reported

Study arms

MHAT (N = 114)

Wait-list (N = 69)

Characteristics

Study-level characteristics

Characteristic	Study (N = 183)
Age Completers only Mean (SD)	44.79 (7.52)
Female Nominal	77
Male Nominal	65
Tenure with organisation (years) Mean (SD)	12.32 (10.3)

Outcomes

Study timepoints

- 8 week (After the intervention)

Outcomes

Outcome	MHAT, 8 week, N = 114	Wait-list, 8 week, N = 69
Manager mental health knowledge Sample size	n = 88 ; % = 77.2	n = 54 ; % = 78.3
Manager mental health knowledge Mean (SD)	4.32 (0.4)	3.85 (0.37)

Outcome	MHAT, 8 week, N = 114	Wait-list, 8 week, N = 69
Manager attitudes Using the Personal Depression Stigma Scale Sample size	n = 88 ; % = 77.2	n = 54 ; % = 78.3
Manager attitudes Using the Personal Depression Stigma Scale Mean (SD)	3.2 (0.42)	3 (0.33)

Manager mental health knowledge - Polarity - Higher values are better
Manager attitudes - Polarity - Higher values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) - RCT

Outcomes-Managermentalhealthknowledge-MeanSD-MHAT-Wait-list-t8

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Low

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self-reported outcomes)*

Study arms

Stress management workshop (N = 0)

Brief name	Mental health awareness training (MHAT) [Title]
Rationale/theory/Goal	The aim was to educate leaders about • the warning signs associated with acute stress and chronic strain, • the negative consequences of strain and other mental health problems, • the role of leaders as sources of support for struggling employees. • improve leaders' self-efficacy and promotion intentions surrounding employee mental health. [Page 171]
Materials used	Lectures and case studies [Page 171]
Procedures used	All training sessions were three hours in length, identical in content, and were facilitated by the same facilitator. [Page 171]
Provider	Graduate student with a background in occupational health and safety interventions. [Page 171]
Method of delivery	Face to face [Page 171]
Setting/location of intervention	Workplace [Page 172]
Intensity/duration of the intervention	A single 3 hours session [Page 171]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported

Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Wait-list (N = 0)

Brief name	Wait list [Abstract]
Rationale/theory/Goal	Not reported
Materials used	Not reported
Procedures used	Participants assigned to the waitlist control group did not take part in the training until after the conclusion of the study. [Page 170]
Provider	Not reported
Method of delivery	Not reported
Setting/location of intervention	Not reported
Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

D.4 Dimoff, 2016

Dimoff, 2016

Bibliographic Reference	Dimoff, Jennifer K; Kelloway, E. Kevin; Burnstein, Matthew D; Mental health awareness training (MHAT): The development and evaluation of an intervention for workplace leaders. [STUDY A]; International Journal of Stress Management; 2016; vol. 23 (no. 2); 167-189

Study details

Study design	Randomised controlled trial (RCT)
Trial registration number	Not reported
Aim	To assess the effectiveness of a group training intervention to improve leaders' mental health literacy
Country/geographical location	Canada
Setting	Workplace • Sector: public • Industry: Education • Organisation size: not reported • Contract type: not reported • Seniority: managers • Income: not reported
Inclusion criteria	Managers with line-management responsibility at the time of training
Exclusion criteria	Not reported
Method of randomisation	Not reported

Method of allocation concealment	Not reported
Unit of allocation	Individual
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Power calculation: not reported Intention to treat: not reported
Attrition	22 out of 30 (73.3%) in the intervention group and 21 out of 29 (72.4%) in the control group provided data at all timepoints
Study limitations (author)	Lack of objective outcome data Data from a single source
Study limitations (reviewer)	Lack of detail on randomization and analyses methods
Source of funding	None reported

Study arms

MHAT (N = 30)

Wait list (N = 29)

Characteristics

Study-level characteristics

Characteristic	**Study (N = 59)**
Age Mean (SD)	49.24 (8.64)
Female	27

Characteristic	Study (N = 59)
Nominal	
Male Nominal	16
Tenure with organisation (years) Mean (SD)	12.51 (10.3)

Outcomes

Study timepoints

- 8 week

Outcomes

Outcome	MHAT, 8 week, N = 30	Wait list, 8 week, N = 29
Manager mental health literacy reported as leaders' knowledge (Mental Health Knowledge Schedule) Sample size	n = 22 ; % = 73.3	n = 21 ; % = 72.4
Manager mental health literacy reported as leaders' knowledge (Mental Health Knowledge Schedule) Mean (SD)	4.53 (0.3)	3.9 (0.36)
Manager attitudes Using Personal Depression Stigma Scale Sample size	n = 22 ; % = 73.3	n = 21 ; % = 72.4

Outcome	MHAT, 8 week, N = 30	Wait list, 8 week, N = 29
Manager attitudes Using Personal Depression Stigma Scale Mean (SD)	3.48 (0.22)	3.3 (0.33)

Manager mental health literacy - Polarity - Higher values are better
Manager attitudes - Polarity - Higher values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) - RCT

Manager mental health literacy- MHAT vs Wait list (8 weeks follow-up)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self-reported outcomes)*
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self-reported outcomes)*

Manager attitudes - MHAT vs Wait list (8 weeks follow-up)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self-reported outcomes)*
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self-reported outcomes)*

Study arms

MHAT (N = 30)

Brief name	Mental health awareness training (MHAT) [Title]
Rationale/theory/Goal	The aim was to educate leaders about • the warning signs associated with acute stress and chronic strain, • the negative consequences of strain and other mental health problems, • the role of leaders as sources of support for struggling employees.

	• improve leaders' self-efficacy and promotion intentions surrounding employee mental health. [Page 171]
Materials used	Lectures and case studies [Page 171]
Procedures used	All training sessions were three hours in length, identical in content, and were facilitated by the same facilitator. [Page 171]
Provider	Graduate student with a background in occupational health and safety interventions. [Page 171]
Method of delivery	Face to face [Page 171]
Setting/location of intervention	Workplace [Page 172]
Intensity/duration of the intervention	A single 3 hours session [Page 171]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Wait list (N = 29)

Brief name	Wait list [Abstract]
Rationale/theory/Goal	Not reported
Materials used	Not reported
Procedures used	participants assigned to the waitlist control group did not take part in the training until after the conclusion of the study. [Page 170]
Provider	Not reported

Method of delivery	Not reported
Setting/location of intervention	Not reported
Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

D.5 Elo, 2014

Elo, 2014

Bibliographic Reference	Elo, Anna-Liisa; Ervasti, Jenni; Kuosma, Eeva; Mattila-Holappa, Pauliina; Effect of a leadership intervention on subordinate well-being.; Journal of Management Development; 2014; vol. 33 (no. 3); 182-195

Study details

Study design	Non-randomised controlled trial (NRCT)
Trial registration number	Not reported
Aim	To examine whether a personal growth- oriented leadership intervention among line supervisors improves their subordinates' perceptions of the psychosocial work environment, leadership and well-being.

Country/geographical location	Finland
Setting	Workplace • Sector: Public • Industry: Construction • Organisation size: not reported • Contract type: not reported • Seniority: managers • Income: Not reported
Inclusion criteria	Participants whose supervisors were present in the intervention sessions for at least 6.5 of 7.5 days. Units in which all or none of the supervisors participated in the intervention could be included in the study.
Exclusion criteria	Not reported
Unit of allocation	Individual
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Analysis of variance for repeated measures and analysis of covariance for repeated measures were conducted. Adjusted analyses were also conducted for statistically significant results defined as $p \leq 0.05$. (adjusting for age, gender, basic education, type of work, and the number of days the subordinates themselves had participated in the organization's stress management programme).
Attrition	Not provided. In total, 145 responded to questionnaires; 49 subordinates in the intervention group and 96 subordinates in the control group.
Study limitations (author)	• Poorer pre- intervention level of several outcome variables in the intervention group than in the control group. • Only pre and post-test measurement were carried out. • We did not adjust this study for cluster effect (no number of units provided, no information for ICC).
Study limitations (reviewer)	None to add
Source of funding	Not reported

Study arms

Leadership intervention (N = 49)
8 supervisors, of 49 employees, received the intervention

No intervention (N = 96)
32 supervisors, of 96 employees, received the intervention

Characteristics

Arm-level characteristics

Characteristic	Leadership intervention (N = 49)	No intervention (N = 96)
Age Mean (SD)	44.7 (9)	43.9 (10.7)
Male Sample size	n = 33 ; % = 67	n = 81 ; % = 84
Female Sample size	n = 16 ; % = 33	n = 15 ; % = 16

Outcomes

Study timepoints

- Baseline
- 2 year

Employee outcomes

Outcome	Leadership intervention, Baseline, N = 49	Leadership intervention, 2 year, N = 49	No intervention, Baseline, N = 96	No intervention, 2 year, N = 96
Job stress Using Maslach Burnout Inventory - Emotional exhaustion Mean (SD)	2.29 (1.48)	2.4 (1.56)	1.63 (1.16)	1.56 (1.22)

Job stress - Polarity - Lower values are better

Critical appraisal - ROBINS-I

Job stress - Leadership intervention vs Control (2 years follow-up)

Section	Question	Answer
1. Bias due to confounding	Risk of bias judgement for confounding	Low
2. Bias in selection of participants into the study	Risk of bias judgement for selection of participants into the study	Low
3. Bias in classification of interventions	Risk of bias judgement for classification of interventions	Low
4. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
5. Bias due to missing data	Risk of bias judgement for missing data	Low
6. Bias in measurement of outcomes	Risk of bias judgement for measurement of outcomes	Moderate *(Self-reported outcomes)*
7. Bias in selection of the reported result	Risk of bias judgement for selection of the reported result	Low
Overall bias	Risk of bias judgement	Moderate *(Self-reported outcome)*

Study arms

Leadership intervention (N = 49)

Brief name	Leadership intervention [Page 184]
Rationale/theory/Goal	Based on humanistic psychology tradition and psychodynamic approaches of being aware and accepting one's personality characteristics and tolerating the styles and behaviours of others [Page 184]
Materials used	Group sessions [Page 186], lectures, meetings, and work conferences, {page 185]
Procedures used	The personal growth type leadership intervention of this study was implemented as part of an organizational stress management programme in a public sector construction organization. The programme was developed in collaboration with the management, HRD, consultants, researchers, and representatives of the supervisors and employees. [Page 184]
Provider	2 experienced external process consultants [Page 186]
Method of delivery	Face to face group sessions [Page 185]
Setting/location of intervention	Residential course but setting not specified [Page 185]
Intensity/duration of the intervention	7.5 days in 1 to 3 sessions over 6 months [Page 185]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

No intervention (N = 96)

Brief name	no intervention [Page 185]

Rationale/theory/Goal	Not reported
Materials used	Not reported
Procedures used	Not reported
Provider	Not reported
Method of delivery	Not reported
Setting/location of intervention	Not reported
Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported
Other details	

D.6 Gayed, 2019

Gayed, 2019

Bibliographic Reference	Gayed, Aimee; Bryan, Bridget T; LaMontagne, Anthony D; Milner, Allison; Deady, Mark; Calvo, Rafael A; Mackinnon, Andrew; Christensen, Helen; Mykletun, Arnstein; Glozier, Nicholas; Harvey, Samuel B; A Cluster Randomized Controlled Trial to Evaluate HeadCoach: An Online Mental Health Training Program for Workplace Managers.; Journal of occupational and environmental medicine; 2019; vol. 61 (no. 7); 545-551

Study details

Study design	Cluster randomised controlled trial
Trial registration number	Australian and New Zealand Clinical Trials Registry ACTRN12617000279325
Aim	To test the effectiveness of HeadCoach to improve managers' confidence in implementing evidence-based responsive and preventive managerial techniques to create a mentally healthy workplace.
Country/geographical location	Australia
Setting	Workplace • Sector: Public and Private • Industry: Healthcare and construction • Organisation size: Large • Contract type: not reported • Seniority: managers • Income: not reported
Inclusion criteria	• 18 years or older; • currently residing in Australia; • have good English comprehension; and • be a current employee of one of the three collaborating industry partners • participants in the manager group must supervise a team of three or more employees.
Exclusion criteria	Not reported
Method of randomisation	Computer-generated randomisation

Method of allocation concealment	Independent researcher
Unit of allocation	Individual
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Power calculation based on pilot data, assuming conservative participation rate of 20% of all managers, with a drop-out rate of 25%, a minimum of 168 managers and to successfully follow up 126 were needed Intention to treat using mixed-model repeated measures. Clustering was accommodated by a random cluster membership factor, and an unstructured variance–covariance matrix was used to accommodate the relationships between observations at different occasions of measurement. A priori planned per-protocol analyses were conducted to assess the effectiveness of the program among those who completed differing numbers of the online modules compared with the waitlist control group
Attrition	40 out of 104 managers and 70 out of 167 employees in the intervention group and 78 out of 125 managers and 103 out of 224 employees provided data at follow-up.
Study limitations (author)	• Follow-up may not be sufficient to allow improvement in manager behaviour • Low follow-up rate • reliance on self-report outcome measure
Study limitations (reviewer)	None to add
Source of funding	Beyondblue with support from the Movember Foundation, the icare Foundation and the Mental Health Branch of NSW Health.

Study arms

HeadCoach (N = 167)
87 managers and 167 employees

Wait-list (N = 224)
123 managers and 224 employees

Characteristics

Arm-level characteristics

Characteristic	HeadCoach (N = 167)	Wait-list (N = 224)
21–30 Sample size	n = 1 ; % = 1.2	n = 6 ; % = 4.9
31–40 Sample size	n = 19	n = 26 ; % = 29.5
41–50 Sample size	n = 24 ; % = 27.9	n = 42 ; % = 34.4
51–60 Sample size	n = 35 ; % = 40.7	n = 35 ; % = 28.7
60+ Sample size	n = 7 ; % = 8.1	n = 3 ; % = 2.5
Male Sample size	n = 71 ; % = 82.6	n = 102 ; % = 83.6
Female Sample size	n = 13 ; % = 15.1	n = 20 ; % = 16.4
Prefer not to say	n = 2 ; % = 2.3	n = 0 ; % = 0

Characteristic	HeadCoach (N = 167)	Wait-list (N = 224)
Sample size		

Outcomes

Study timepoints

- 4 month (After the intervention)

Manager outcomes

Outcome	HeadCoach vs Wait-list, 4 month, N1 = 40, N2 = 78
Skills and confidence to respond Reported as Cohen's d Custom value	0.35 (95%CI 0.08 to 0.63)

Skills and confidence to respond - Polarity - Higher values are better

Employee outcomes

Outcome	Wait-list vs HeadCoach, 4 month, N1 = 70, N2 = 103
Job stress Using Kessler Psychological Distress Scale Custom value	Reported as no difference

Job stress - Polarity - Lower values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Cluster RCT

Skills and confidence to respond - HeadCoach vs Wait-list (4 month follow-up)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low

Section	Question	Answer
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Some concerns *(High proportion of dropouts in intervention group)*
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns *(Self-reported outcomes)*
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	High *(Concerns over high dropout rate in intervention group and self-reported outcomes)*

Job stress - HeadCoach vs Wait-list (4 month follow-up)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low

Section	Question	Answer
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns *(Self-reported outcomes)*
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self-reported outcomes)*

Study arms

HeadCoach (N = 167)

Brief name	HeadCoach [Abstract]
Rationale/theory/Goal	The aim is to offer suite of both responsive and preventive strategies that offer a suite of both responsive and preventive strategies to help managers better understand and support the mental health needs of their staff. [Page 545-546]
Materials used	12 modules comprising text, activities, short videos and practical exercises. {Gayed 2018, Page 3]
Procedures used	Following completion of the online baseline questionnaire, managers in the intervention group received immediate access to the online HeadCoach manager training program. For managers in both the intervention and control groups, notification of the postquestionnaire was emailed at 6 weeks following baseline. [Page 546]
Provider	Self-guided [Gayed 2018, Page 3]
Method of delivery	Online [Gayed 2018, Page 3]

Setting/location of intervention	Not reported
Intensity/duration of the intervention	2.5 hours [Gayed 2018, Page 3]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Wait-list (N = 224)

Brief name	Wait-list [Abstract]
Rationale/theory/Goal	Not reported
Materials used	Not reported
Procedures used	Managers in the waitlist control group were provided with online access to the HeadCoach program. following completion of data collection [Gayed 2018, Page 4]
Provider	Not reported
Method of delivery	Not reported
Setting/location of intervention	Not reported
Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported

Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

D.7 Hardre, 2009

Hardre, 2009

Bibliographic Reference	Hardre, Patricia L; Reeve, Johnmarshall; Training corporate managers to adopt a more autonomy-supportive motivating style toward employees: An intervention study.; International Journal of Training and Development; 2009; vol. 13 (no. 3); 165-184

Study details

Study design	Randomised controlled trial (RCT)
Trial registration number	Not reported
Aim	To test whether a training intervention would help managers adopt a more autonomy-supportive motivating style toward employees and whether these employees would show greater autonomous motivation and workplace engagement.
Country/geographical location	US
Setting	Workplace • Sector: Private • Industry: Manufacturing / Customer service • Organisation size: Large • Contract type: not reported • Seniority: managers • Income: not reported

Inclusion criteria	Not reported
Exclusion criteria	Not reported
Method of randomisation	Not reported
Method of allocation concealment	Not reported
Unit of allocation	Individual (Manager)
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Power calculation: Not reported Intention to treat: Not reported A series of one-tailed t-tests. were conducted. One-tailed tests was used to increase each test's statistical power (because of the small sample size of managers), and because all previous training intervention studies (in the school setting) have shown this same directional effect.
Attrition	25 of 30 managers (83%) were included in the study; and 20 allocated to intervention and control conditions. Also, 241 employees who were invited to participate, 169 (70 %) participated. Of these, only 98 (58%) completed the post-test assessment.
Study limitations (author)	• small sample size • implemented training program was effective in helping managers expand their autonomy-supportive strategies to cope only with employees' controlled types of motivation (and not necessarily to identify, nurture and develop employees' autonomous types of motivation). • authors did not assess durability of the intervention • employee-engagement measure displayed relatively low interrater reliability.
Study limitations (reviewer)	Lack of detail on randomised and allocation concealment

Source of funding	Not reported

Study arms

Management training (N = 53)
10 managers and 53 employees

Wait-list (N = 45)
10 managers and 45 employees

Characteristics

Study-level characteristics

Characteristic	**Study (N = 25)**
Age Mean (SD)	53 (NR)
Male Sample size	n = 17 ; % = 68
Female Sample size	n = 8 ; % = 32
Caucasian Sample size	n = 24 ; % = 96
Not reported Sample size	n = 1 ; % = 4

Outcomes

Study timepoints

- 5 week

Employee outcomes

Outcome	Management training, 5 week, N = 53	Wait-list, 5 week, N = 45
Job satisfaction, engagement or motivation reported as engagement (4-item scale based on Miserandino's used Student Engagement Questionnaire) Mean (SD)	4.88 (0.88)	4.85 (0.56)

Job satisfaction, engagement or motivation - Polarity - Higher values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) - RCT

Employeeoutcomes-Jobsatisfaction,engagementormotivation-MeanSD-Management training-Wait-list-t5

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self report outcome measure)*
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Low

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Some concerns *(Use of self reported outcome)*

Study arms

Management training (N = 53)

Brief name	Management training [Page 172]
Rationale/theory/Goal	The aim is to nurture an employee's inner motivational resources and sense of valuing the work they do. {Page 169] and is based on self-determination theory [Page 173]
Materials used	Information booklet, information and training sessions, Q&A session [Page 173]
Procedures used	Managers were divided into small groups to discuss the strategies and their workplace application. In these small-group discussions, which were facilitated by the researchers, managers had opportunities to voice questions about the strategies and their workplace viability, relevance, application, and possible obstacles or limitations. Following this discussion, each manager received a training booklet on how to support employees' autonomy and the researchers explained how the managers might use the training booklet over the coming 5 weeks of the study. [Page 173]
Provider	Research trainer (no other details provided) [Page 174]
Method of delivery	Group as well as individual face to face [Page 173]
Setting/location of intervention	Not reported
Intensity/duration of the intervention	3 sessions (group training, QA group and individual study) over 3 weeks [Page 172]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported

Actual treatment fidelity	Not reported

Wait-list (N = 45)

Brief name	Wait-list [Page 172]
Rationale/theory/Goal	Not reported
Materials used	Not reported
Procedures used	1 week after the data collection phase of the study ended, all 13 managers in the delayed-treatment control group participated in the same workshop experience and face-to-face consultations as the managers in the experimental group. {Page 172]
Provider	Not reported
Method of delivery	Not reported
Setting/location of intervention	Not reported
Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

D.8 Jeon, 2015

Jeon, 2015

Bibliographic Reference	Jeon, Yun-Hee; Simpson, Judy M; Li, Zhicheng; Cunich, Michelle M; Thomas, Tamsin H; Chenoweth, Lynn; Kendig, Hal L; Cluster Randomized Controlled Trial of An Aged Care Specific Leadership and Management Program to Improve Work Environment, Staff Turnover, and Care Quality.; Journal of the American Medical Directors Association; 2015; vol. 16 (no. 7); 629e19-28

Study details

Study design	Cluster randomised controlled trial
Trial registration number	ACTRN12611001070921
Study start date	Feb-2011
Study end date	Aug-2013
Aim	To assess the effectiveness of an aged care specific leadership and management program in aged care.
Country/geographical location	Australia
Setting	Workplace • Sector: Public • Industry: Social care • Organisation size: Large • Contract type: not reported • Seniority: managers • Income: not reported
Inclusion criteria	Not reported

Exclusion criteria	Sites that were currently undergoing major management/structural changes were excluded
Method of randomisation	Stratified randomisation
Method of allocation concealment	Allocation was concealed. Participating managed signed confidentiality forms and research staff were blinded.
Unit of allocation	Cluster (Worksite)
Unit of analysis	Individual (Employees)
Statistical method(s) used to analyse the data	Power calculation was based on the primary outcome (care staff participants' perceived work environment). The study was designed to have 80% power to detect a difference of 0.49 standard deviations between groups as significant at the 5% level. This assumed that at least 20 of the 24 randomized clusters (sites), each with a minimum of 30 participants, would complete the study, and that the intra-cluster correlation coefficient (ICC) was 0.26 (average estimate from a nursing home staff training intervention carried out in England and Wales43) giving a design effect of 8.54 An intention- to- treat analysis was conducted. A linear regression model with a random effect to allow for clustering by site was used. The study was designed to have 80% power to detect a difference of 0.49 standard deviations between groups as significant at the 5% level. The intra-cluster correlation coefficient (ICC) was 0.26 giving a design effect of 8.54.
Attrition	A total of 1,730 staff surveys were returned across the three time points (Return rate: 41%). However, given the length of the study the return rate considered satisfactory.
Study limitations (author)	A self-selected sample of staff was used which represented only a small proportion of staff who spoke English. Absence of a gold standard measure for care quality and safety.
Study limitations (reviewer)	None to add
Source of funding	Australian Research Council (ARC) Linkage Scheme Project in partnership with the Baptist Community Services (BCS) NSW and ACT

Study arms

CLiAC (N = 12)
12 intervention sites. Fifty managers were participated in the intervention. The care staff were assessed in this study.

Control (N = 12)
12 control sites. Manager received no intervention. Care staff were assessed

Characteristics

Arm-level characteristics

Characteristic	CLiAC (N = 12)	Control (N = 12)
Age Mean (SD)	46.5 (NR)	47.1 (NR)

Outcomes

Study timepoints

- 0 week (At endpoint)

Employee outcomes

Outcome	CLiAC, 0 week, N = 235	Control, 0 week, N = 331
Job stress Reported as stress level using work stress - SD calculated by reviewers index, a sub-scale of Work Environment Scale-R Mean (p value)	18.8 (0.59)	19.3 (0.59)
Job stress Reported as stress level using work stress - SD calculated by reviewers index, a sub-scale of Work Environment Scale-R Mean (SD)	18.8 (10.86)	19.3 (10.86)

Outcome	CLiAC, 0 week, N = 235	Control, 0 week, N = 331
job satisfaction Using 3 items from the Workforce Dynamics Questionnaire (WDQ) No of events	n = 173 ; % = 76	n = 231 ; % = 72.3
job satisfaction Using 3 items from the Workforce Dynamics Questionnaire (WDQ) Sample size	n = 228 ; % = 97	n = 319 ; % = 96.4

Job stress - Polarity - Lower values are better

Employer outcomes

Outcome	CLiAC, 0 week, N = 235	Control, 0 week, N = 331
employee retention Using items from the Workforce Dynamics Questionnaire (WDQ).) No of events	n = 59 ; % = 28.3	n = 99 ; % = 31.9
employee retention Using items from the Workforce Dynamics Questionnaire (WDQ).) Sample size	n = 208 ; % = 88.5	n = 311 ; % = 94

employee retention - Polarity - Lower values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Cluster RCT

Job stress - CLiAC vs Control (Endpoint)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low

Section	Question	Answer
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns *(Self-report outcome)*
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self report outcomes)*

Job satisfaction - CLiAC vs Control (Endpoint)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low

Section	Question	Answer
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns *(Self-report outcome)*
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self report outcomes)*

Employee retention - CLiAC vs Control (Endpoint)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns *(Self-report outcome)*
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self report outcomes)*

Study arms

CLiAC (N = 12)

Brief name	CLiAC program [Abstract]
Rationale/theory/Goal	The aim is to promote safe, high-quality person-centred and evidence-based care by assisting middle managers to develop effective team relationships and person/client-cantered leadership strategies that enable them to deal with the day-to-day realities of care service. [Page 7]
Materials used	Learning resources pack and a workshop [Page 7]
Procedures used	
Provider	a facilitator with extensive nurse manager experience [Page 7] who was supported and methods by an expert education consultation. [page 8]

Control (N = 12)

D.9 Kawakami, 2005

Kawakami, 2005

Bibliographic Reference	Kawakami, N; Kobayashi, Y; Takao, S; Tsutsumi, A; Effects of web-based supervisor training on supervisor support and psychological distress among workers: a randomized controlled trial.; Preventive medicine; 2005; vol. 41 (no. 2); 471-478

Study details

Study design	Cluster randomised controlled trial
Trial registration number	Not reported
Study start date	Nov-2002
Study end date	Feb-2003

Aim	To determine the effects of web-based supervisor training on the improvement of supervisor support and the psychological well-being of subordinate workers.
Country/geographical location	Japan
Setting	Workplace • Sector: Private • Industry: Software engineering • Organisation size: Medium • Contract type: not reported • Seniority: managers • Income: not reported
Inclusion criteria	Section chiefs
Exclusion criteria	Managers ranked higher than section chief
Method of randomisation	Not reported
Method of allocation concealment	Not reported
Unit of allocation	Cluster (Manager)
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Power calculation: not reported Intention to treat reported but no details provided Average scores of psychological distress and other job stressors (overtime hours in the previous month, qualitative and qualitative job overload, and job control) were also compared by group and among subordinate workers by using a repeated analysis of variance (ANOVA).
Attrition	82 out of 101 (82%) in the intervention group and 85 out of 90 (94.4%) in the control group provided data at both timepoints

Study limitations (author)	• Potential for bias due to baseline difference sin level of supervisor support and more teh intervention group included more women • Self-reported nature of the outcomes
Study limitations (reviewer)	Lack of detail on randomisation and allocation concealment
Source of funding	Japan Ministry of Education, Culture, Sports, Science and Technology Fujitsu Infosoft Technology

Study arms

Supervisor training (N = 100)
9 section chiefs and 100 employees

Relaxation advice (N = 90)
7 section chiefs and 90 employees

Characteristics

Arm-level characteristics

Characteristic	Supervisor training (N = 100)	Relaxation advice (N = 90)
Age Sample size	n = 82 ; % = 82	n = 85 ; % = 94.4
Age Mean (SD)	32.7 (7)	32.7 (61)
Female Sample size	n = 13 ; % = 16	n = 20 ; % = 24

Characteristic	Supervisor training (N = 100)	Relaxation advice (N = 90)
Male Sample size	n = 69 ; % = 84	n = 65 ; % = 76

Outcomes

Study timepoints

- 3 month (After the intervention)

Employee outcomes

Outcome	Supervisor training, 3 month, N = 100	Relaxation advice, 3 month, N = 90
Job stress (18 - 72) Using the Brief Job Stress Questionnaire (BJSQ) Sample size	n = 82 ; % = 82	n = 85 ; % = 94.4
Job stress (18 - 72) Using the Brief Job Stress Questionnaire (BJSQ) Mean (SD)	43.2 (10.8)	45.3 (10.7)
Perception of supervisor support Reported as 'Felt supervisor was willing to listen to workers' personal problems' Sample size	n = 82 ; % = 82	n = 85 ; % = 94.4
Perception of supervisor support Reported as 'Felt supervisor was willing to listen to workers' personal problems' Mean (SD)	2.27 (0.72)	2.2 (0.65)

Job stress - Polarity - Lower values are better
Perception of supervisor support - Polarity - Higher values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) - RCT

Job stress - Supervisor training vs Relaxation advice (3 months follow-up)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Low
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Low

Perception of supervisor support - Supervisor training vs Relaxation advice (3 months follow-up)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low

Section	Question	Answer
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Low
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Low

Study arms

Supervisor training (N = 100)

Brief name	Web-based supervisor training [Page 473]
Rationale/theory/Goal	To increase support and decrease job stressors, which would ultimately reduce work-related strain and enhance workers' health and well-being.[Page 471]
Materials used	Online materials covering • 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. [Page 473]

Procedures used	All section chiefs accessed the Internet training from workplace PCs. Most of the supervisors received the training from workplace PCs; some received it from PCs at home. During a 4-week training period, a study coordinator watched their progress and encouraged them by e-mail to complete the training. [Page 473]
Provider	Not applicable
Method of delivery	Online [Page 473]
Setting/location of intervention	Work or home [Page 473]
Intensity/duration of the intervention	4 weeks [Page 473]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Relaxation advice (N = 90)

Brief name	Relaxation advice [Page 472]
Rationale/theory/Goal	Not reported
Materials used	Not reported
Procedures used	Not reported
Provider	Not reported
Method of delivery	Not reported
Setting/location of intervention	Not reported

Intensity/duration of the intervention	2 hours [Page 472]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

D.10 Kawakami, 2006

Kawakami, 2006

Bibliographic Reference	Kawakami, N; Takao, S; Kobayashi, Y; Tsutsumi, A; Effects of web-based supervisor training on job stressors and psychological distress among workers: a workplace-based randomized controlled trial.; Journal of occupational health; 2006; vol. 48 (no. 1); 28-34

Study details

Study design	Cluster randomised controlled trial
Trial registration number	Not reported
Study start date	Nov-2002
Study end date	Feb-2003
Aim	To determine the effects of a web-based supervisor training on selected job stressors and psychological distress among subordinate workers

Country/geographical location	Japan
Setting	Workplace • Sector: Private • Industry: Sales and Servicing • Organisation size: Not reported • Contract type: not reported • Seniority: managers • Income: not reported
Inclusion criteria	Supervisors only
Exclusion criteria	Not reported
Method of randomisation	Random numbers table
Method of allocation concealment	Not reported
Unit of allocation	Cluster (workplace)
Unit of analysis	Individual
Statistical method(s) used to analyse the data	ICC: not reported power calculation: Not reported Intention to treat: reported but little details given and not all participants included in analysis
Attrition	81 out of 85 employees (95.3%) in the intervention group and 108 out of 114 (94.7%) employees in the control group provided data at the follow-up.
Study limitations (author)	• Use of subjective outcome measures

	• Small sample size
Study limitations (reviewer)	Lack of detail on allocation concealment
Source of funding	Japan Ministry of Education, Culture, Sports, science and Technology Fujitsu Infosoft Technology Co. Ltd.

Study arms

Supervisor training (N = 92)
4 workplaces with 23 supervisors and 92 employees

No intervention (N = 114)
4 workplaces with 23 supervisors and 114 employees

Characteristics

Arm-level characteristics

Characteristic	Supervisor training (N = 92)	No intervention (N = 114)
Age Sample size	n = 85 ; % = 92.4	n = 108 ; % = 94.7
Age Mean (SD)	31 (6.5)	32 (6)
Female Sample size	n = 28 ; % = 35	n = 26 ; % = 24

Outcomes

Study timepoints

- 3 month (After the intervention)

Employee outcomes

Outcome	Supervisor training, 3 month, N = 92	No intervention, 3 month, N = 114
Job stress Using the Brief Job Stress Questionnaire (BJSQ) Sample size	n = 81 ; % = 88	n = 108 ; % = 94.7
Job stress Using the Brief Job Stress Questionnaire (BJSQ) Mean (SD)	50.6 (9.9)	49.2 (11.5)
Perception of supervisor support Three-item scale scores Sample size	n = 81 ; % = 95.3	n = 114 ; % = 94.7
Perception of supervisor support Three-item scale scores Mean (SD)	8.1 (2.3)	7.2 (2.1)

Job stress - Polarity - Lower values are better
Perception of supervisor support - Polarity - Higher values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Cluster RCT

Job stress - Supervisor training vs No intervention (3 month follow-up)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns *(Self-reported outcomes)*
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self-reported outcomes)*

Perception of supervisor support - Supervisor training vs No intervention (3 month follow-up)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low

Section	Question	Answer
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns *(Self-reported outcomes)*
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self-reported outcomes)*

Study arms

Supervisor training (N = 92)

Brief name	E-learning Worksite Mental Health for Supervisors [Page 29]
Rationale/theory/Goal	Based on the 'Guidelines for Promoting Mental Health Care in Enterprises' produced by the Japanese Ministry of Health, Labour and Welfare [Page 30]
Materials used	Nice chapters and quizzes [Page 30
Procedures used	Supervisors accessed the intervention via work PC in the workplace or at home [Page 29]
Provider	Not reported
Method of delivery	Online [Page 29]
Setting/location of intervention	Workplace or home [Page 29]
Intensity/duration of the intervention	3 to 5 hours [Page 30]

Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

No intervention (N = 114)

Brief name	No intervention [Abstract]
Rationale/theory/Goal	Not applicable
Materials used	Not applicable
Procedures used	Not applicable
Provider	Not applicable
Method of delivery	Not applicable
Setting/location of intervention	Not applicable
Intensity/duration of the intervention	Not applicable
Tailoring/adaptation	Not applicable
Unforeseen modifications	Not applicable
Planned treatment fidelity	Not applicable
Actual treatment fidelity	Not applicable

Other details	

D.11 Ketelaar, 2017

Ketelaar, 2017

Bibliographic Reference	Ketelaar, S M; Schaafsma, F G; Geldof, M F; Kraaijeveld, R A; Boot, C R L; Shaw, W S; Bultmann, U; Anema, J R; Implementation of the Participatory Approach for Supervisors to Increase Self-Efficacy in Addressing Risk of Sick Leave of Employees: Results of a Cluster-Randomized Controlled Trial.; Journal of occupational rehabilitation; 2017; vol. 27 (no. 2); 247-257

Study details

Study design	Cluster randomised controlled trial
Trial registration number	NTR3733
Study start date	2012
Study end date	2013
Aim	To study the effectiveness of a multifaceted strategy to implement the participatory approach for supervisors to increase their self-efficacy in addressing risk of sick leave of employees.
Country/geographical location	The Netherlands
Setting	Workplace • Sector: Public and private • Industry: Education, Healthcare and Heavy industry • Organisation size: Large • Contract type: not reported • Seniority: managers

	• Income: not reported
Inclusion criteria	Supervisors were eligible if they were at least 18 years old and worked at least 24 h per week. Employees were eligible for participation if they had a minimum age of 18 years
Exclusion criteria	Supervisors whose contracts would end within 1 year after baseline, and supervisors who were not able to fill out questionnaires in the Dutch language were excluded. Employees who had a different supervisor at 6 months' follow-up compared to baseline were excluded from the analyses.
Method of randomisation	Randomisation performed by an independent researcher
Method of allocation concealment	Not reported
Unit of allocation	Cluster (Department)
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Power calculation using the ICC for a 10% increase in self-efficacy with the mean score of 6.02 and a SD of 0.88 of the competence scale leads to a total sample size of 107 supervisors assuming a dropout rate of 20% and taking into account a power (1-beta) of 0.80 and an alpha of 0.05. Supervisors: At supervisor level, intention-to-treat analyses were performed. Multilevel analyses were performed for all outcome variables with the supervisor clustered within the department. Only complete cases were used for the analyses. Per-protocol analyses were performed. In case of effect modification, stratified post hoc analyses were also performed. Employees: Intention-to-treat analyses were also performed at the employee level. Multilevel analyses were performed for all outcome variables with the employee clustered within the supervisor, who is in turn clustered within the department. Per protocol analysis was also performed. An intra-class correlation coefficient (ICC) of 0.05 is used to adjust for the cluster randomised design at department level.

Attrition	Ten departments with 55 participating supervisors were randomly assigned to the control group and 19 departments with 61 participating supervisors to the intervention group. In total, 50 supervisors in the control group (91 %) and 49 supervisors in the intervention group (80 %) filled out both questionnaires and were included in the analyses.
Study limitations (author)	• Method of recruiting supervisors for participation may led to selection bias. There is the chance of recall bias for the supervisors in the intervention group. • Method of measuring the percentage of sick-listed employees and sick-leave duration might have been inaccurate (self-reported).
Study limitations (reviewer)	None to add
Source of funding	Netherlands Organization for Health Research and Development (ZonMW).

Study arms

Participatory approach + supervisor training (N = 123)
19 departments 61 supervisors in the intervention departments received the implementation strategy. 123 employees were assessed

Minimal intervention (N = 150)
Information on the participatory approach. 10 departments in the control group 55 supervisors in the control department received written information. 150 employees were assessed

Characteristics

Arm-level characteristics

Characteristic	Participatory approach + supervisor training (N = 123)	Minimal intervention (N = 150)
supervisors Mean (SD)	47 (7)	46 (8)
Employees Mean (SD)	42 (11)	44 (11)

Characteristic	Participatory approach + supervisor training (N = 123)	Minimal intervention (N = 150)
Employees - Male Sample size	n = 35 ; % = 25.9	n = 36 ; % = 23.4
Employees - Female Sample size	n = 100 ; % = 74.1	n = 118 ; % = 76.6

Outcomes

Study timepoints

- 6 month (After the intervention)

Manager outcomes

Outcome	Participatory approach + supervisor training, 6 month, N = 61	Minimal intervention, 6 month, N = 55
Skills and confidence responding to mental wellbeing issues Using three items of the competence scale of Spreitzer and colleagues' Empowerment questionnaire) Sample size	n = 49 ; % = 80.3	n = 50 ; % = 90.9
Skills and confidence responding to mental wellbeing issues Using three items of the competence scale of Spreitzer and colleagues' Empowerment questionnaire) Mean (SD)	17.2 (2.3)	16.6 (2.2)

Skills and confidence responding to mental wellbeing issues - Polarity - Higher values are better

Employee outcomes

Outcome	Participatory approach + supervisor training, 6 month, N = 123	Minimal intervention, 6 month, N = 150
Absenteeism Sample size	n = 75 ; % = 61	n = 99 ; % = 66
Absenteeism Mean (SD)	2.4 (6.7)	3.6 (19.7)

Absenteeism - Polarity - Lower values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Cluster RCT

Absenteeism - Participatory approach + supervisor training vs Participatory approach alone (6 months follow-up)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Low
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Low

Skills and confidence responding to mental wellbeing issues - Participatory approach + supervisor training vs Participatory approach alone (6 months follow-up)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns *(Self-report outcome measure)*
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Low

Study arms

Participatory approach + supervisor training (N = 123)

Brief name	Participatory approach and supervisor training [Kraaijeveld 2013, Page 3]
Rationale/theory/Goal	This intervention aim to for supervisors and employees to identify and find solutions to work functioning problems.[Kraaijeveld 2013, Page 4]
Materials used	Workshops, coaching and exercises [[Kraaijeveld 2013, Page 3 & 4]

Procedures used	The multifaceted implementation strategy was applied in the intervention group and consisted of three components, following the baseline measurement (month 1): one working group meeting per study site with stakeholder representatives (month 2), supervisor training in application of the PA (months 3), and optional supervisor coaching (month 4–12 [Ketelaar 2017, Page 249]
Provider	Company OH professional [Ketelaar 2017, Page 249]
Method of delivery	Face to face group format [[Ketelaar 2017, Page 249]
Setting/location of intervention	Not reported
Intensity/duration of the intervention	3 workshops of 6 hours in total (2 & 4) alongside regular coaching [Ketelaar 2017, Page 249]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Minimal intervention (N = 150)

Brief name	Minimal intervention [Kraaijeveld 2013., Page 4]
Rationale/theory/Goal	Not reported
Materials used	Written information about PA. [Kraaijeveld 2013., Page 4]
Procedures used	Not reported
Provider	Not reported
Method of delivery	Not reported
Setting/location of intervention	Not reported

Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Information on the participatory approach

D.12 Milligan-Saville, 2017

Milligan-Saville, 2017

Bibliographic Reference	Milligan-Saville, Josie S; Tan, Leona; Gayed, Aimee; Barnes, Caryl; Madan, Ira; Dobson, Mark; Bryant, Richard A; Christensen, Helen; Mykletun, Arnstein; Harvey, Samuel B; Workplace mental health training for managers and its effect on sick leave in employees: a cluster randomised controlled trial.; The lancet. Psychiatry; 2017; vol. 4 (no. 11); 850-858

Study details

Study design	Cluster randomised controlled trial
Trial registration number	NTR3733.
Aim	To study the effectiveness of a multifaceted strategy to implement the participatory approach for supervisors to increase their self-efficacy in addressing risk of sick leave of employees.
Country/geographical location	Australia

Setting	Workplace • Sector: Public • Industry: Emergency services • Organisation size: Large • Contract type: not reported • Seniority: managers • Income: not reported
Inclusion criteria	employed managers at Duty Commander level or equivalent
Exclusion criteria	Duty Commanders who did not provide informed consent
Method of randomisation	Online random sequence generator.
Method of allocation concealment	Not reported
Unit of allocation	Cluster (Manager)
Unit of analysis	Individual (employee)
Statistical method(s) used to analyse the data	Power calculation was based on a mean 45 staff members per manager and an intragroup correlation of 0·05, recruiting 3600 employees (via 80 managers) would allow adequate power (0·8) to detect an effect size of 0·2 in terms of change in sickness absence, with an α value of 0·05. Intention to treat planned but was not possible because of an email error inviting some of teh control group managers to the intervention Differences in the change in absences between the intervention and control groups were assessed using linear regression with generalised estimating equations and robust SEs to adjust for clustering at the manager level.
Attrition	128 managers assessed for eligibility; of whom 88 were included (46 underwent training and 42 placed on training wait list)
Study limitations (author)	Low completion rate for the 6-month follow up questionnaire.

	A full intention-to-treat analysis was not possible. Demographic information from the employees were not collected. The training programme including the follow-up phone call, was provided as an integrated intervention, therefore it is not possible to know which components were essential.
Study limitations (reviewer)	None to add
Source of funding	NSW Health and Employers Mutual Ltd

Study arms

Manager training (N = 123)
19 departments 61 supervisors in the intervention departments received the implementation strategy. 123 employees were assessed

Minimal intervention (N = 150)
10 departments in the control group 55 supervisors in the control department received written information. 150 employees were assessed

Characteristics

Arm-level characteristics

Characteristic	Manager training (N = 123)	Minimal intervention (N = 150)
Age Managers Mean (SE)	49.3 (5.4)	49.1 (5.6)
Male Sample size	n = 45 ; % = 100	n = 40 ; % = 100
Female Sample size	n = 0 ; % = 0	n = 0 ; % = 0

Outcomes

Study timepoints

- 6 month (After the intervention)

Manager outcome

Outcome	Manager training, 6 month, N = 61	Minimal intervention, 6 month, N = 55
Mental health literacy Sample size	n = 19	n = 25
Mental health literacy Mean (SD)	56.8 (13.8)	53.6 (17.5)
De-stigmatisation Reported as change in non-stigmatising attitudes towards mental illness Sample size	n = 19	n = 25
De-stigmatisation Reported as change in non-stigmatising attitudes towards mental illness Mean (SD)	81.3 (10.2)	80.6 (10.6)
Confidence to discuss mental health Sample size	n = 19	n = 25
Confidence to discuss mental health Mean (SD)	69.3 (11.6)	70.1 (11.8)

Mental health literacy - Polarity - Higher values are better

De-stigmatisation - Polarity - Higher values are better
Confidence to discuss mental health - Polarity - Lower values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Cluster RCT

Mental health literacy - Manager training vs Minimal intervention (6 month follow up)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Some concerns *(Randomisation occurred before individuals were identified)*
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self report outcome)*

De-stigmatisation - Manager training vs Minimal intervention (6 month follow up)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low

Section	Question	Answer
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Some concerns *(Randomisation occurred before individuals were identified)*
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self report outcome)*

Confidence to discuss mental health - Manager training vs Minimal intervention (6 month)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Some concerns *(Randomisation occurred before individuals were identified)*
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low

Section	Question	Answer
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self report outcome)*

Study arms

Manager training (N = 123)

Brief name	Manager training (participatory approach)
Rationale/theory/Goal	Multifaceted strategy to implement the participatory approach for supervisors to increase their self-efficacy in addressing risk of sick leave of employees
Materials used	Clinical psychologist or a consultant psychiatrist, face-to-face training delivered in a single 4-h session at a training facility, self-report questionnaires, phone call from an employee assistance programme representative
Procedures used	Interactive Face-to-face training delivered in a single 4-h session at a training facility. Training in three phases (first phase of training focused on the symptoms of depression, anxiety, post-traumatic stress, and alcohol misuse, and how these conditions can be recognised in the workplace; second phase helpful responses towards a subordinate with an identified mental health problem were contrasted with poor management practices, positive communication techniques were then implemented in group discussions; third phase learning how to implement the RESPECT principles). 8 weeks after completion of training, managers in the intervention group received a single phone call from an employee assistance programme representative specialising in manager assistance to answer any outstanding questions.
Provider	Clinical psychologist or a consultant psychiatrist
Method of delivery	Face-to-face

Setting/location of intervention	Training facility operated by the fire and rescue service
Intensity/duration of the intervention	A single 4-h session
Tailoring/adaptation	NR
Unforeseen modifications	To allow for part-time workers, the primary outcome was modified to change in sickness absence before the analysis.
Planned treatment fidelity	NR
Actual treatment fidelity	NR
Other details	NR

19 departments 61 supervisors in the intervention departments received the implementation strategy. 123 employees were assessed

Minimal intervention (N = 150)

Brief name	Deferred training control group - minimal intervention
Rationale/theory/Goal	Control arm to allow the assessment of the effectiveness of a multifaceted strategy to implement the participatory approach for supervisors to increase their self-efficacy in addressing risk of sick leave of employees
Procedures used	Control group were emailed a link to an online version of the baseline questionnaire by the research team approximately 2 weeks after the first training session. They continued to be offered as much contact with the standard employee assistance programme manager support as needed (employee assistance programme specialist advisers are available for managers to contact anytime via phone and can provide assistance across a broad range of management issues, including the sickness absence of employees).

Provider	NR
Method of delivery	NR
Setting/location of intervention	NR
Intensity/duration of the intervention	NR
Unforeseen modifications	NR

10 departments in the control group 55 supervisors in the control department received written information. 150 employees were assessed

D.13 Nishiuchi, 2007

Nishiuchi, 2007

Bibliographic Reference	Nishiuchi, Kyoko; Tsutsumi, Akizumi; Takao, Soshi; Mineyama, Sachiko; Kawakami, Norito; Effects of an education program for stress reduction on supervisor knowledge, attitudes, and behavior in the workplace: a randomized controlled trial.; Journal of occupational health; 2007; vol. 49 (no. 3); 190-8

Study details

Study design	Randomised controlled trial (RCT)
Trial registration number	Not reported
Study start date	Oct-2002

Aim	To evaluate how an education program for stress reduction influences supervisor knowledge, attitudes and behaviour concerning stress management.
Country/geographical location	Japan
Setting	Workplace • Sector: Private • Industry: Brewing • Organisation size: Large • Contract type: not reported • Seniority: managers • Income: not reported
Inclusion criteria	All supervisor in the organisation, whether they were fore-persons (blue-collar) or middle-managers (white-collar)
Exclusion criteria	None reported
Method of randomisation	Not reported
Method of allocation concealment	Not reported
Unit of allocation	Individual
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Power calculation: not reported intention to treat: not reported Use a repeated measures analysis of variance to compare groups on change scores.
Attrition	23 out of 24 (95.8%) in the intervention group and 21 out of 22 (95.5%) in the control group provided data at each timepoint

Study limitations (author)	• Lack of a process evaluation • conducted in a single workplace so findings may not be generalisable • self-reported outcome measures were used
Study limitations (reviewer)	• Lack of detail on randomisation and allocation concealment
Source of funding	Japan Industrial Safety and Health Association

Study arms

Supervisor stress reduction (N = 24)

Active listening (N = 22)

Characteristics

Arm-level characteristics

Characteristic	Supervisor stress reduction (N = 24)	Active listening (N = 22)
Age Mean (SD)	50 (5.2)	48.9 (4.5)
Male Sample size	n = 23	n = 22 ; % = 100
Female Sample size	n = 1 ; % = 4.2	n = 0 ; % = 0

Outcomes

Study timepoints

- 6 month (After the intervention)

Outcomes

Outcome	Supervisor stress reduction, 6 month, N = 24	Active listening, 6 month, N = 22
Mental health knowledge Sample size	n = 22 ; % = 91.7	n = 21 ; % = 95.5
Mental health knowledge Standardised Mean (SE)	45 (1.5)	44.1 (1.6)
Attitude Sample size	n = 22 ; % = 91.7	n = 21 ; % = 95.5
Attitude Mean (SE)	12.6 (0.6)	13.2 (0.6)

Mental health knowledge - Polarity - Higher values are better
Attitude - Polarity - Higher values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) - RCT

Mental health knowledge - Supervisor stress reduction vs Active listening (6 month follow-up)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low

Section	Question	Answer
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self-report outcome)*
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self-reported outcomes)*

Attitude - Supervisor stress reduction vs Active listening (6 month follow-up)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Low
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self-report outcome)*
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Self-reported outcomes)*

Study arms

Supervisor stress reduction (N = 24)

Brief name	Supervisor stress reduction [Page 191]
Rationale/theory/Goal	Based on a guideline for worker mental health promotion [Page 191]
Materials used	Lecture and role-playing exercise. Manual, protocols and prepared teaching materials [Page 191]
Procedures used	All trainers received standardised training to design and conduct the supervisor training program. [Page 191]
Provider	Not reported
Method of delivery	Face to face [Page 191]
Setting/location of intervention	Not clear but delivered during working hours [Page 191]
Intensity/duration of the intervention	2 session totalling 4 hours [Page 191 & 192]
Tailoring/adaptation	Modified in parts 1 Case identification, 5 support for returning to work and 9 summary [Page 192]
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Active listening (N = 22)

Brief name	Active listening [Page 192]
Rationale/theory/Goal	The goal was to improve the supervisors skills in order to make their stress reduction approaches more apparent [Page 192]
Materials used	Lecture and practice session [Page 192]
Procedures used	Not reported

Provider	Not reported
Method of delivery	Face to face [Page 192]
Setting/location of intervention	Not reported
Intensity/duration of the intervention	1 session (lecture and practice) over 3 hours [Page 192]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

D.14 Shann, 2019

Shann, 2019

Bibliographic Reference	Shann, Clare; Martin, Angela; Chester, Andrea; Ruddock, Scott; Effectiveness and application of an online leadership intervention to promote mental health and reduce depression-related stigma in organizations.; Journal of occupational health psychology; 2019; vol. 24 (no. 1); 20-35

Study details

Study design	Randomised controlled trial (RCT)

Trial registration number	Not reported
Aim	To investigate whether an online intervention could reduce leaders' depression-related stigma and develop their understanding and skills in relation to managing depression in the workplace.
Country/geographical location	Australia
Setting	Workplace • Sector: Mixed • Industry: Mixed • Organisation size: Not reported • Contract type: not reported • Seniority: managers • Income: not reported
Inclusion criteria	Organisational leaders
Exclusion criteria	Not reported
Method of randomisation	Not reported
Method of allocation concealment	Not reported
Unit of allocation	Individual
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Power calculation: not reported Intention to treat reported but no detail provided To assess the efficacy of the online intervention, pre- and postsurvey scores were examined between groups (experimental and control) using one-way multivariate analysis of covariance controlling for the preintervention variance at baseline.

Attrition	64 out of 155 (41.3%) in the intervention group and 132 out of 156 (84.6%) in the control group provided data at the post-intervention assessment.
Study limitations (author)	• study used non-random, convenience sampling so were self-selected • high level of knowledge of depression at baseline means findings may not be generalisable • use of self-reported outcomes • lack of blinding
Study limitations (reviewer)	Lack of detail on randomisation and allocation concealment
Source of funding	Not reported

Study arms

Beyondblue (N = 155)

Wait-list (N = 156)

Characteristics

Study-level characteristics

Characteristic	**Study (N = 311)**
18-24 years Sample size	n = 1 ; % = 1
25-30 years Sample size	n = 15 ; % = 5
31-40 years Sample size	n = 74 ; % = 24

Characteristic	Study (N = 311)
41-50 years Sample size	n = 126 ; % = 41
51–60 years Sample size	n = 78 ; % = 25
61 years or more Sample size	n = 17 ; % = 6
Male Sample size	n = 148 ; % = 48
Female Sample size	n = 163 ; % = 52
Primary school Sample size	n = 1 ; % = 1
Secondary school Sample size	n = 16 ; % = 5
Vocational training Sample size	n = 3 ; % = 1
Tertiary Sample size	n = 161 ; % = 52

Characteristic	Study (N = 311)
Postgraduate Sample size	n = 130 ; % = 42

Outcomes

Study timepoints

- 1 week (After the intervention)

Manager outcomes

Outcome	Beyondblue, 1 week, N = 155	Wait-list, 1 week, N = 156
Attitude Using Managerial Stigma Toward Employee Depression Scale (affective stigma) Sample size	n = 64 ; % = 41.3	n = 132 ; % = 84.6
Attitude Using Managerial Stigma Toward Employee Depression Scale (affective stigma) Mean (SE)	9.67 (2.81)	10.39 (3.2)

Attitude - Polarity - Lower values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) - RCT

Attitude - Beyondblue vs Wait-list (6 month follow-up)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low

Section	Question	Answer
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Some concerns *(High dropout rate in the intervention group)*
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self-reported outcome)*
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	High *(Concerns over high dropout in the intervention group and use of self-reported outcomes)*

Study arms

Beyondblue (N = 155)

Brief name	Beyondblue [Page 23]
Rationale/theory/Goal	The intervention aims to provide leaders with information, tools, and practical actions to create a mentally healthy workplace, reduce depression stigma, and look after their own mental health. [Page 24]
Materials used	Reading material, videos, and interactive exercises [Page 24]

Procedures used	Participants could access the intervention and could downloaded summaries if the intervention along with a completed action plan [Page 24]
Provider	Beyondblue was provided via the website for an Australian mental health charity [Page 23]
Method of delivery	Online [Page 23]
Setting/location of intervention	Not reported
Intensity/duration of the intervention	30 to 45 minutes [Page 24]
Tailoring/adaptation	The intervention was developed with input from industry and employer associations, unions, mental health sector bodies, and organizations. [Page 23 & 24]
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Wait-list (N = 156)

Brief name	Wait-list [Abstract]
Rationale/theory/Goal	Not reported
Materials used	Not reported
Procedures used	Participant in the wait list received the intervention 1 week after the intervention group. [Abstract]
Provider	Not reported
Method of delivery	Not reported
Setting/location of intervention	Not reported

Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

D.15 Stansfeld, 2015

Stansfeld, 2015

Bibliographic Reference	Stansfeld, Stephen A; Kerry, Sally; Chandola, Tarani; Russell, Jill; Berney, Lee; Hounsome, Natalia; Lanz, Doris; Costelloe, Ceire; Smuk, Melanie; Bhui, Kamaldeep; Pilot study of a cluster randomised trial of a guided e-learning health promotion intervention for managers based on management standards for the improvement of employee well-being and reduction of sickness absence: GEM Study.; BMJ open; 2015; vol. 5 (no. 10); e007981

Study details

Study design	Cluster randomised controlled trial
Trial registration number	ISRCTN58661009
Aim	To the acceptability of e-learning as well as adherence, comprehension and likely effectiveness of the intervention
Country/geographical location	UK
Setting	Workplace

	• Sector: Public • Industry: Healthcare • Organisation size: Large • Contract type: not reported • Seniority: managers • Income: not reported
Inclusion criteria	The organisation had to be able to provide data on sickness absence and the managers were allowed internet access at work.
Exclusion criteria	Employees who would not remain in the organisation during the study because of long-term sickness, notified pregnancies or fixed-term contracts were excluded.
Method of randomisation	Independent statistician
Method of allocation concealment	Not reported
Unit of allocation	Cluster (workplace)
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Power calculation: not reported Intention to treat: not reported Effectiveness comparing intervention and control clusters was estimated using a random effects model with restricted maximum likelihood estimation Intracluster correlations coefficients were estimated using the models for the analysis
Attrition	330 out of 341 employees (6.8%) in the intervention group and 80 out of 83 employees (96.4%) in the control group provided data at follow-up
Study limitations (author)	• organisation was going through a major reorganisation and this may have impact on the acceptability of the study. • The qualitative sample was limited to one ‘non-adherent’ manager

	• poor intervention uptake rate
Study limitations (reviewer)	Lack of detail on allocation concealment
Source of funding	National Institute for Health Research Public Health Research Programme
Qualitative findings	***Learning style -*** *Training was set up based on instructivist principles (accumulation of facts) though managers reported more benefit cam come reinforcement of what they were doing* *"I quite enjoyed the course because I didn't really see things that were totally shocking to me or, 'Oh! You should be doing that'. It reinforced that my way of doing it is alright, it's acceptable … So I found that course sort of validated some of the stuff that I already do and sort of sends a message to me to carry on doing it that way". (Manager, M4)* **Learning from peers –** Facilitated group session were seen a a good opportunity to learn from other vis sharing of experiences and concerns *"It was quite good to hear the other people in the room were having similar things, similar issues, similar thoughts, similar concerns" (Manager, M8)* **Learning in a safe space –** Managers reported feeling comfortable discussing ideas and experience in facilitated group session away from senior management *"And it was good to express those concerns, I suppose, in a safe environment with no people higher up from myself looking down on you and judging you. So from that perspective, … it felt like a safe environment, just to discuss openly some of the issues that as managers we were concerned about and had raised." (Manager, M8)* **Time needed to do activities –** Time to attend training and to complete all the activities / exercises was a major barrier to the intervention *"It was finding the time in the day just to sit down and be able to do it sat at my desk without some other priority or somebody knocking at my door with another question. That was really it, it wasn't time consuming or anything necessarily*

	it was just literally finding enough time … I found it was useful, it was something I would want … I didn't get far enough through to really be able to say actually, 'this could have been done differently …" (Manager, M9) **Disconnect between policy mandated support and perception of available support** – Managers considered that what was promised (in terms of support for manages and staff) was not in line with their experiences *"So I did listen and I did what I could but he could accept I was limited because the expectation on the team from higher management." "But I felt my hands were tied, I'd done as much as I could because I tried to support him through it … that came out on his exit interview and everything and when he resigned saying the job was untenable … "(Manager, M1)* **Disconnect between competences and life skills** – The training set out competencies and skills to be learnt but managers relied more on empathy and life skills when dealing with staff under stress *"And I suppose a lot of it for me was being able to empathise with her; having gone through bereavement of a close family member myself. You can think what would've been good for me at that time". (Manager, M2)* **Disconnect from senior management** - Managers saw themselves as being the middle between senior management and staff but will little sway or power *"the damp proof course in the organisation, nothing permeates in either (Key Informant, KI2)* **Managers keen** to take a 'whole-person' approach to workplace stress *"It's not really work stress so much as it's personal stress. But of course it does have an impact on one's work life" (Key Informant, KI13).*

Study arms

Guided e-learning (N = 341)
49 managers and 341 employees

No intervention (N = 81)

11 managers and 81 employees

Characteristics

Arm-level characteristics

Characteristic	Guided e-learning (N = 341)	No intervention (N = 81)
> 30 Sample size	n = 27 ; % = 7	n = 6 ; % = 9
30 - 39 Sample size	n = 52 ; % = 18	n = 9 ; % = 13
40 - 49 Sample size	n = 98 ; % = 35	n = 31 ; % = 46
50 - 59 Sample size	n = 102 ; % = 36	n = 21 ; % = 31
Female Sample size	n = 209 ; % = 74	n = 57 ; % = 85

Outcomes

Study timepoints

- 6 month

Employee outcomes

Outcome	Guided e-learning, 6 month, N = 341	No intervention, 6 month, N = 81
Mental wellbeing Using Warwick Edinburgh Mental Wellbeing Scale (WEMWBS) Sample size	n = 225 ; % = 66	n = 59 ; % = 72.8
Mental wellbeing Using Warwick Edinburgh Mental Wellbeing Scale (WEMWBS) Mean (SD)	49.9 (38.3)	49 (8.5)
Absenteeism Reported as Days off sick from HR data Sample size	n = 294 ; % = 86.2	n = 66 ; % = 81.5
Absenteeism Reported as Days off sick from HR data Mean (SE)	1.6 (3.7)	1 (1.7)
Job stress Using Psychological distress measured by the 12-item General Health Questionnaire (GHQ12). Sample size	n = 216 ; % = 63.3	n = 59 ; % = 72.8
Job stress Using Psychological distress measured by the 12-item General Health Questionnaire (GHQ12). Mean (SE)	2.9 (3.5)	2.9 (4.7)

Mental wellbeing - Polarity - Higher values are better
Absenteeism - Polarity - Lower values are better
Job stress - Polarity - Lower values are better

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Cluster RCT

Mental wellbeing - Guided e-learning vs No intervention (6 months follow up)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Low
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Low

Absenteeism - Guided e-learning vs No intervention (6 month follow up)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low

Section	Question	Answer
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Some concerns *(Self-report outcomes)*
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Some concerns *(Use of self report outcome)*

Job stress - Guided e-learning vs No intervention (6 month follow up)

Section	Question	Answer
1a. Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
1b. Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomisation	Risk of bias judgement for the timing of identification and recruitment of individual participants in relation to timing of randomisation	Low
2. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
3. Bias due to missing outcome data	Risk of bias judgement for missing outcome data	Low
4. Bias in measurement of the outcome	Risk of bias judgement for measurement of the outcome	Low
5. Bias in selection of the reported result	Risk of bias for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	Low

Study arms

Guided e-learning (N = 341)

Brief name	Managing Employee Pressure at Work [Page 2]
Rationale/theory/Goal	The e-learning health promotion programme focused on the six management standards domains: Change, Control, Demands, Relationship, Role and Support [Page 2]
Materials used	E-learning activities using case examples and exercise with consultation with facilitator [Page 3]
Procedures used	Managers completed an online quiz before and after the programme. Participants were invited by email to login o the questionnaire online. In case of non-response, two automated email reminders were sent 7 days apart, followed by one personalised email reminder, then if no response was received, local research staff attempted phone contact with the participant and paper questionnaires were offered to non-responding employees [Page 2]
Provider	Online programme develop by Anderson Peak Performance [Page 2]
Method of delivery	Online and face to face[Page 2]
Setting/location of intervention	Not reported
Intensity/duration of the intervention	The programme was delivered in weekly to two weekly modules over a 3-month period. [Page 3]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

No Intervention (N = 81)

Brief name	No intervention [Page 3]
Rationale/theory/Goal	Not reported

Materials used	Not reported
Procedures used	The managers in the control cluster received no intervention. [Page 3]
Provider	Not reported
Method of delivery	Not reported
Setting/location of intervention	Not reported
Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Aims of the research	Was there a clear statement of the aims of the research?	Yes
Appropriateness of methodology	Is a qualitative methodology appropriate?	Yes
Research Design	Was the research design appropriate to address the aims of the research?	Yes
Recruitment Strategy	Was the recruitment strategy appropriate to the aims of the research?	Yes
Data collection	Was the data collected in a way that addressed the research issue?	Yes

Section	Question	Answer
Researcher and participant relationship	Has the relationship between researcher and participants been adequately considered?	Yes
Ethical Issues	Have ethical issues been taken into consideration?	Yes
Data analysis	Was the data analysis sufficiently rigorous?	Yes
Findings	Is there a clear statement of findings?	Yes
Research value	How valuable is the research?	The research is valuable
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

D.16 Tafvelin, 2019

Tafvelin, 2019

Bibliographic Reference	Tafvelin, Susanne; von Thiele Schwarz, Ulrica; Stenling, Andreas; Leadership Training to Increase Need Satisfaction at Work: A Quasi-Experimental Mixed Method Study.; Frontiers in psychology; 2019; vol. 10; 2175

Study details

Study design	Non-randomised controlled trial (NRCT)
Trial registration number	Not reported

Aim	To evaluate a leadership training that aims to improve managers' need-supportive behaviours toward employees and increase employee need satisfaction.
Country/geographical location	Sweden
Setting	Workplace • Sector: Public • Industry: Local government • Organisation size: Medium • Contract type: not reported • Seniority: managers • Income: Not reported
Inclusion criteria	First line managers employed in various sections (e.g., childcare, culture, education, elderly care, leisure)
Exclusion criteria	Not reported
Unit of allocation	Individual
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Welsch's t-tests were used to examine selection bias at baseline. Unconditional, conditional, and multigroup linear latent growth curve analysis to examine the effect of the intervention.
Attrition	38 first line managers; 21 allocated to experimental and 17 to a waitlist control group. Of 742 employees, 538 accepted the invitation (response rate:72.5%).
Study limitations (author)	• A small sample of managers restricted the statistical power in some of the analyses • A non-equivalent comparison group was used (unable to randomly assign managers to intervention and control group).
Study limitations (reviewer)	None to add
Source of funding	• FORTE under Grant 2014-073

	• VINNOVA under Grant 2013-02130.

Study arms

Leadership intervention (N = 21)
21 managers and employees of participating managers (538 in total, number of employees in intervention group not known)

Wait-list (N = 17)
17 managers allocated to wait list control group and the employees of these managers (538 in total, number of employees in the control group not known)

Characteristics

Arm-level characteristics

Characteristic	Leadership intervention (N = 21)	Wait-list (N = 17)
Age Mean (SD)	42.5 (9.21)	45.06 (7.25)
Male Sample size	n = 5 ; % = 22	% = 21.5
Female Sample size	% = 78	% = 78.5

Outcomes

Study timepoints
- 2 month (Unclear if at endpoint)

Employee outcome

Outcome	Leadership intervention, 2 month, N = NR	Wait-list, 2 month, N = NR
job satisfaction Using COPSOQ II Mean (SD)	2.73 (0.58)	2.81 (0.57)
Job stress Using the Copenhagen Burnout Inventory Mean (SD)	2.37 (0.79)	2.32 (0.81)
Productivity Reported as work performance using 1 team form World Health Organization Health and Work Performance Questionnaire Mean (SD)	7.85 (1.57)	7.53 (1.57)

Job satisfaction - Polarity - Higher values are better
Job stress - Polarity - Lower values are better
Productivity - Polarity - Higher values are better

Critical appraisal - ROBINS-I

Job satisfaction - Leadership intervention vs Control (2 months follow-up)

Section	Question	Answer
1. Bias due to confounding	Risk of bias judgement for confounding	Low
2. Bias in selection of participants into the study	Risk of bias judgement for selection of participants into the study	Low

Section	Question	Answer
3. Bias in classification of interventions	Risk of bias judgement for classification of interventions	Low
4. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
5. Bias due to missing data	Risk of bias judgement for missing data	Critical *(No data on numbers in each arm)*
6. Bias in measurement of outcomes	Risk of bias judgement for measurement of outcomes	Moderate *(Self-reported outcome)*
7. Bias in selection of the reported result	Risk of bias judgement for selection of the reported result	Low
Overall bias	Risk of bias judgement	Critical *(Lack of data on numbers in each arm and use of self-reported outcomes)*

Job stress - Leadership intervention vs Control (2 month follow-up)

Section	Question	Answer
1. Bias due to confounding	Risk of bias judgement for confounding	Low
2. Bias in selection of participants into the study	Risk of bias judgement for selection of participants into the study	Low
3. Bias in classification of interventions	Risk of bias judgement for classification of interventions	Low

Section	Question	Answer
4. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
5. Bias due to missing data	Risk of bias judgement for missing data	Critical *(No data on numbers in each arm)*
6. Bias in measurement of outcomes	Risk of bias judgement for measurement of outcomes	Moderate *(Self-reported outcome)*
7. Bias in selection of the reported result	Risk of bias judgement for selection of the reported result	Low
Overall bias	Risk of bias judgement	Critical *(Lack of data on numbers in each arm and use of self-reported outcomes)*

Productivity - Leadership intervention vs Control (2 month follow-up)

Section	Question	Answer
1. Bias due to confounding	Risk of bias judgement for confounding	Low
2. Bias in selection of participants into the study	Risk of bias judgement for selection of participants into the study	Low
3. Bias in classification of interventions	Risk of bias judgement for classification of interventions	Low
4. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
5. Bias due to missing data	Risk of bias judgement for missing data	Critical *(No data on numbers in each arm)*

Section	Question	Answer
6. Bias in measurement of outcomes	Risk of bias judgement for measurement of outcomes	Moderate *(Self-reported outcome)*
7. Bias in selection of the reported result	Risk of bias judgement for selection of the reported result	Low
Overall bias	Risk of bias judgement	Critical *(Lack of data on numbers in each arm and use of self-reported outcomes)*

Study arms

Leadership intervention (N = 21)

Brief name	Leadership Training Program [Page 4]
Rationale/theory/Goal	The aim of the leadership training is to improve participating managers' need-supportive behaviors in terms of autonomy, competence, and relatedness support. [Page 3]
Materials used	Workshops, presentation, group activities manual, feedback [Page 5]
Procedures used	The training program was developed in collaboration with an experienced leadership and organizational consultant with a Ph.D. in psychology who also delivered the program with the assistance of two leadership developers employed by the municipality. These two leadership developers have an overarching responsibility for the municipality's leadership development program and leadership policy. To ensure that content of the training would be relevant to the particular group of mangers, we interviewed six managers that would participate in the training. The interviews focused on expectations on the leadership training, situations they perceived as difficult in their leader role, and what they wanted to learn at training. [Page 4 & 5]
Provider	Experienced leadership and organisational consultant (Ph. D in psychology) supported by 2 leadership developers who were employed by the organisation [Page 4]
Method of delivery	Face to face [Page 5]
Setting/location of intervention	Not reported

Intensity/duration of the intervention	2 two-day session a month apart and 1 half-day session 3 months later [Page 5]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	not reported

Wait-list (N = 17)

Brief name	Wait-list [Page 3]
Rationale/theory/Goal	Not reported
Materials used	Not reported
Procedures used	Wait-list supervisors received teh intervention after the end of the study. [Page 3]
Provider	Not reported
Method of delivery	Not reported
Setting/location of intervention	Not reported
Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported

Actual treatment fidelity	Not reported

D.17 Theorell, 2001

Theorell, 2001

Bibliographic Reference	Theorell, T; Emdad, R; Arnetz, B; Weingarten, AM; Employee effects of an educational program for managers at an insurance company.; Psychosomatic medicine; 2001; vol. 63 (no. 5); 724-733

Study details

Study design	Non-randomised controlled trial (NRCT)
Trial registration number	Not reported
Study start date	1998
Study end date	1999
Aim	To explore whether a management improvement program affects the work environment and health of the whole organization, particularly the situation for the employees.
Country/geographical location	Sweden
Setting	Training school: • Sector: Private • Industry: Insurance • Organisation size: Large • Contract type: not reported • Seniority: managers

	• Income: Not reported
Inclusion criteria	Managers in the department where the intervention was delivered were eligible to receive the intervention and take part in the evaluation. Employees based in intervention departments were eligible to take part in the evaluation.
Exclusion criteria	Not reported
Unit of allocation	Individual
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Repeated measures ANOVA
Attrition	Intervention group: 2/44 managers dropped out during the intervention. 153/223 intervention participants (managers and employees) completed the blood sampling follow up; 119/223 completed the questionnaire follow up. Control group: 146/260 control participants (managers and employees) completed the blood sampling follow up; 132/260 completed the questionnaire follow up.
Study limitations (author)	The authors noted the following limitations: additional policies implemented in the organisation during the follow up period; baseline differences between the groups on 2 work climate factors; a relatively large dropout frequency; doubt about whether psychosocial variables were assessed in the proper way and whether additional psychosocial variables should have been included.
Study limitations (reviewer)	lack of information provided about participant characteristics
Source of funding	Not reported

Study arms

Leadership intervention (N = 176)
42 managers received the intervention

Control (N = 168)
42 managers received the intervention

Characteristics

Study-level characteristics

Characteristic	Study (N = 344)
Male Sample size	n = 129 ; % = 37.5
Female Sample size	n = 215 ; % = 62.5

Outcomes

Study timepoints

- 1 year (After the intervention)

Employee outcome

Outcome	Leadership intervention, 1 year, N = 176	Control, 1 year, N = 168
Job stress Reported as psychological demands Sample size	n = 97 ; % = 55.1	n = 116 ; % = 69
Job stress Reported as psychological demands Mean (SD)	14.07 (2.96)	13.97 (2.72)
Methods and levels of employee consultation and participation Reported as decision authority Sample size	n = 99 ; % = 56.3	n = 117 ; % = 69.6

Outcome	Leadership intervention, 1 year, N = 176	Control, 1 year, N = 168
Methods and levels of employee consultation and participation Reported as decision authority Mean (SD)	6.12 (1.44)	5.7 (1.32)

Job stress - Polarity - Lower values are better
Methods and levels of employee consultation and participation - Polarity - Higher values are better

Critical appraisal - ROBINS-I

Job stress - Leadership intervention vs Control (1 year follow-up)

Section	Question	Answer
1. Bias due to confounding	Risk of bias judgement for confounding	Low
2. Bias in selection of participants into the study	Risk of bias judgement for selection of participants into the study	Low
3. Bias in classification of interventions	Risk of bias judgement for classification of interventions	Low
4. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
5. Bias due to missing data	Risk of bias judgement for missing data	Moderate
6. Bias in measurement of outcomes	Risk of bias judgement for measurement of outcomes	Moderate
7. Bias in selection of the reported result	Risk of bias judgement for selection of the reported result	Low

Section	Question	Answer
Overall bias	Risk of bias judgement	Serious *(Concerns over missing data and self-reported outcome)*

Methods and levels of employee consultation and participation - Leadership intervention vs Control (1 year follow-up)

Section	Question	Answer
1. Bias due to confounding	Risk of bias judgement for confounding	Low
2. Bias in selection of participants into the study	Risk of bias judgement for selection of participants into the study	Low
3. Bias in classification of interventions	Risk of bias judgement for classification of interventions	Low
4. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low
5. Bias due to missing data	Risk of bias judgement for missing data	Moderate
6. Bias in measurement of outcomes	Risk of bias judgement for measurement of outcomes	Moderate
7. Bias in selection of the reported result	Risk of bias judgement for selection of the reported result	Low
Overall bias	Risk of bias judgement	Serious *(Concerns over missing data and self-reported outcome)*

Study arms

Leadership intervention (N = 176)

Brief name	Educational program for managers [Page 725]
Rationale/theory/Goal	To increase awareness of factors affecting the psychosocial work environment [Page 725]
Materials used	Workshops comprising lectures and discussion [Page 726]
Procedures used	The intervention sessions took place once every second week during a whole working year, with mandatory participation for all managers in the organization. [Page 726]
Provider	Organisation consultant [Page 726]
Method of delivery	Face to face group [Page 726]
Setting/location of intervention	Not reported
Intensity/duration of the intervention	2 hours every 2 weeks for 1 year [Page 725]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Control (N = 168)

Brief name	Control [Abstract]
Rationale/theory/Goal	Not reported
Materials used	Not reported
Procedures used	Not reported
Provider	Not reported
Method of delivery	Not reported

Setting/location of intervention	Not reported
Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

D.18 Wilson 2019

Wilson 2019

Bibliographic Reference	Wilson S, S; Martin, A; Edwards, M; O'Sullivan, M; Understanding the conditions for successful mental health training for managers; 2019

Study details

Study design	Randomised controlled trial (RCT)
Trial registration number	Not reported
Study start date	Jul-2018
Study end date	Oct-2018
Aim	To compare two forms of mental health training (face to face and e-learning) for managers with a wait-list control group.

Country/geographical location	UK
Setting	Workplace • Sector: Private • Industry: Transport (Rail) • Organisation size: Large • Contract type: not reported • Seniority: managers • Income: not reported
Inclusion criteria	Not reported
Exclusion criteria	Not reported
Method of randomisation	Not reported but stratified by company
Method of allocation concealment	Not reported
Unit of allocation	Individual
Unit of analysis	Individual
Statistical method(s) used to analyse the data	Power calculation: not reported Intention to treat: not reported a two-way ANOVA with planned contrasts was used. Further analysis explored any differences in the outcomes depending on which method (e-learning or face-to-face) a participant was assigned to.
Attrition	46 out of 85 (54.1%) in the face to face group, 32 out of 74 (43.2%) in the e-learning group and 39 out of 55 (70.9%) in the control group provided data at follow-up.
Study limitations (author)	• Low completion rates for final follow-up

Study limitations (reviewer)	Lack of detail on randomisation and allocation concealment
Source of funding	Rail Safety and Standards Board
Themes	**Compatibility with existing skills** Some felt that the training was compatible with 'just being a good line manager' and having an open and authentic approach. Therefore managers possibly more well-versed on soft skills found some parts quite generic and more about good people management. *"So you could actually strip a lot of the MH away from it and what it's essentially saying is 'just be a good LM and be open and approachable', which is transferable to many other things."* (Face-to-face training participant) **Opportunity to learn from peers** The training opportunity for interaction, not just with the trainer, but with other managers from within and between companies. It was felt their experiences offered insight into how principles from the training had real-life applicability in the workplace and allowed knowledge to be picked up on an ad hoc basis. *"You were able to hear direct thoughts from other people and their personal experiences, and see that people were happy to talk about their personal experiences. This was quite interesting, because you were able to put that into context for the job that you do and apply to people who might be feeling similar."* (Face-to-face training participant) **Value of different formats** There was agreement that the e-learning format would suit those who don't have time to attend a face-to-face course but might find it realistic to fit one module at a time around a busy work schedule. Participants liked the potential to 'dip in and out' as well as having the option of watching videos in part, to their full duration, or several times. For many this seemed to fit their preferred style of learning. *"It was useful that it was broken into chunks, which were long enough for you to concentrate and get something substantial out of it, but not so long that you had to rearrange your diary. It was manageable."* (E-learning participant)

	Barrier to e-learning Some participants thought it would be difficult to access e-learning 'in the operational world'; some workers would not have sufficient access to a laptop or computer. It was felt that face-to-face training or briefings would work better in some roles where there were fewer opportunities for scheduled screen time. **Overestimation of support available** There were concerns that Mind overestimated the accessibility of HR support, the level of familiarity LMs have with 'who does what' and the ease of getting in touch with a geographically distant function.

Study arms

MH training (N = 85)

E-MH training (N = 74)

Wait-list (N = 55)

Characteristics

Arm-level characteristics

Characteristic	MH training (N = 85)	E-MH training (N = 74)	Wait-list (N = 55)
20 - 24 Sample size	n = 2 ; % = 2.4	n = 0 ; % = 0	n = 0 ; % = 0
25-34 Sample size	n = 8 ; % = 9.4	n = 15 ; % = 20.3	n = 10 ; % = 18.9
35-44	n = 29 ; % = 34.1	n = 19 ; % = 25.7	n = 14 ; % = 26.4

Characteristic	MH training (N = 85)	E-MH training (N = 74)	Wait-list (N = 55)
Sample size			
45-54 Sample size	n = 36 ; % = 42.4	n = 28 ; % = 37.8	n = 28 ; % = 62.8
55-64 Sample size	n = 10 ; % = 11.8	n = 10 ; % = 13.5	n = 0 ; % = 0
≥65 Sample size	n = 0 ; % = 0	n = 2 ; % = 2.7	n = 1 ; % = 1.9
Male Sample size	n = 26 ; % = 30.6	n = 23 ; % = 31.1	n = 22 ; % = 40
Female Sample size	n = 59 ; % = 69.4	n = 50 ; % = 67.6	n = 33 ; % = 60
No answer Sample size	n = 0 ; % = 0	n = 1 ; % = 1.4	n = 0 ; % = 0
White Sample size	n = 78 ; % = 91.8	n = 66 ; % = 89.2	n = 52 ; % = 94.5

Outcomes

Study timepoints

- 0 week

Manager outcomes

Outcome	MH training, 0 week, N = 85	E-MH training, 0 week, N = 74	Wait-list, 0 week, N = 55
Mental health knowledge Sample size	n = 46 ; % = 54.1	n = 32 ; % = 43.2	n = 39 ; % = 70.9
Mental health knowledge Mean (SD)	3.86 (0.39)	3.99 (0.44)	3.42 (0.76)
Preparedness to take action Sample size	n = 46 ; % = 54.1	n = 32 ; % = 43.2	n = 36 ; % = 70.9
Preparedness to take action Mean (SD)	3.96 (0.44)	3.94 (0.41)	3.41 (0.5)

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) - RCT

Mental health knowledge - MH training vs E-MH training vs Wait-list (Endpoint)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Some concerns *(Imbalance in rates of missing data)*

Section	Question	Answer
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self-report outcome)*
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	High *(Concerns over missing data and self-report outcomes)*

Preparedness to take action - MH training vs E-MH training vs Wait-list (Endpoint)

Section	Question	Answer
Domain 1: Bias arising from the randomisation process	Risk of bias judgement for the randomisation process	Low
Domain 2a: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)	Risk of bias for deviations from the intended interventions (effect of assignment to intervention)	Low
Domain 2b: Risk of bias due to deviations from the intended interventions (effect of adhering to intervention)	Risk of bias judgement for deviations from the intended interventions (effect of adhering to intervention)	Low
Domain 3. Bias due to missing outcome data	Risk-of-bias judgement for missing outcome data	Some concerns *(Imbalance in rates of missing data)*
Domain 4. Bias in measurement of the outcome	Risk-of-bias judgement for measurement of the outcome	Some concerns *(Self-report outcome)*

Section	Question	Answer
Domain 5. Bias in selection of the reported result	Risk-of-bias judgement for selection of the reported result	Low
Overall bias and Directness	Risk of bias judgement	High *(Concerns over missing data and self-report outcomes)*

Study arms

MH Training (N = 85)

Brief name	Face to face training [Appendix A, Page 2]
Rationale/theory/Goal	Not reported
Materials used	Presentations, discussion, signposting and group work [Appendix A, Page 2]
Procedures used	Training took place in 5 locations [Appendix A, Page 1]
Provider	MIND trainers [Appendix A, Page 1]
Method of delivery	Face to face group [Appendix A, Page 2]
Setting/location of intervention	Not reported [Page Appendix A, Page 2]
Intensity/duration of the intervention	Single session of 3.5 hours [Appendix A, Page 1]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported

Actual treatment fidelity	Not reported

E-MH Training (N = 74)

Brief name	E-Learning [Appendix A, Page 1]
Rationale/theory/Goal	Stated objective is for individuals to learn how to manage your own mental health; to understand how mental ill health in the workplace affects employees, and how it can be prevented; to learn how to support team members who are experiencing mental health problems; to learn to embed mental health into policy and practice to make it 'business as usual'. [Appendix A, Page 1]
Materials used	Interactive media including a quiz, videos, real-life scenarios and animations [Appendix A, Page 1]
Procedures used	Participants were sent an invitation to the course with a link to a login page that requested their email address. The e-learning could be accessed from anywhere in the UK and was supported by most devices with an internet connection. [Appendix A, Page 1]
Provider	MIND [Appendix A, Page 1]
Method of delivery	Online [Appendix A, Page 1]
Setting/location of intervention	Not reported
Intensity/duration of the intervention	2-3 hours over a maximum 7-week timeframe [Appendix A, Page 1]
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Wait-list (N = 55)

Brief name	Wait-list [Page 5]
Rationale/theory/Goal	Not reported
Materials used	Not reported
Procedures used	Control participants were put on a ‘wait list’ so they could be guaranteed training at the earliest possible opportunity after the study had ended. [Page 5]
Provider	Not reported
Method of delivery	Not reported
Setting/location of intervention	Not reported
Intensity/duration of the intervention	Not reported
Tailoring/adaptation	Not reported
Unforeseen modifications	Not reported
Planned treatment fidelity	Not reported
Actual treatment fidelity	Not reported

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Aims of the research	Was there a clear statement of the aims of the research?	Yes
Appropriateness of methodology	Is a qualitative methodology appropriate?	Yes
Research Design	Was the research design appropriate to address the aims of the research?	Yes

Section	Question	Answer
Recruitment Strategy	Was the recruitment strategy appropriate to the aims of the research?	Yes
Data collection	Was the data collected in a way that addressed the research issue?	Yes
Researcher and participant relationship	Has the relationship between researcher and participants been adequately considered?	Yes
Ethical Issues	Have ethical issues been taken into consideration?	Can't tell
Data analysis	Was the data analysis sufficiently rigorous?	Yes
Findings	Is there a clear statement of findings?	Yes
Research value	How valuable is the research?	The research is valuable
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

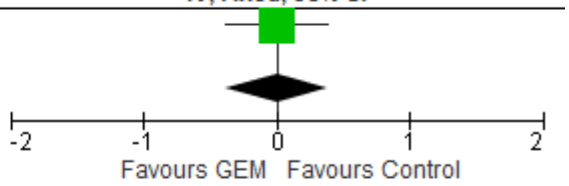
Appendix E – Forest plots

E.1 GEM

E.1.1 Job stress

Study or Subgroup	GEM Mean	GEM SD	GEM Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Stansfeld 2015 (1)	2.9	3.5	119	2.9	3.7	33	100.0%	0.00 [-0.39, 0.39]
Total (95% CI)			**119**			**33**	**100.0%**	**0.00 [-0.39, 0.39]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.00 (P = 1.00)



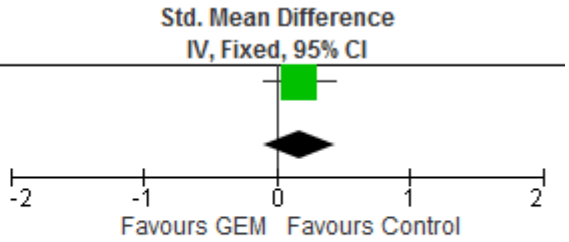
Footnotes
(1) Follow up: 3 months. Outcome reported as: psychological distress

#

E.1.2 Absenteeism

Study or Subgroup	GEM Mean	GEM SD	GEM Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Stansfeld 2015 (1)	1.6	3.7	286	1	1.7	64	100.0%	0.17 [-0.10, 0.45]
Total (95% CI)			**286**			**64**	**100.0%**	**0.17 [-0.10, 0.45]**

Heterogeneity: Not applicable
Test for overall effect: Z = 1.26 (P = 0.21)

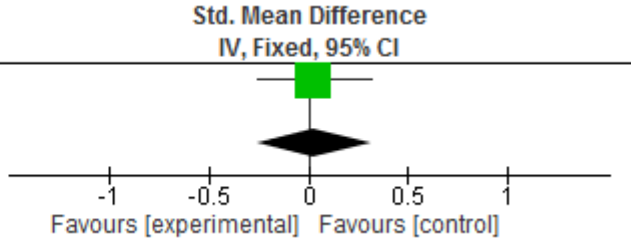


Footnotes
(1) Follow up: 3 months

E.1.3 Mental wellbeing

Study or Subgroup	GEM Mean	GEM SD	GEM Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Stansfeld 2015	49.9	38.3	225	49	8.5	59	100.0%	0.03 [-0.26, 0.31]
Total (95% CI)			**225**			**59**	**100.0%**	**0.03 [-0.26, 0.31]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.18 (P = 0.86)

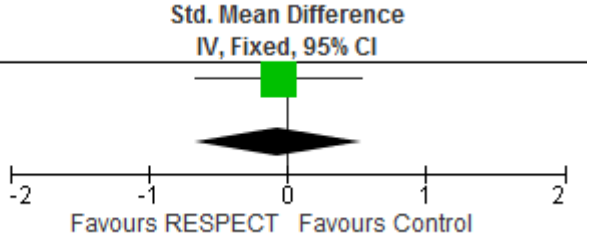


E.2 RESPECT

E.2.1 De-stigmatisation

Study or Subgroup	RESPECT Mean	RESPECT SD	RESPECT Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Milligan-Saville 2017	-81.3	10.2	19	-80.6	10.6	25	100.0%	-0.07 [-0.66, 0.53]
Total (95% CI)			**19**			**25**	**100.0%**	**-0.07 [-0.66, 0.53]**

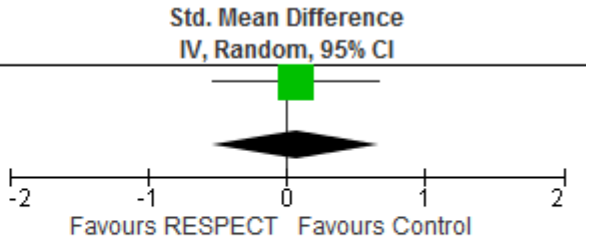
Heterogeneity: Not applicable
Test for overall effect: Z = 0.22 (P = 0.83)



E.2.2 Confidence to discuss mental health

Study or Subgroup	RESPECT Mean	RESPECT SD	RESPECT Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
Milligan-Saville 2017 (1)	-69.3	11.6	19	-70.1	11.8	25	100.0%	0.07 [-0.53, 0.66]
Total (95% CI)			**19**			**25**	**100.0%**	**0.07 [-0.53, 0.66]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.22 (P = 0.83)

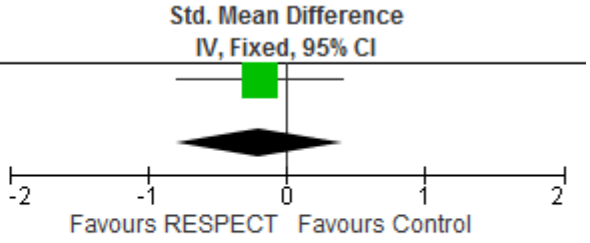


Footnotes
(1) Follow up: 6 months

E.2.3 Mental health knowledge

Study or Subgroup	RESPECT Mean	RESPECT SD	RESPECT Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Milligan-Saville 2017 (1)	-56.8	13.8	19	-53.6	17.5	25	100.0%	-0.20 [-0.79, 0.40]
Total (95% CI)			**19**			**25**	**100.0%**	**-0.20 [-0.79, 0.40]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.64 (P = 0.52)



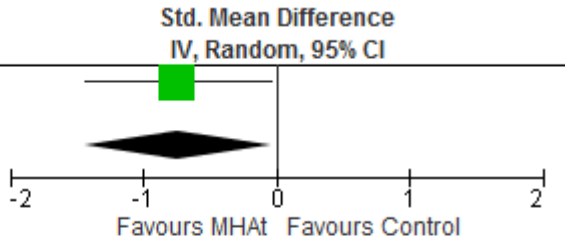
Footnotes
(1) Follow up: 6 months

E.3 MHAT

E.3.1 Confidence identifying employees experiencing or at risk of poor mental wellbeing

	MHAT			Control				Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Dimoff 2019 (1)	-1.83	0.44	24	-1.52	0.34	13	100.0%	-0.74 [-1.44, -0.04]	
Total (95% CI)			**24**			**13**	**100.0%**	**-0.74 [-1.44, -0.04]**	

Heterogeneity: Not applicable
Test for overall effect: Z = 2.08 (P = 0.04)

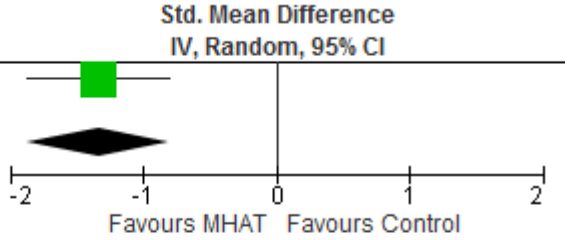


Footnotes
(1) Follow up: 3 months

E.3.2 Uptake of support services

	MHAT			Control				Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Dimoff 2019 (1)	-2.2	0.68	60	-1.32	0.57	22	100.0%	-1.34 [-1.87, -0.80]	
Total (95% CI)			**60**			**22**	**100.0%**	**-1.34 [-1.87, -0.80]**	

Heterogeneity: Not applicable
Test for overall effect: Z = 4.92 (P < 0.00001)

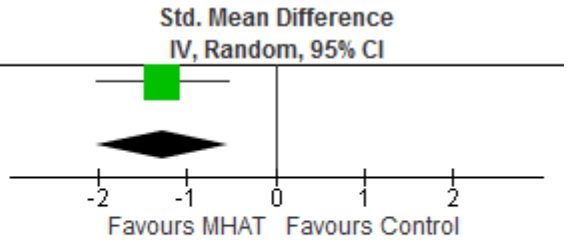


Footnotes
(1) Follow up: 3 months

E.3.3 Communication about mental health and awareness of resources

Study or Subgroup	MHAT Mean	MHAT SD	MHAT Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
Dimoff 2019 (1)	-2.61	0.87	24	-1.6	0.54	13	100.0%	-1.28 [-2.02, -0.54]
Total (95% CI)			**24**			**13**	**100.0%**	**-1.28 [-2.02, -0.54]**

Heterogeneity: Not applicable
Test for overall effect: Z = 3.38 (P = 0.0007)

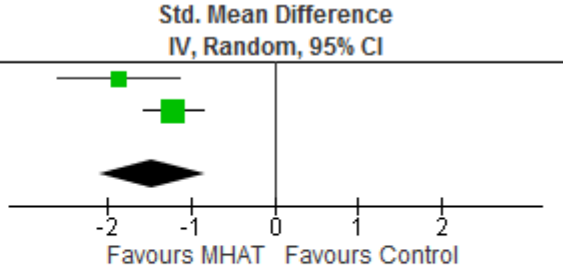


Footnotes
(1) Follow up: 3 months

E.3.4 Mental health knowledge

Study or Subgroup	MHAT Mean	MHAT SD	MHAT Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
Dimoff 2016 (study 1) (1)	-4.53	0.3	21	-3.9	0.36	22	38.3%	-1.86 [-2.59, -1.14]
Dimoff 2016 (study 2) (2)	-4.32	0.4	88	-3.85	0.37	54	61.7%	-1.20 [-1.57, -0.83]
Total (95% CI)			**109**			**76**	**100.0%**	**-1.45 [-2.08, -0.83]**

Heterogeneity: $Tau^2 = 0.13$; $Chi^2 = 2.53$, df = 1 (P = 0.11); $I^2 = 60\%$
Test for overall effect: Z = 4.53 (P < 0.00001)

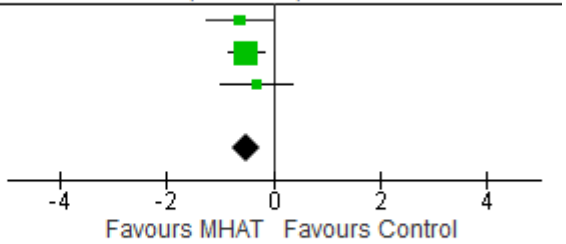


Footnotes
(1) Follow up: 8 weeks
(2) Follow up: 8 weeks

E.3.5 De-stigmatisation

Study or Subgroup	MHAT Mean	MHAT SD	MHAT Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
Dimoff 2016 (study 1)	-3.48	0.22	21	-3.3	0.33	22	20.0%	-0.63 [-1.24, -0.01]
Dimoff 2016 (study 2)	-3.2	0.42	88	-3	0.33	54	63.6%	-0.51 [-0.86, -0.17]
Dimoff 2019 (1)	1.77	0.44	24	1.9	0.36	13	16.4%	-0.31 [-0.99, 0.37]
Total (95% CI)			**133**			**89**	**100.0%**	**-0.50 [-0.78, -0.23]**

Heterogeneity: Tau² = 0.00; Chi² = 0.48, df = 2 (P = 0.79); I² = 0%
Test for overall effect: Z = 3.58 (P = 0.0003)



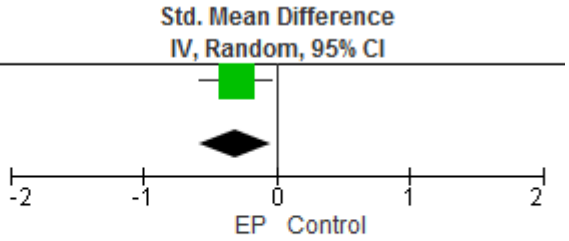
Footnotes
(1) 9-item Personal Depression Stigma Scale.1(StronglyAgree)-5(StronglyDisagree).I wouldn't employ someone if I knew had a mental health...

E.4 Educational program

E.4.1 Methods and levels of employee consultation and participation

Study or Subgroup	EP Mean	EP SD	EP Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
Theorell 2003 (1)	-6.12	1.44	99	-5.7	1.32	117	100.0%	-0.30 [-0.57, -0.03]
Total (95% CI)			**99**			**117**	**100.0%**	**-0.30 [-0.57, -0.03]**

Heterogeneity: Not applicable
Test for overall effect: Z = 2.21 (P = 0.03)

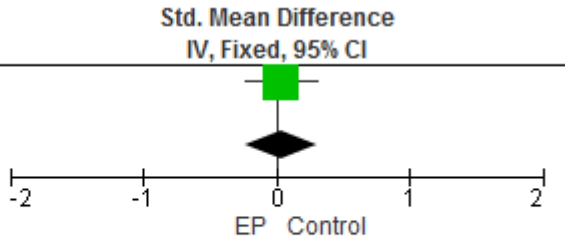


Footnotes
(1) 2 questions dealing with influence over what to do at work and how to do it.Summed to an index ranging from 2 (very little) to 8 (very much).

E.4.2 Job stress

Study or Subgroup	EP Mean	EP SD	EP Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Theorell 2003 (1)	14.07	2.96	97	13.97	2.72	116	100.0%	0.04 [-0.23, 0.30]
Total (95% CI)			**97**			**116**	**100.0%**	**0.04 [-0.23, 0.30]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.26 (P = 0.80)



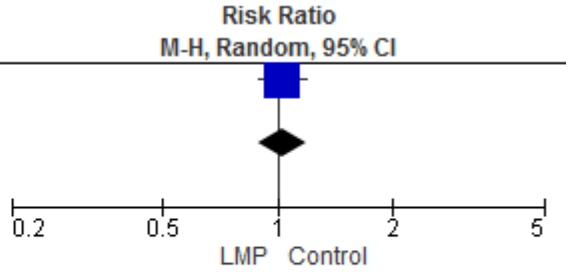
Footnotes
(1) Follow up: 1 year. Outcome reported as: psychological demands

E.5 Leadership and management program

E.5.1 Job satisfaction

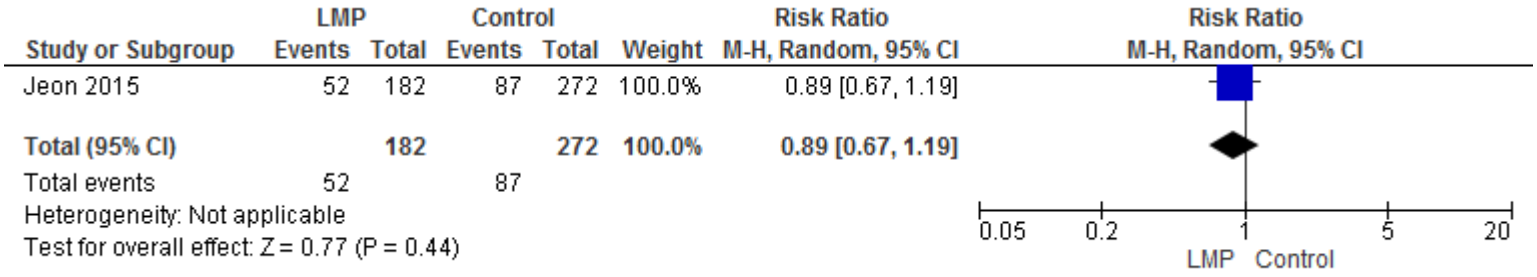
Study or Subgroup	LMP Events	LMP Total	Control Events	Control Total	Weight	Risk Ratio M-H, Random, 95% CI
Jeon 2015 (1)	87	116	117	161	100.0%	1.03 [0.90, 1.19]
Total (95% CI)		**116**		**161**	**100.0%**	**1.03 [0.90, 1.19]**
Total events	87		117			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.44 (P = 0.66)



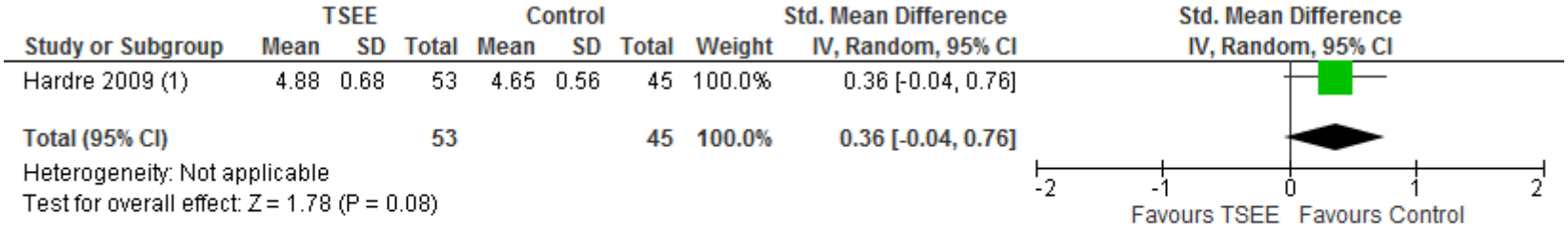
Footnotes
(1) Follow up:1 year

E.5.2 Employee retention



E.6 Training to support employee autonomy

E.6.1 Job satisfaction



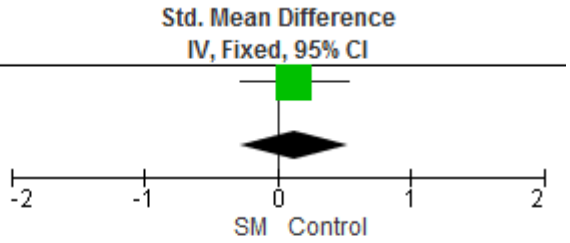
Footnotes
(1) Follow up: 5 weeks

E.7 Stress management

E.7.1 Job stress

Study or Subgroup	SM Mean	SM SD	SM Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Angelo Rui 2013 (1)	2.03	1.46	67	1.84	1.56	37	100.0%	0.13 [-0.28, 0.53]
Total (95% CI)			**67**			**37**	**100.0%**	**0.13 [-0.28, 0.53]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.61 (P = 0.54)

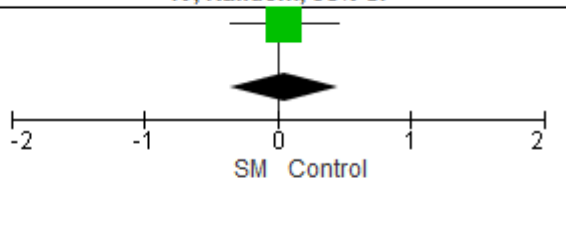


Footnotes
(1) Follow up:4months. Outcome reported as Emotional exhaustion (Maslach Burnout Inventory)

E.7.2 Job satisfaction

Study or Subgroup	SM Mean	SM SD	SM Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
Angelo Rui 2013 (1)	5.32	0.76	67	5.28	0.79	37	100.0%	0.05 [-0.35, 0.45]
Total (95% CI)			**67**			**37**	**100.0%**	**0.05 [-0.35, 0.45]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.25 (P = 0.80)



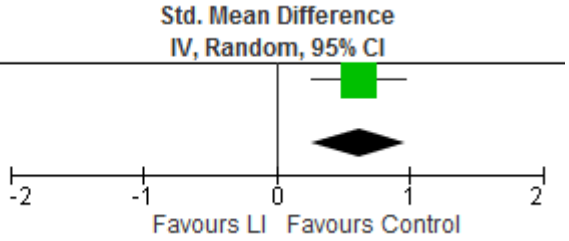
Footnotes
(1) Follow up: 4 months, Outcome reported as dedication

E.8 Leadership intervention

E.8.1 Job stress

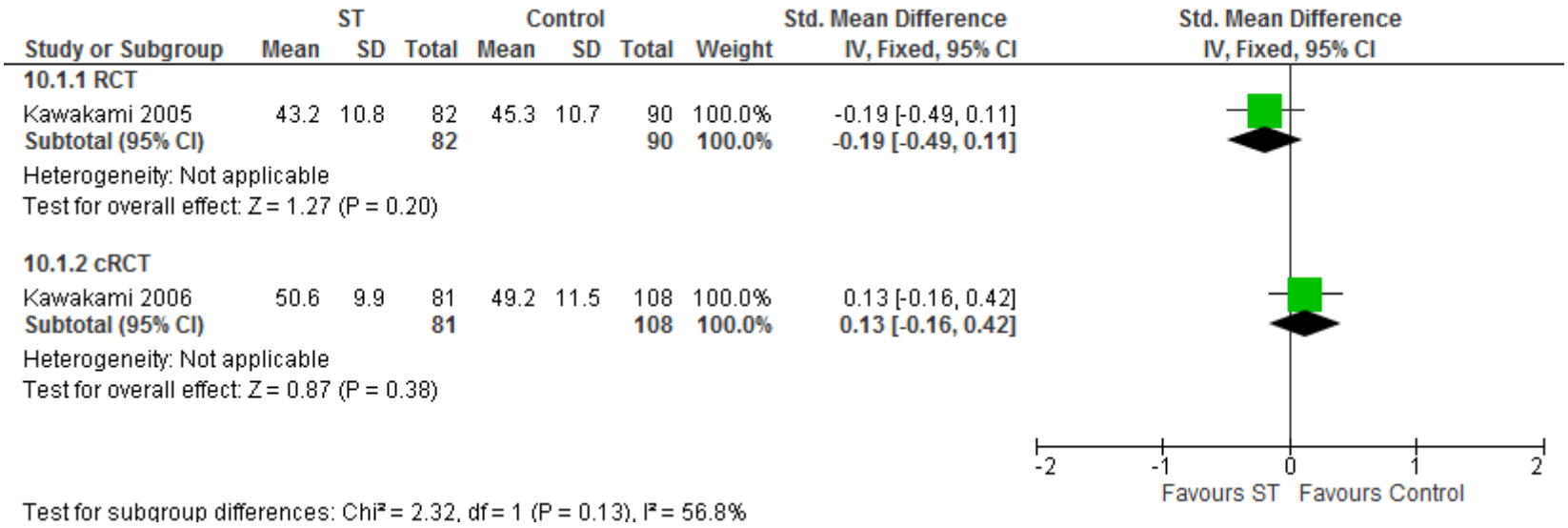
Study or Subgroup	LI Mean	LI SD	LI Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
Elo 2014	2.4	1.56	49	1.56	1.22	96	100.0%	0.62 [0.27, 0.97]
Total (95% CI)			**49**			**96**	**100.0%**	**0.62 [0.27, 0.97]**

Heterogeneity: Not applicable
Test for overall effect: Z = 3.47 (P = 0.0005)

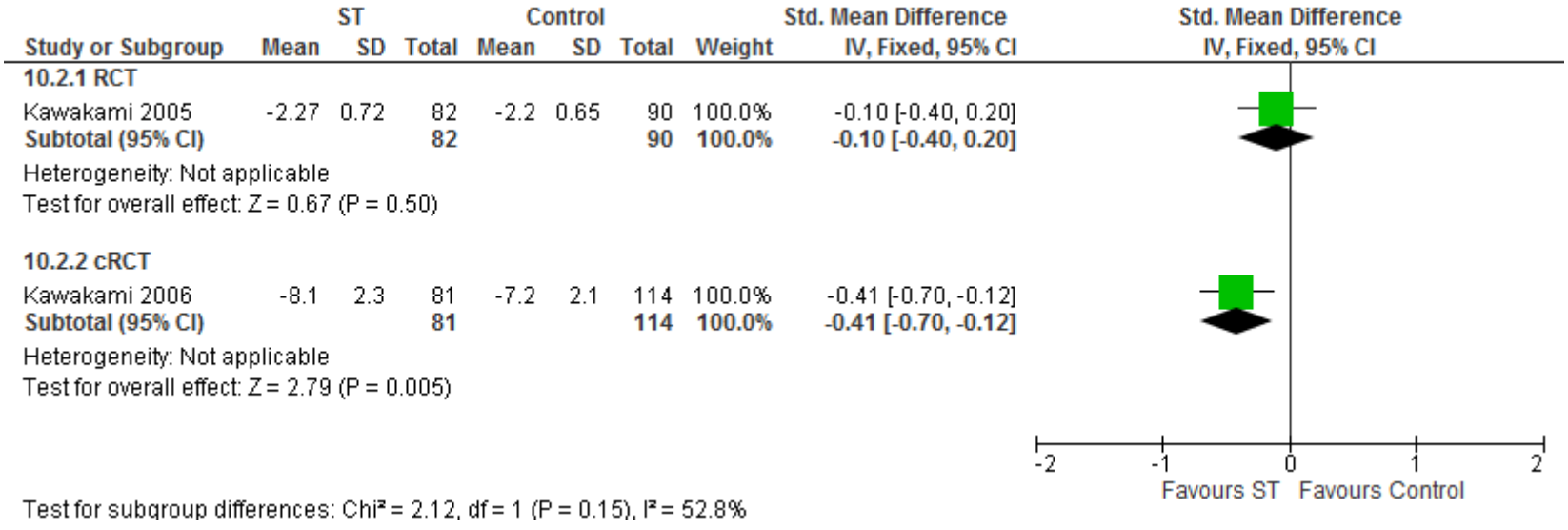


E.9 Supervisor training

E.9.1 Job stress

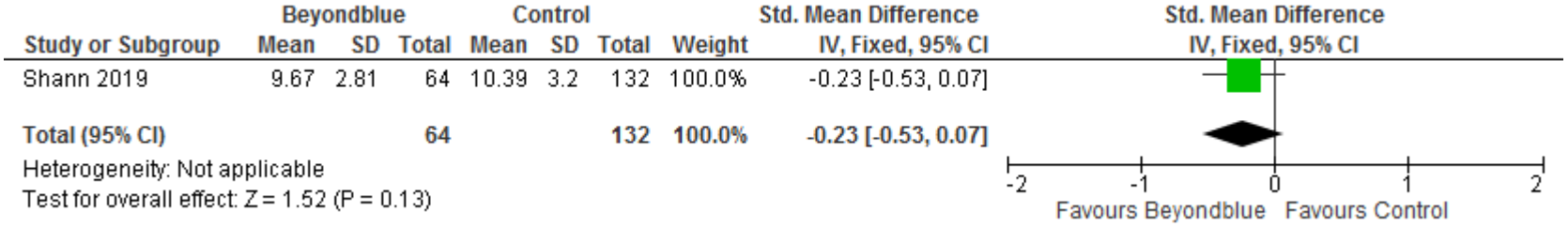


E.9.2 Perception of supervisor support



E.10 Beyondblue

E.10.1 Attitude

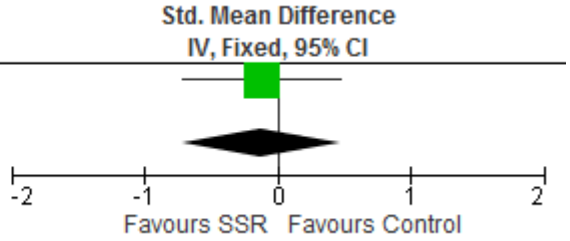


E.11 Supervisor stress reduction

E.11.1 Mental health knowledge

	SSR			Control				Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Fixed, 95% CI
Nishiuchi 2007	-45	7.0356	22	-44.1	7.3321	21	100.0%	-0.12 [-0.72, 0.48]
Total (95% CI)			**22**			**21**	**100.0%**	**-0.12 [-0.72, 0.48]**

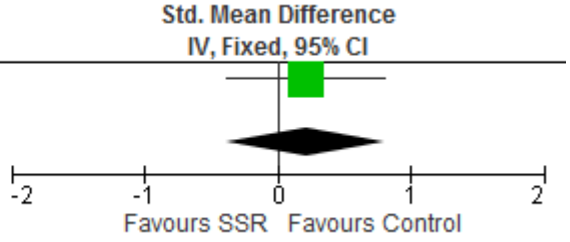
Heterogeneity: Not applicable
Test for overall effect: Z = 0.40 (P = 0.69)



E.11.2 Attitude

	SSR			Control				Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Fixed, 95% CI
Nishiuchi 2007	-12.6	2.8142	22	-13.2	2.7495	21	100.0%	0.21 [-0.39, 0.81]
Total (95% CI)			**22**			**21**	**100.0%**	**0.21 [-0.39, 0.81]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.69 (P = 0.49)

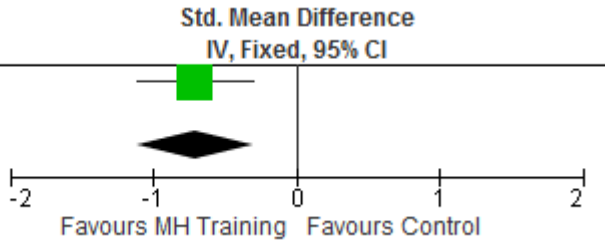


E.12 MH training

E.12.1 Mental health knowledge

Study or Subgroup	MH Training Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Wilson 2019	-3.86	0.39	46	-3.42	0.76	55	100.0%	-0.70 [-1.11, -0.30]
Total (95% CI)			**46**			**55**	**100.0%**	**-0.70 [-1.11, -0.30]**

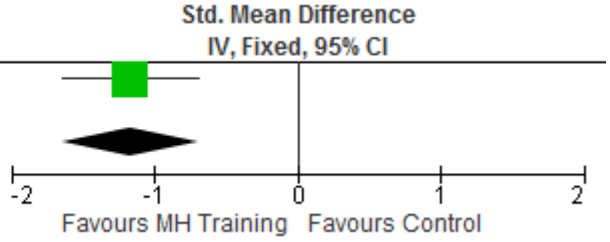
Heterogeneity: Not applicable
Test for overall effect: Z = 3.42 (P = 0.0006)



E.12.2 Preparedness to take action

Study or Subgroup	MH Training Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Wilson 2019	-3.96	0.44	46	-3.41	0.5	36	100.0%	-1.17 [-1.64, -0.69]
Total (95% CI)			**46**			**36**	**100.0%**	**-1.17 [-1.64, -0.69]**

Heterogeneity: Not applicable
Test for overall effect: Z = 4.83 (P < 0.00001)

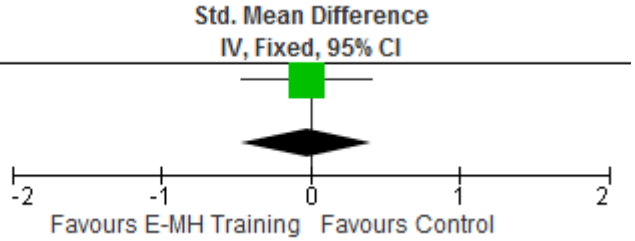


E.13 E-MH training

E.13.1 Mental health knowledge

	E-MH Training			Control				Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Fixed, 95% CI
Wilson 2019	-3.99	44	32	-3.42	0.76	55	100.0%	-0.02 [-0.46, 0.41]
Total (95% CI)			**32**			**55**	**100.0%**	**-0.02 [-0.46, 0.41]**

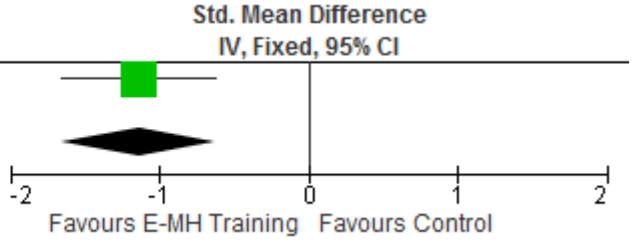
Heterogeneity: Not applicable
Test for overall effect: Z = 0.10 (P = 0.92)



E.13.2 Preparedness to take action

	E-MH Training			Control				Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Fixed, 95% CI
Wilson 2019	-3.94	0.41	32	-3.41	0.5	36	100.0%	-1.14 [-1.65, -0.62]
Total (95% CI)			**32**			**36**	**100.0%**	**-1.14 [-1.65, -0.62]**

Heterogeneity: Not applicable
Test for overall effect: Z = 4.33 (P < 0.0001)

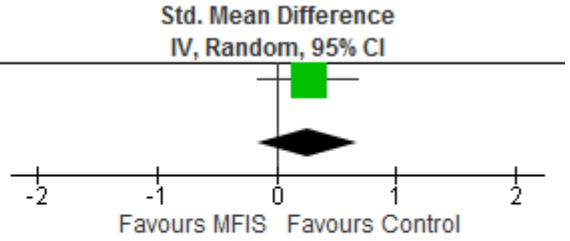


E.14 Multi-faceted implementation strategy

E.14.1 Skills and confidence to respond to mental wellbeing

	MFIS			Control				Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI
Ketelaar 2017 (1)	17.2	2.3	44	16.6	2.2	45	100.0%	0.26 [-0.15, 0.68]
Total (95% CI)			**44**			**45**	**100.0%**	**0.26 [-0.15, 0.68]**

Heterogeneity: Not applicable
Test for overall effect: Z = 1.24 (P = 0.21)

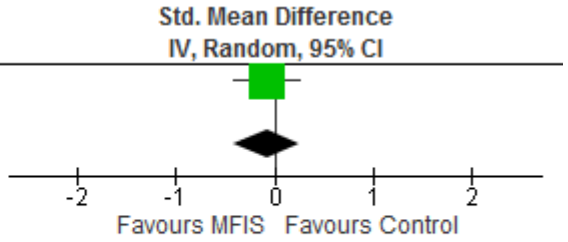


Footnotes
(1) Follow up: 6 months

E.14.2 Absenteeism

	MFIS			Control				Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI
Ketelaar 2017 (1)	2.4	6.7	60	3.6	19.7	79	100.0%	-0.08 [-0.41, 0.26]
Total (95% CI)			**60**			**79**	**100.0%**	**-0.08 [-0.41, 0.26]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.45 (P = 0.65)



Footnotes
(1) Follow up: 6 months

Appendix F – GRADE and GRADE-CERQual tables

F.1 GRADE

F.1.1 GEM vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	GEM	Control	Relative (95% CI)	Absolute	
Job stress - Employee (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	119	33	-	SMD 0 higher (0.39 lower to 0.39 higher)	LOW
Absenteeism (Better indicated by lower values)											
1	randomised trials	no serious risk of bias[5]	NA[2]	no serious indirectness[3]	serious[4]	none	286	64	-	SMD 0.17 higher (0.1 lower to 0.45 higher)	MODERATE
Mental wellbeing - Employee (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	225	59	-	SMD 0.03 higher (-0.26 lower to 0.31 higher)	LOW

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect
[5] No concerns over risk of bias

F.1.2 RESPECT vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	RESPECT	Control	Relative (95% CI)	Absolute	
De-stigmatisation (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	19	25	-	SMD 0.07 lower (0.66 lower to 0.53 higher)	LOW
confidence discuss mental wellbeing (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	19	25	-	SMD 0.07 higher (0.53 lower to 0.66 higher)	LOW
Mental health knowledge - Manager (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	19	25	-	SMD 0.2 lower (0.79 lower to 0.4 higher)	LOW

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect

F.1.3 MHAT vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	MHAT	Control	Relative (95% CI)	Absolute	
Confidence identifying employees experiencing or at risk of poor mental well being(reported as recognising warning symptoms among employees) (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	no serious imprecision[4]	none	24	13	-	SMD 0.74 lower (1.44 to 0.04 lower)	MODERATE

uptake of support services (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	no serious imprecision[4]	none	60	22	-	SMD 1.34 lower (1.87 to 0.8 lower)	MODERATE
communicate about MH and awareness of resources (reported as: communicate about mental health and health resources) (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	no serious imprecision[4]	none	24	13	-	SMD 1.28 lower (2.02 to 0.54 lower)	MODERATE
manager mental health knowledge (Better indicated by lower values)											
2	randomised trials	serious[1]	serious[5]	no serious indirectness[3]	no serious imprecision[4]	none	109	76	-	SMD 1.45 lower (2.08 to 0.83 lower)	LOW
De-stigmatisation (Better indicated by lower values)											
3	randomised trials	serious[1]	no serious inconsistency[6]	no serious indirectness[3]	no serious imprecision[4]	none	133	89	-	SMD 0.5 lower (0.78 to 0.23 lower)	MODERATE

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI do not cross the line of no effect
[5] Serious concerns as |-squared is between 50% and 75%
[6] No concerns as I-squared is less than 50%

F.1.4 Educational program vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Educational program**	**Control**	**Relative (95% CI)**	**Absolute**	
methods and level of employee consultation and participation (decision authority) (Better indicated by lower values)											
1	observational studies	serious[1]	NA[3]	no serious indirectness[2]	no serious imprecision[3]	none	99	117	-	SMD 0.3 lower (0.57 to 0.03 lower)	VERY LOW
Job stress (Better indicated by lower values)											

1	observational studies	serious[1]	NA[3]	no serious indirectness[2]	serious[5]	none	97	116	-	SMD 0.04 higher (0.23 lower to 0.3 higher)	VERY LOW

[1] Serious concerns over use of self-report measures
[2] Population, intervention, comparator and outcome match the review protocol
[3] 95% CI do not cross the line of no effect
[4] Single study analysis
[5] 95% CI cross the line of no effect

F.1.5 Leadership and management program vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Leadership and management program**	**Control**	**Relative (95% CI)**	**Absolute**	
Job satisfaction, engagement or motivation											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	87/116 (75%)	117/161 (72.7%)	RR 1.03 (0.9 to 1.19)	22 more per 1000 (from 73 fewer to 138 more)	LOW
employee retention (reported as employee intention to leave)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	52/182 (28.6%)	87/272 (32%)	RR 0.89 (0.67 to 1.19)	35 fewer per 1000 (from 106 fewer to 61 more)	LOW

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect

F.1.6 Training to support employee autonomy vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Training to support employee autonomy**	**Control**	**Relative (95% CI)**	**Absolute**	
Job satisfaction, engagement or motivation (Better indicated by lower values)											

1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	no serious imprecision[4]	none	53	45	-	SMD 0.36 higher (0.04 lower to 0.76 higher)	MODERATE

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Serious concerns over use of self-report measures
[4] 95% CI cross the line of no effect

F.1.7 Stress management vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Stress management**	**Control**	**Relative (95% CI)**	**Absolute**	
Job stress (Better indicated by lower values)											
1	observational studies	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	67	37	-	SMD 0.13 higher (0.28 lower to 0.53 higher)	VERY LOW
Job satisfaction, engagement or motivation (Better indicated by lower values)											
1	observational studies	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	67	37	-	SMD 0.05 higher (0.35 lower to 0.45 higher)	VERY LOW

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect

F.1.8 Leadership intervention vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Leadership intervention**	**Control**	**Relative (95% CI)**	**Absolute**	
job stress (Better indicated by lower values)											

1	observational studies	serious[1]	NA[2]	no serious indirectness[3]	no serious imprecision[4]	none	49	96	-	SMD 0.62 higher (0.27 to 0.97 higher)	VERY LOW

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI do not cross the line of no effect

F.1.9 Supervisor training vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Supervisor training	Control	Relative (95% CI)	Absolute	
Job stress - RCT (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	82	90	-	SMD 0.19 lower (0.49 lower to 0.11 higher)	LOW
Job stress - cRCT (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	very serious[5]	none	81	108	-	SMD 0.13 higher (0.16 lower to 0.42 higher)	VERY LOW
Perception of supervisor support - RCT (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[2]	serious[4]	none	82	90	-	SMD 0.1 lower (0.4 lower to 0.2 higher)	LOW
Perception of supervisor support - cRCT (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	serious[6]	none	81	114	-	SMD 0.41 lower (0.7 to 0.12 lower)	LOW

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect
[5] 95% CI cross the line of no effect and no adjustment for cluster effect possible
[6] No adjustment for cluster effect possible

F.1.10 Beyondblue vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Beyondblue	Control	Relative (95% CI)	Absolute	
Attitude (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	64	132	-	SMD 0.23 lower (0.53 lower to 0.07 higher)	LOW

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect

F.1.11 Supervisor stress reduction vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Supervisor stress reduction	Control	Relative (95% CI)	Absolute	
Mental Health Knowledge (Better indicated by lower values)											
1	observational studies	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	22	21	-	SMD 0.12 lower (0.72 lower to 0.48 higher)	VERY LOW
Attitude (Better indicated by lower values)											
1	no methodology chosen		NA[2]	no serious indirectness[3]	serious[4]	none	22	21	-	SMD 0.21 higher (0.39 lower to 0.81 higher)	VERY LOW

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect

F.1.12 MH Training vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	MH Training	Control	Relative (95% CI)	Absolute	
Mental health knowledge (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	no serious imprecision[4]	none	46	55	-	SMD 0.7 lower (1.11 to 0.3 lower)	MODERATE
Preparedness to take action (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	no serious imprecision[4]	none	46	36	-	SMD 1.17 lower (1.64 to 0.69 lower)	MODERATE

[1] Serious concerns over use of self-report measures
[2] Single study analysis
[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI do not cross the line of no effect

F.1.13 E-MH Training vs control for managers

Quality assessment							No of patients		Effect		Quality
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	E-MH Training	Control	Relative (95% CI)	Absolute	
Mental health knowledge (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	serious[4]	none	32	55	-	SMD 0.02 lower (0.46 lower to 0.41 higher)	LOW
Preparedness to take action (Better indicated by lower values)											
1	randomised trials	serious[1]	NA[2]	no serious indirectness[3]	no serious imprecision[5]	none	32	36	-	SMD 1.14 lower (1.65 to 0.62 lower)	MODERATE

[1] Serious concerns over use of self-report measures
[2] Single study analysis

[3] Population, intervention, comparator and outcome match the review protocol
[4] 95% CI cross the line of no effect
[5] 95% CI do not cross the line of no effect.

F.1.14 Multifaceted implementation strategy for mental wellbeing at work

Quality assessment							No of patients		Effect		Quality
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Multi-faceted implementation strategy	Control	Relative (95% CI)	Absolute	
Skills and confidence to respond to mental wellbeing (follow-up 6 months; Better indicated by lower values)											
1	randomised trials	no serious risk of bias	NA[1]	no serious indirectness	serious[2]	none	44	45	-	SMD 0.26 higher (0.15 lower to 0.68 higher)	MODERATE
Absenteeism (follow-up 6 months; measured with: mean number of days; Better indicated by lower values)											
1	randomised trials	no serious risk of bias	NA[1]	no serious indirectness	serious[2]	none	60	79	-	SMD 0.08 lower (0.41 lower to 0.26 higher)	MODERATE

[1] Single study analysis
[2] 95% CI cross the line of no effect

F.2 CERQual tables

F.2.1 Acceptability

Summary of review finding	Studies contributing to review finding	Methodological limitations	Coherence	Adequacy	Relevance	CERQual assessment of confidence in the evidence
What contributed to intervention working						
Learning styles. Managers put greater value on reinforcement of their own reinforcing existing knowledge and validating their existing practices? **Learning from peers.** Group learning was a welcome opportunity to learn from peers and to share experiences and concerns **Learning in a safe space.** Managers value the importance of having a safe environment where a manager can feel comfortable discussing issues.	Stansfeld 2015	**No concerns** (1 study with low risk of bias)	**No concerns** Finding reflects all the data reported on this theme.	**Minor concerns** Data obtained from a single study	**Major concerns** Included study related to the views and experiences of manager but no data for employers or those delivering the intervention and only limited information on employees.	**Low confidence**. Lack of data on views and experiences of those delivering the intervention or employers and only limited information for employees.

F.2.2 Barriers

Summary of review finding	Studies contributing to review finding	Methodological limitations	Coherence	Adequacy	Relevance	CERQual assessment of confidence in the evidence
Time needed for training activities						

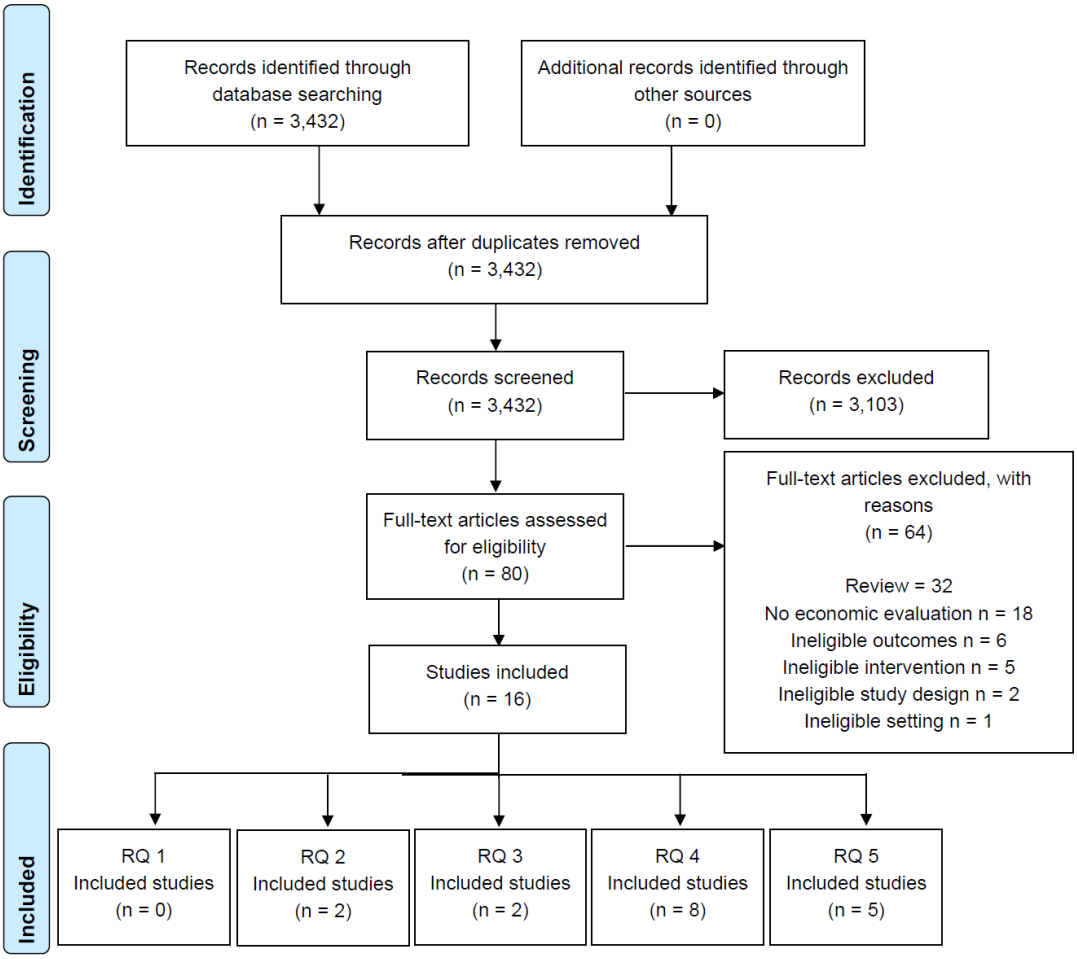
Summary of review finding	Studies contributing to review finding	Methodological limitations	Coherence	Adequacy	Relevance	CERQual assessment of confidence in the evidence
Even managers who adhered to e-learning completed at least 3 of the 6 modules) reported that they did not have time to complete the suggested activities.	Stansfeld 2015	**No concerns** (1 study with low risk of bias)	**No concerns** Finding reflects all the data reported on this theme.	**Minor concerns** Data obtained from a single study	**Minor concerns** Included study related to the views and experiences of manager but no data for employers or those delivering the intervention and only limited information on employees.	**Moderate confidence**. Lack of data on views and experiences of those delivering the intervention or employers and only limited information for employees.
Context						

Summary of review finding	Studies contributing to review finding	Methodological limitations	Coherence	Adequacy	Relevance	CERQual assessment of confidence in the evidence
Disconnect between policy mandated support and perception of available support While training materials state that managers will be given the support they need, managers reported feeling powerless to effectively manage stress and help their employees. **Disconnect between competences and life skills** It was apparent that there was a difference between the required behavioural competencies suggested by the training content such as monitoring workloads and helping people prioritise and the life skills identified by managers and employees when discussing example of work stress, such as tacit knowledge, integrity and compassion. **Disconnect from senior management** Managers saw themselves as being in the middle between senior management and staff. They also saw themselves as being responsible for their employees but not always having the authority or support from their own managers to enable them to support their staff?	Stansfeld 2015	**No concerns** (1 study with low risk of bias)	**No concerns** Finding reflects all the data reported on this theme.	**Minor concerns** Data obtained from a single study	**Minor concerns** Included study related to the views and experiences of manager but no data for employers or those delivering the intervention and only limited information on employees.	**Moderate confidence**. Lack of data on views and experiences of those delivering the intervention or employers and only limited information for employees.

F.2.3 Acceptability

Summary of review finding	Studies contributing to review finding	Methodological limitations	Coherence	Adequacy	Relevance	CERQual assessment of confidence in the evidence
Managers keen to take a 'whole-person' approach to workplace stress						
It was noted how commonly conversations on stress started with a description of the employee as a person who has stress in their personal life and how this filters into the workplace	Stansfeld 2015	**No concerns** (1 study with low risk of bias)	**No concerns** Finding reflects all the data reported on this theme.	**Minor concerns** Data obtained from a single study	**Minor concerns** Included study related to the views and experiences of manager but no data for employers or those delivering the intervention and only limited information on employees.	**Moderate confidence**. Lack of data on views and experiences of those delivering the intervention or employers and only limited information for employees.

Appendix G – Economic evidence study selection



Appendix H – Economic evidence tables

Health economic evidence tables of studies included in the economic evidence review for cost-effectiveness of mental wellbeing at work interventions (RQ 2, 4 and 5)

Milligan-Saville (2017)						
Study	**Method of Analysis**	**Costs**	**Outcomes**	**Results**	**Limitations**	**Comments**
Study type: Randomised controlled trial (RCT) with cost-benefit analysis (CBA) **Country:** Australia **Population:** Employed managers (defined as level of duty commanders or equivalent) within Fire and Rescue New South Wales **Sample size:** 128 **Intervention:** 4-hour face-to-face RESPECT mental health training programme for managers that combines mental health knowledge and communication training to reduce sickness absence of employees	**Perspective:** Employer's perspective **Time horizon:** 6 months **Discounting:** NA **Data sources Costs:** From RCT [a] **Effects:** From RCT; sickness absence records	**Intervention cost per manager; AUD$ (GBP £):** Intervention 1017.13 (625.55) (=£698.13 in 2020 GBP) [b] **Incremental cost; AUD$ (GBP £):** Total work-related sickness absence cost per manager Intervention vs. control - 10,151.53 (-6,243.60) (=£6,967.76 in 2020 GBP) [b] **Currency & cost year:** AUD ($); 2013 GBP (£) equivalence also reported	**Effectiveness; absolute % point change (relative to baseline):** Work-related sick leave Intervention -0.28 (-18%) Control 0.28 (29%) Standard sick leave Intervention 0.48 (10%) Control 0.169 (6%)	**Return on investment (ROI); £:** 9.98 for every pound spent on manger mental health training **Uncertainty:** Not reported	**Author identified:** • Due to different modelling results, it is unclear whether the intervention had a greater effect on standard sickness absence or work-related sickness absence • Exact mechanisms underlying the reduction in sick leave remain unclear • There was low completion rate for the 6-month follow-up questionnaire which is likely to underestimate true effects of the intervention **Reviewer identified:** None	**Source of funding:** NSW Health and Employers Mutual Ltd, a regulated workers compensation insurer **Further research:** Test similar intervention in other workplace settings

Milligan-Saville (2017)						
Study	**Method of Analysis**	**Costs**	**Outcomes**	**Results**	**Limitations**	**Comments**
Comparator: Received the same RESPECT training after a 6-month delay						
Overall applicability: Partly applicable **Overall quality: Minor limitations**						
Abbreviations: CBA: cost-benefit analysis; RCT: randomised controlled trial; RIO: return on investment						
a. The cost or saving of any change in sickness absence rate over the 6-month follow-up was calculated based on the average hourly wage of a firefighter in New South Wales (AUD$35·77, equivalent to £22·00 per hour).						
b. Converted by YHEC using historical exchange rates and PSSRU inflation indices.						
c. ROI is calculated as the incremental the cost of work-related sickness absence per manager divided by the intervention cost per manager.						

Stansfeld (2015)						
Study	**Method of Analysis**	**Costs**	**Outcomes**	**Results**	**Limitations**	**Comments**
Study type: Pilot cluster randomised controlled trial (RCT) with cost-benefit analysis (CBA) and qualitative study **Country:** UK **Population:** Employees and managers from a mental health NHS trust in the north of England for the intervention, employees	**Perspective:** Not reported – employer's perspective assumed for CBA **Time horizon:** 3-months **Discounting:** NA **Data sources Costs:** From RCT; micro costing of the	**Total healthcare cost per person; mean, £ (SD):** Intervention 139 (496) Control 117 (394) **Intervention costs [a]; £:** Total 20,963 (=£25,059.76 in 2020 GBP) [d] Per manager	**Total QALYs; mean (SD):** Intervention 0.2205 (0.0335) Control 0.2156 (0.0477) **Human resources-reported sickness; mean days (SD):** Intervention 4.44 (13.36) Control -471	**Net benefit [b]; £:** £81 intervention -596 (=-£712.48 in 2020 GBP) [d] £153 intervention -665 (=-£794.96 in 2020 GBP) [d]	**Author identified:** • Costs and outcomes between the intervention and the control groups were not compared as adjusting the data for clustering effects would be problematic due to the small number of clusters • The cost of the intervention would be reduced in a larger sample • For reasons of confidentiality, sickness	**Source of funding:** The project was funded by the National Institute for Health Research Public Health Research programme **Further research:**

and managers from a learning difficulties service for the control **Sample size:** 424 employees, 49 managers **Intervention:** Managing Employee Pressure at Work is a psychosocial e-learning program for managers designed to improve well-being and reduce sickness absence among employees. It consists of two face-to-face educational sessions with a facilitator, a 6 modular e-learning program and ongoing e-mail or telephone support from the facilitator **Comparator:** The control treatment group were given no intervention. Managers in this cluster were not recruited to the study	intervention. Healthcare usage was costed using the Unit Costs of Health and Social Care 2012 and NHS Reference Costs 2012–13 **Effects:** From RCT; human resource and self-reported sickness absence, healthcare usage from self-reported questionnaire, EQ-5D-3L	494 to 1,062 (=£590.54 to £1,269.54 in 2020 GBP) [d] Per employee 71 to 153 (=£84.88 to £182.90 in 2020 GBP) [d] **Currency & cost year:** GBP (£); 2009	Control 4.47 (15.56) **Self-reported sickness; mean days (SD):** Intervention 3.38 (11.41) Control 4.05 (14.24)	(=-£563.05 in 2020 GBP) [d] The results indicate that the intervention did not have a positive impact on the net cost. However, a full trial is required for a definitive and detailed cost–benefit analysis. **Uncertainty:** Not reported	absence was not linked to questionnaire data. Hence, the study was unable to explore the impact on sickness absence for subgroups • The impact of the intervention on managers was not assessed • There were differences between the learning difficulties service and the acute mental health services, which might have contributed to unmeasured confounding factors in the analysis [c] **Reviewer identified:** None	Further research should develop the blended e-learning intervention and refine the study design and methodology to improve adherence to the intervention. A full trial is required for a definitive and detailed cost–benefit analysis
Overall applicability: Partly applicable		**Overall quality: Minor limitations**				

Abbreviations: CEA: cost-effectiveness analysis; ICER: incremental cost-effectiveness ratio; RCT: randomised controlled trial; SD: standard deviation

a. Given that the intervention consisted of several parts with different numbers of managers involved, the estimations of cost per participant were based on two figures: the number of managers randomised to the intervention group (49 managers supervising 349 employees) and the lowest number of managers who attended any one of the three parts of the intervention (18 managers supervising 125 employees).

b. Net benefit was calculated using intervention costs per employee and the average HR-reported sickness absence over 3 months at follow-up only. The use of 2 estimates for intervention costs (£81 and £153) reflects variation in the numbers of managers involved in the different parts of the intervention [a]. Note, the lowest intervention cost per employee is reported as £71 whereas a lowest cost of £81 is used for net benefit. This difference is not explained by the author. However, based on the costing table, it is assumed £81 includes the facilitator training cost.
c. Randomisation resulted in the learning difficulties service being allocated to the control group and the three acute mental health services being allocated to the intervention group
d. Converted by YHEC using historical exchange rates and PSSRU inflation indices.

Appendix I – Health economic model

A simple cost-consequence model was developed which covers more than 1 evidence review in the guideline so the full write up is contained in a separate report (Evidence Review G).

Appendix J – Excluded studies

J.1 Effectiveness studies

Study	Reason for exclusion
Barling, J Weber, T Kelloway, EK (1996) Effects of transformational leadership training on attitudinal and financial outcomes: A field experiment. JOURNAL OF APPLIED PSYCHOLOGY 81(6): 827 - 832	- No intervention for managers to understand, support, promote MWW
Barrech, Amira, Seubert, Christian, Glaser, Jurgen et al. (2018) Can a workplace leadership intervention reduce job insecurity and improve health? Results from a field study. International archives of occupational and environmental health 91(5): 547-557	- Data not reported in an extractable format
Biggs, Amanda, Brough, Paula, Barbour, Jennifer P et al. (2014) Enhancing work-related attitudes and work engagement: A quasi-experimental study of the impact of an organizational intervention. International Journal of Stress Management 21(1): 43-68	- No intervention for managers to understand, support, promote MWW
Bormann, Lorraine and Abrahamson, Kathleen (2014) Do staff nurse perceptions of nurse leadership behaviors influence staff nurse job satisfaction? The case of a hospital applying for Magnet designation. The Journal of nursing administration 44(4): 219-25	- Not an intervention study
Brady, Jacquelyn M, Hammer, Leslie B, Mohr, Cynthia D et al. (2020) Supportive supervisor training improves family relationships among employee and spouse dyads. Journal of occupational health psychology	- No intervention for managers to understand, support, promote MWW
Cadiz, David; Truxillo, Donald; O'Neill, Chris (2012) Evaluation of a training program for nurse supervisors who monitor nurses in an alternative-to-discipline program. ANS. Advances in nursing science 35(2): 135-44	- No comparison group
Conroy, Mervyn; Hall, Ian; Marshall, Jo (2012) A place to unwind. Nursing standard (Royal College of Nursing (Great Britain) : 1987) 26(44): 16-7	- Not an intervention study
Correa, Paula B and Bacon, Cynthia Thornton (2019) The Effect of Leadership Interventions on Staff Nurse Job Enjoyment and Leadership Perception. The Journal of nursing administration 49(4): 215-220	- Not an intervention study
Dy, Valerie (2014) Evaluating the effectiveness of a mental health training for correctional officers. Dissertation Abstracts International: Section B: The Sciences and Engineering 74(8be): no-specified	- Full text not available
Fiedler, Silja, Pfaff, Holger, Petrowski, Katja et al. (2019) Effects of a Classroom Training Program for Promoting Health Literacy Among IT Managers in the Workplace: A Randomized Controlled Trial. Journal of occupational and environmental medicine 61(1): 51-60	- Not focused on mental well being
Gayed, Aimee, LaMontagne, Anthony D, Milner, Allison et al. (2018) A New Online Mental Health Training Program for Workplace Managers: Pre-Post Pilot Study Assessing Feasibility, Usability, and Possible Effectiveness. JMIR mental health 5(3): e10517	- No comparison group
Gayed, Aimee, Milligan-Saville, Josie S, Nicholas, Jennifer et al. (2018) Effectiveness of training workplace managers to understand and support the mental health needs of employees: a systematic review and meta-analysis. Occupational and environmental medicine 75(6): 462-470	- Systematic review used as source of primary studies

Study	Reason for exclusion
Greasley, Kay and Edwards, Paul (2015) When Do Health and Well-Being Interventions Work? Managerial Commitment and Context. Economic and Industrial Democracy 36(2): 355-77	- Not an intervention study
Gündel, H, Limm, H, Heinmüller, B et al. (2015) Stress Management Interventions at the Workplace Improve Perceived Stress Reactivity of Men at Higher Risk. Gesundheitswesen (bundesverband der arzte des offentlichen gesundheitsdienstes (germany)) 77suppl1: S97-8	- Not english published paper
Hammer, Leslie B. Truxillo, Donald M. Bodner, Todd Pytlovany, Amy C. Richman, Amy (2019) Exploration of the impact of organisational context on a workplace safety and health intervention. WORK AND STRESS 33(2): 192-210	- Data not reported in an extractable format
Hammer, Leslie B. Wan, Wylie H. Brockwood, Krista J. Bodner, Todd Mohr, Cynthia D. (2019) Supervisor Support Training Effects on Veteran Health and Work Outcomes in the Civilian Workplace. JOURNAL OF APPLIED PSYCHOLOGY 104(1): 52-69	- Not focused on mental well being
Hammer, Leslie B; Brady, Jacquelyn M; Perry, MacKenna L (2020) Training supervisors to support veterans at work: Effects on supervisor attitudes and employee sleep and stress. Journal of Occupational and Organizational Psychology 93(2): 273-301	- No intervention for managers to understand, support, promote MWW
Hammer, Leslie B, Kossek, Ellen Ernst, Anger, W Kent et al. (2011) Clarifying work-family intervention processes: the roles of work-family conflict and family-supportive supervisor behaviors. The Journal of applied psychology 96(1): 134-50	- Data not reported in an extractable format
Hammer, Leslie B, Truxillo, Donald M, Bodner, Todd et al. (2015) Effects of a Workplace Intervention Targeting Psychosocial Risk Factors on Safety and Health Outcomes. BioMed research international 2015: 836967	- No intervention for managers to understand, support, promote MWW
Hanisch, Sabine Elisabeth, Birner, Ulrich Walter, Oberhauser, Cornelia et al. (2017) Development and Evaluation of Digital Game-Based Training for Managers to Promote Employee Mental Health and Reduce Mental Illness Stigma at Work: Quasi-Experimental Study of Program Effectiveness. JMIR mental health 4(3): e31	- No comparison group
Harahan, Mary F, Sanders, Alisha, Stone, Robyn I et al. (2011) Implementation and Evaluation of LVN LEAD. A leadership and supervisory training program for nursing home charge nurses. Journal of gerontological nursing 37(6): 26-33	- No comparison group
Ikegami, Kazunori, Tahara, Hiroyuki, Yamada, Tatsuji et al. (2010) Effects of a mental health training program for manufacturing company managers. Journal of UOEH 32(2): 141-53	- No comparison group
Jeon, Sang Hee, Park, Mihyun, Choi, Kyungok et al. (2018) An ethical leadership program for nursing unit managers. Nurse education today 62: 30-35	- No comparison group
Kossek, Ellen Ernst, Thompson, Rebecca J, Lawson, Katie M et al. (2019) Caring for the elderly at work and home: Can a randomized organizational intervention improve psychological health?. Journal of occupational health psychology 24(1): 36-54	- No intervention for managers to understand, support, promote MWW
Kotera, Yasuhiro and William Van, Gordon (2019) Japanese managers' experiences of neuro-linguistic programming: a qualitative investigation. The Journal of Mental Health Training, Education, and Practice 14(3): 174-185	- Not a UK based qualitative study
Kuehnl, Andreas Seubert, Christian Rehfuess, Eva von Elm, Erik Nowak, Dennis Glaser, Juergen (2019) Human resource	- Systematic review used as source of primary studies

Study	Reason for exclusion
management training of supervisors for improving health and well-being of employee. COCHRANE DATABASE OF SYSTEMATIC REVIEWS	
LaMontagne, Anthony D, Martin, Angela J, Page, Kathryn M et al. (2020) A cluster RCT to improve workplace mental health in a policing context: Findings of a mixed-methods implementation evaluation. American journal of industrial medicine	- No outcomes of interest - Not a UK based qualitative study
Lavelle, Mary, Attoe, Chris, Tritschler, Christina et al. (2017) Managing medical emergencies in mental health settings using an interprofessional in-situ simulation training programme: A mixed methods evaluation study. Nurse education today 59: 103-109	- No intervention for managers to understand, support, promote MWW
Lee, Soomi, Almeida, David M, Berkman, Lisa et al. (2016) Age differences in workplace intervention effects on employees' nighttime and daytime sleep. Sleep health 2(4): 289-296	- No intervention for managers to understand, support, promote MWW
Lewis, Virginia, Varker, Tracey, Phelps, Andrea et al. (2014) Organizational implementation of psychological first aid (PFA): Training for managers and peers. Psychological Trauma: Theory, Research, Practice, and Policy 6(6): 619-623	- No comparison group
Li, Jian, Riedel, Natalie, Barrech, Amira et al. (2017) Long-Term Effectiveness of a Stress Management Intervention at Work: A 9-Year Follow-Up Study Based on a Randomized Wait-List Controlled Trial in Male Managers. BioMed research international 2017: 2853813	- No intervention for managers to understand, support, promote MWW
Logan, Mary S. and Ganster, Daniel C. (2007) The Effects of Empowerment on Attitudes and Performance: The Role of Social Support and Empowerment Beliefs. Journal of Management Studies 44(8): 1523-1550	- No intervention for managers to understand, support, promote MWW
Lundmark, Robert, Hasson, Henna, von Thiele Schwarz, Ulrica et al. (2017) Leading for change: Line managers' influence on the outcomes of an occupational health intervention. Work & Stress 31(3): 276-296	- No comparison group
MacPhee, M, Dahinten, VS, Hejazi, S et al. (2014) Testing the effects of an empowerment-based leadership development programme: part 1 - leader outcomes. Journal of Nursing Management 22(1): 4-15	- No intervention for managers to understand, support, promote MWW
McGilton, Katherine S; Profetto-McGrath, Joanne; Robinson, Angela (2013) Implementing the supportive supervision intervention for registered nurses in a long-term care home: a feasibility study. Worldviews on evidence-based nursing 10(4): 238-47	- No comparison group
Moen, Phyllis, Kelly, Erin L, Fan, Wen et al. (2016) Does a flexibility/support organizational initiative improve high-tech employees' well-being? Evidence from the work, family, and health network. American Sociological Review 81(1): 134-164	- No intervention for managers to understand, support, promote MWW
Moffitt, Jenna, Bostock, Janet, Cave, Ashley et al. (2014) Promoting well-being and reducing stigma about mental health in the fire service. Journal of Public Mental Health 13(2): 103-113	- Data not reported in an extractable format
Mullen, Jane E. Kelloway, E. Kevin (2009) Safety leadership: A longitudinal study of the effects of transformational leadership on safety outcomes. JOURNAL OF OCCUPATIONAL AND ORGANIZATIONAL PSYCHOLOGY 82(2): 253 - 272	- Not focused on mental well being
Muller, Juanita; Maclean, Rowena; Biggs, Herbert (2009) The impact of a supportive leadership program in a policing	- Not a UK based qualitative study

Study	Reason for exclusion
organisation from the participants' perspective. Work (Reading, Mass.) 32(1): 69-79	
Nylen, Eva Charlotta Lindfors, Petra Le Blanc, Pascale Aronsson, Gunnar Sverke, Magnus (2018) Can a managerial intervention focusing on job demands, job resources, and personal resources improve the work situation of employees?. NORDIC PSYCHOLOGY 70(3): 179 - 197	- Not focused on mental well being
Odle-Dusseau, Heather N, Hammer, Leslie B, Crain, Tori L et al. (2016) The influence of family-supportive supervisor training on employee job performance and attitudes: An organizational work-family intervention. Journal of occupational health psychology 21(3): 296-308	- No comparison group
Passey, Deborah G, Hammerback, Kristen, Huff, Aaron et al. (2018) The Role of Managers in Employee Wellness Programs: A Mixed-Methods Study. American journal of health promotion : AJHP 32(8): 1697-1705	- Not a UK based qualitative study
Passey, Deborah Gwenevere (2018) Engaging managers and supervisors to support employee health. Dissertation Abstracts International: Section B: The Sciences and Engineering 79(4be): no-specified	- Not a UK based qualitative study
Paulson, Lauren R and Casile, William J (2014) Building bridges: A pilot program for training and support of rural supervisors. The Clinical Supervisor 33(2): 204-227	- No comparison group
Pelaez Zuberbuhler, Maria Josefina; Salanova, Marisa; Martinez, Isabel M (2019) Coaching-Based Leadership Intervention Program: A Controlled Trial Study. Frontiers in psychology 10: 3066	- No intervention for managers to understand, support, promote MWW
Reynolds, Dennis, Rahman, Imran, Bradetich, Stacey et al. (2014) Hotel managers' perceptions of the value of diversity training: An empirical investigation. International Journal of Contemporary Hospitality Management 26(3): 426-446	- Not a UK based qualitative study
Romanowska, Julia Larsson, Gerry Eriksson, Maria Wikstrom, Britt-Maj Westerlund, Hugo Theorell, Tores (2011) Health Effects on Leaders and Co-Workers of an Art-Based Leadership Development Program. PSYCHOTHERAPY AND PSYCHOSOMATICS 80(2): 78 - 87	- No intervention for managers to understand, support, promote MWW
Rose, Nicola, Rose, John, Kroese, Biza Stenfert et al. (2015) Managers' views of the effects on their service of hosting a cognitive-behavioural anger management group. Advances in Mental Health and Intellectual Disabilities 9(1): 19-29	- No intervention for managers to understand, support, promote MWW
Schmitt, Antje; Den Hartog, Deanne N; Belschak, Frank D (2016) Transformational leadership and proactive work behaviour: A moderated mediation model including work engagement and job strain. Journal of Occupational and Organizational Psychology 89(3): 588-610	- Not an intervention study
Sellgren, SF; Ekvall, G; Tomson, G (2008) Leadership behaviour of nurse managers in relation to job satisfaction and work climate. Journal of nursing management 16(5): 578-87	- Not an intervention study
Shaw, W.S. Robertson, M.M. McLellan, R.K. Verma, S. Pransky, G. (2006) A controlled case study of supervisor training to optimize response to injury in the food processing industry. Work, a Journal of Prevention, Assessment & Rehabilitation 26(2): 107 - 14	- No intervention for managers to understand, support, promote MWW

Study	Reason for exclusion
Shaw, William S Robertson, Michelle M Pransky, Glenn McLellan, Robert K (2006) Training to optimize the response of supervisors to work injuries--needs assessment, design, and evaluation. AAOHN journal : official journal of the American Association of Occupational Health Nurses 54(5): 226 - 35	- No intervention for managers to understand, support, promote MWW
Shuler, Cynthia Jenkins (2020) Telecommunication organization employee development program's role in employee engagement. Dissertation Abstracts International Section A: Humanities and Social Sciences 81(6a): no-specified	- Not a UK based qualitative study
Sinani, Funda (2017) The effects of participative leadership practices on job satisfaction for highly skilled virtual teams. Dissertation Abstracts International Section A: Humanities and Social Sciences 77(10ae): no-specified	- Not a UK based qualitative study
Spaten, Ole Michael and Flensborg, Winnie (2013) When middle managers are doing employee coaching. International Coaching Psychology Review 8(2): 18-39	- Not a UK based qualitative study
Straub, Caroline, Vinkenburg, Claartje J, van Kleef, Marco et al. (2018) Effective HR implementation: The impact of supervisor support for policy use on employee perceptions and attitudes. The International Journal of Human Resource Management 29(22): 3115-3135	- No intervention for managers to understand, support, promote MWW
Stuber, Felicitas Seifried-Dubon, Tanja Rieger, Monika A. Guendel, Harald Ruhle, Sascha Zipfel, Stephan Junne, Florian (2020) The effectiveness of health-oriented leadership interventions for the improvement of mental health of employees in the health care sector: a systematic review. INTERNATIONAL ARCHIVES OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH	- Systematic review not related to intervention of interest
Tafvelin, Susanne Stenling, Andreas Lundmark, Robert Westerberg, Kristina (2019) Aligning job redesign with leadership training to improve supervisor support: a quasi-experimental study of the integration of HR practices. EUROPEAN JOURNAL OF WORK AND ORGANIZATIONAL PSYCHOLOGY 28(1): 74-84	- No intervention for managers to understand, support, promote MWW
Throgmorton, C., Mitchell, T., Morley, T. et al. (2016) Evaluating a physician leadership development program - a mixed methods approach. Journal of health organization and management 30(3): 390-407	- No intervention for managers to understand, support, promote MWW
Tjulin, Åsa, Landstad, Bodil, Vinberg, Stig et al. (2019) Managers' learning process during a health-promoting leadership intervention. Health Education 119(56): 350-365	- Not a UK based qualitative study
Torp, Steffen (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 50(3): 263-71	- No intervention for managers to understand, support, promote MWW
Tsutsumi, A Takao, S Mineyama, S Nishiuchi, K Komatsu, H Kawakami, N (2005) Effects of a supervisory education for positive mental health in the workplace: A quasi-experimental study. JOURNAL OF OCCUPATIONAL HEALTH 47(3): 226 - 235	- Pre-2007 study
van Tuin, Lars, Schaufeli, Wilmar B, van Rhenen, Willem et al. (2020) Business Results and Well-Being: An Engaging Leadership Intervention Study. International journal of environmental research and public health 17(12)	- No intervention for managers to understand, support, promote MWW
Veloso-Besio Beatriz, Constanza Cuadra-Peralta, Alejandro Gil-Rodriguez, Francisco Ponce-Correa, Felipe Soberg-Tapia, Oscar (2019) Effectiveness of training, based on positive psychology and	- Study does not use an equivalent control group

Study	Reason for exclusion
social skills, applied to supervisors, to face resistance to organizational change. JOURNAL OF ORGANIZATIONAL CHANGE MANAGEMENT 32(2): 251-265	
Veloso-Besio Beatriz, Cuadra-Peralta Constanza, Gil-Rodriguez Alejandro , Cuadra-Mira Francisco , Ponce Felipe , Felipe Sjoberg , Oscar (2019) Improving life satisfaction and job satisfaction of employees, through an intervention to the supervisors. LIMITE-REVISTA DE FILOSOFIA Y PSICOLOGIA 14	- Study does not use an equivalent control group
von Thiele Schwarz, U.; Hasson, H.; Tafvelin, S. (2016) Leadership training as an occupational health intervention: Improved safety and sustained productivity. Safety Science 81: 35-45	- No comparison group
Wangsgard, Todd G (2007) A construct of coaching skills and the effect of an original treatment on management behavior. Dissertation Abstracts International Section A: Humanities and Social Sciences 67(8a): 3071	- Full text not available
Ward, Jo and Bailey, Di (2016) How far can a short leadership and management programme address the challenges for first line social work managers? An evaluation of one of the skills for care leadership and management demonstration sites. Practice: Social Work in Action 28(4): 281-303	- Not focused on mental well being
Wasylkiw, Louise, Holton, Judith, Azar, Rima et al. (2015) The impact of mindfulness on leadership effectiveness in a health care setting: a pilot study. Journal of Health Organization and Management 29(7): 893-911	- No intervention for managers to understand, support, promote MWW
Weston, D, Hudson, C, Carroll, D et al. (2019) Evaluating a pilot mental health awareness for managers' training course. Occupational medicine (Oxford, England) 69(4): 251-257	- No comparison group
Wood, Felecia G and Jacobson, Sharol (2008) Educating supervisors of employees with diabetes. AAOHN journal : official journal of the American Association of Occupational Health Nurses 56(6): 262-7	- Not focused on mental well being

J.2 Economic studies

Reference	Reason for exclusion
Adams A, Hollingsworth A, Osman A. The Implementation of a Cultural Change Toolkit to Reduce Nursing Burnout and Mitigate Nurse Turnover in the Emergency Department. Journal of emergency nursing: JEN : official publication of the Emergency Department Nurses Association. 2019;45(4):452-6.	No economic evaluation
Allen D, Carlson D, Ham C. Well-being: new paradigms of wellness--inspiring positive health outcomes and renewing hope. American journal of health promotion : AJHP. 2007;21(3):1-iii.	No economic evaluation
Anderson P, Jane-Llopis E. Mental health and global well-being. Health promotion international. 2011;26 Suppl 1:i147-55.	No economic evaluation
Anger WK, Elliot DL, Bodner T, Olson R, Rohlman DS, Truxillo DM, et al. Effectiveness of total worker health interventions. Journal of occupational health psychology. 2015;20(2):226-47.	Review
Anonymous. Care managers affect worker productivity. Disease management advisor. 2007;13(12):133-7.	No economic evaluation

Reference	Reason for exclusion
Battams S, Roche AM, Fischer JA, Lee NK, Cameron J, Kostadinov V. Workplace risk factors for anxiety and depression in male-dominated industries: a systematic review. Health psychology and behavioral medicine. 2014;2(1):983-1008.	Review
Beekman ATF, van der Feltz-Cornelis C, van Marwijk HWJ. Enhanced care for depression. Current opinion in psychiatry. 2013;26(1):7-12.	Ineligible setting
Bender A, Farvolden P. Depression and the workplace: a progress report. Current psychiatry reports. 2008;10(1):73-9.	No economic evaluation
Bergerman L CPHC. Effectiveness of organizational interventions for the prevention of stress in the workplace. Edmonton: Institute of Health Economics (IHE). 2009.	Review
Brand SL, Thompson Coon J, Fleming LE, Carroll L, Bethel A, Wyatt K. Whole-system approaches to improving the health and wellbeing of healthcare workers: A systematic review. PloS one. 2017;12(12):e0188418.	Review
Brinkert R. A literature review of conflict communication causes, costs, benefits and interventions in nursing. Journal of nursing management. 2010;18(2):145-56.	Review
Burke RJ, Richardsen AMe. Corporate Wellness Programs: Linking Employee and Organizational Health. 2014:380.	Review
Caloyeras JP, Liu H, Exum E, Broderick M, Mattke S. Managing manifest diseases, but not health risks, saved PepsiCo money over seven years. Health affairs (Project Hope). 2014;33(1):124-31.	Ineligible intervention
Casad BJ, Bryant WJ. Addressing Stereotype Threat is Critical to Diversity and Inclusion in Organizational Psychology. Frontiers in psychology. 2016;7:8.	Review
Cherniack M, Lahiri S. Barriers to implementation of workplace health interventions: An economic perspective. Journal of Occupational and Environmental Medicine. 2010;52(9):934-42.	Ineligible study design
Cherniack M. Integrated health programs, health outcomes, and return on investment: measuring workplace health promotion and integrated program effectiveness. Journal of occupational and environmental medicine. 2013;55(12 Suppl):S38-45.	Review
Dewa CS, Hoch JS. When could a stigma program to address mental illness in the workplace break even? Canadian journal of psychiatry Revue canadienne de psychiatrie. 2014;59(10 Suppl 1):S34-9.	Ineligible outcomes
Donohue JM, Pincus HA. Reducing the societal burden of depression: a review of economic costs, quality of care and effects of treatment. PharmacoEconomics. 2007;25(1):7-24.	Review
Dwivedi UC, Kumari S, Nagendra HR. Model of yoga intervention in industrial organizational psychology for counterproductive work behavior. Industrial psychiatry journal. 2015;24(2):119-24.	No economic evaluation
Ebert DD, Heber E, Berking M, Riper H, Cuijpers P, Funk B, et al. Self-guided internet-based and mobile-based stress management for employees: results of a randomised controlled trial. Occupational and environmental medicine. 2016;73(5):315-23.	No economic evaluation
Embree JL, Swenty CF, Schaar G. A Balanced Scorecard With Strategy Map: Measuring the Value of a Nursing Sabbatical. Journal of nursing care quality. 2015;30(4):352-8.	No economic evaluation
Furlan AD, Gnam WH, Carnide N, Irvin E, Amick BC, 3rd, DeRango K, et al. Systematic review of intervention practices for depression in the workplace. Journal of occupational rehabilitation. 2012;22(3):312-21.	Review
Geraedts AS, Fokkema M, Kleiboer AM, Smit F, Wiezer NW, Majo MC, et al. The longitudinal prediction of costs due to health care	No economic evaluation

Reference	Reason for exclusion
uptake and productivity losses in a cohort of employees with and without depression or anxiety. Journal of occupational and environmental medicine. 2014;56(8):794-801.	
Goetzel RZ, Ozminkowski RJ. The health and cost benefits of work site health-promotion programs. Annual review of public health. 2008;29:303-23.	Review
Goetzel RZ, Tabrizi M, Henke RM, Benevent R, Brockbank CVS, Stinson K, et al. Estimating the return on investment from a health risk management program offered to small Colorado-based employers. Journal of occupational and environmental medicine. 2014;56(5):554-60.	Ineligible intervention
Grossmeier J, Terry PE, Anderson DR, Wright S. Financial impact of population health management programs: reevaluating the literature. Population health management. 2012;15(3):129-34.	Review
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Appendix K – Research recommendations – full details

K.1.1 Research recommendation

What is the long-term effectiveness (>6months) of manager training in terms of the impact on employees?

K.1.1.1 Why this is important

Reducing stigma and equipping managers with skills to have conversations with employees about mental health is likely to facilitate conversations between managers and employees about any mental health wellbeing concerns. Providing managers with skills to discuss mental wellbeing improves the relationship between manager and employee so that they can identify and reduce work stressors. The current evidence base highlights that manager training interventions delivered in groups had added benefit because they allow managers to learn from each other and to reinforce best practice. However there was and identified lack of data on the effectiveness of manager training interventions on employee outcomes which may be in part due to short intervention follow-up of 3 months. This might be sufficiently long to show a difference in manager outcomes, but it may not be long enough to show a change in employee outcomes, including mental wellbeing. Therefore, the committee agreed that further research is needed on employee outcomes with longer follow-ups (see the research recommendation on training for managers and supervisors).

K.1.1.2 Rationale for research recommendation

Importance to 'patients' or the population	Poor mental wellbeing at work is a significant public and political concern. Providing managers with skills to discuss mental wellbeing improves the relationship between manager and employee so that they can identify and reduce work stressors.
Relevance to NICE guidance	Identified lack of data on the effectiveness of manager training interventions on employee outcomes which may be in part due to short intervention follow-up of 3 months.
Relevance to the NHS	The outcome would increase understanding of the impact of manager training on employee outcomes including NHS employees. Preventing and reducing poor mental wellbeing at work may have implications for NHS service usage and inform approaches to the use of manager training interventions in the workplace.
National priorities	High – outlined in the NHS long term plan
Current evidence base	Minimal data for employee outcomes
Equality considerations	None known

K.1.1.3 Modified PICO table

Population	All employees or employers who have management responsibilities for other employees aged 16 years or older in full or part time employment. Evidence for the following groups of employees should be a specific consideration as the training may be more, or less effective in these groups: • on permanent, training, temporary or zero hours contracts • self-employed • volunteers

	Evidence for the following groups should be a specific consideration: People with disability • Age • Gender • Race • Socioeconomic factors (Lower income jobs, people from rural areas) • Migrant workers
Intervention	Quantitative research, RCT. Components of the training include: • Frequency, duration and intensity • Delivery of the intervention (one to one; small/large groups; online) • Mandatory or non-mandatory
Comparators	• No Intervention • Usual practice
Outcomes	Long term positive change on employee outcomes, including: • job satisfaction • employee retention • employee mental wellbeing • productivity
Study design	RCT
Setting	Workplace • Type of organisation
Timeframe	A minimum of 12 months. Check specific timepoints (3 months, 6 months)