

Knowledge Transfer Session G

Evidence of effectiveness of workplace wellbeing programmes

Robert Murphy, Research Services Unit, Department of Health, 15th June 2017

This presentation is based on a lit. review . . .

It considers the questions:

Do they have a favourable effect?

Are they worth the investment?

What factors should organisations consider?

What policy mechanisms can support them?

Rapid Review of
Evidence on
Workplace Well-being
Programmes

Robert Murphy, Emma
O'Donoghue and Claire Doyle

Coming soon!

Today:

- **Present findings on the first three questions**
- **Discuss implications for policy, practice and research**

**Do workplace wellbeing programmes
have a favourable effect?**

Overview

1. What we looked for
2. Where and how we searched
3. Some observations on programme categories
4. Some observations on measures used
5. Summary of evidence on effectiveness

Evolution of the way of looking at research results

- **Is the difference between experimental groups reliable?**
 - If the study was run again would the results be the same?
 - Statistical significance

- **Is the difference meaningful?**
 - Perhaps the difference is real but the difference is too small to matter
 - Indices of importance or effect size

- **Is this what other people are finding?**
 - Lets combine the results of all studies on a topic
 - Systematic reviews, Meta-analysis

Howell (2012)

We focused on . . .

Reviews summarizing the outcomes of various intervention in particular

1. Systematic reviews

- a detailed & comprehensive plan & search strategy derived a priori
- the goal of reducing bias by identifying, appraising, and synthesizing all relevant studies on a particular topic

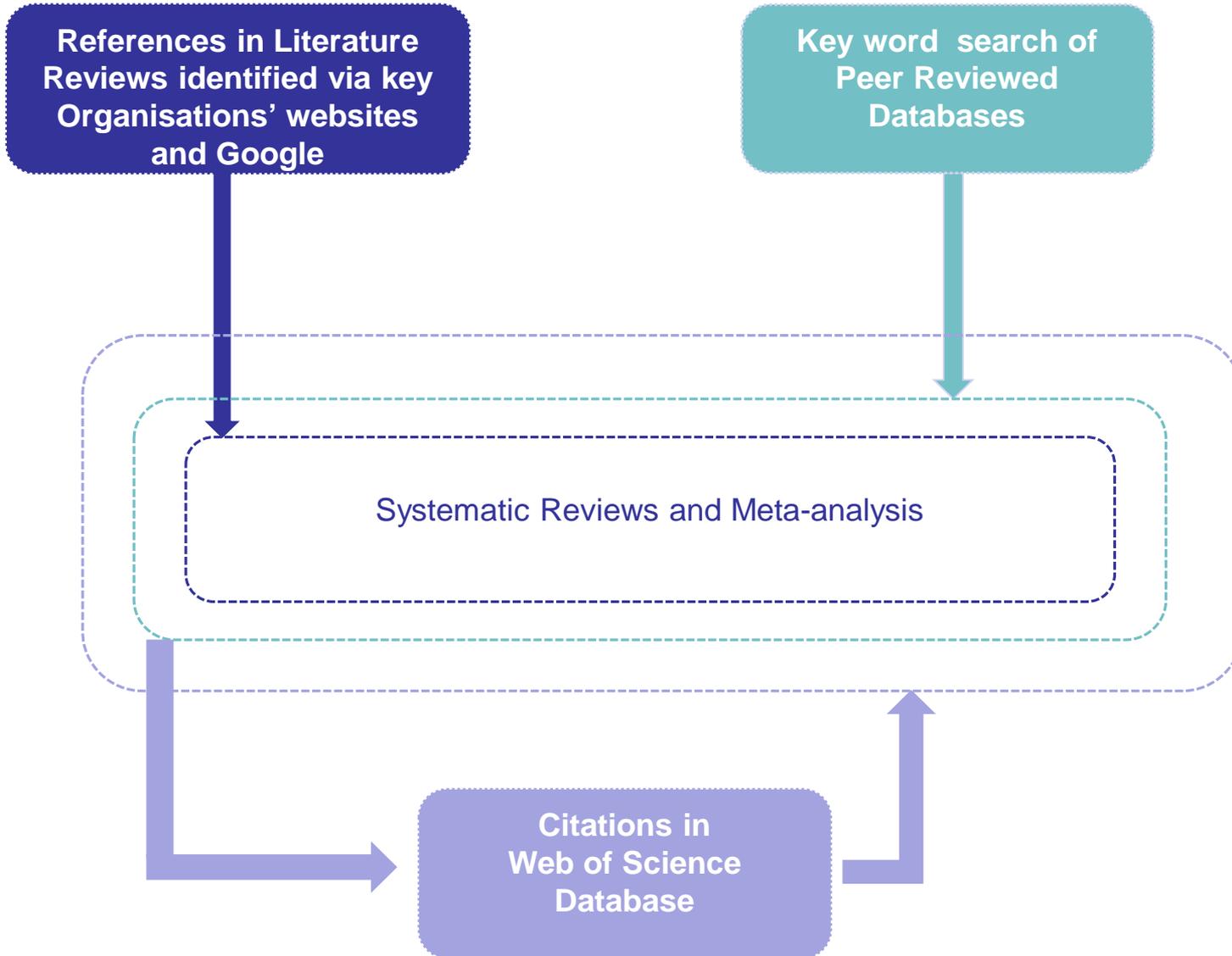
2. Meta-analysis

- a SR which synthesize the data from several studies into a single quantitative estimate or summary effect size
- effect sizes measure the strength of the relationship between two variables, thereby providing information about the magnitude of the intervention effect (i.e., small, medium, or large)

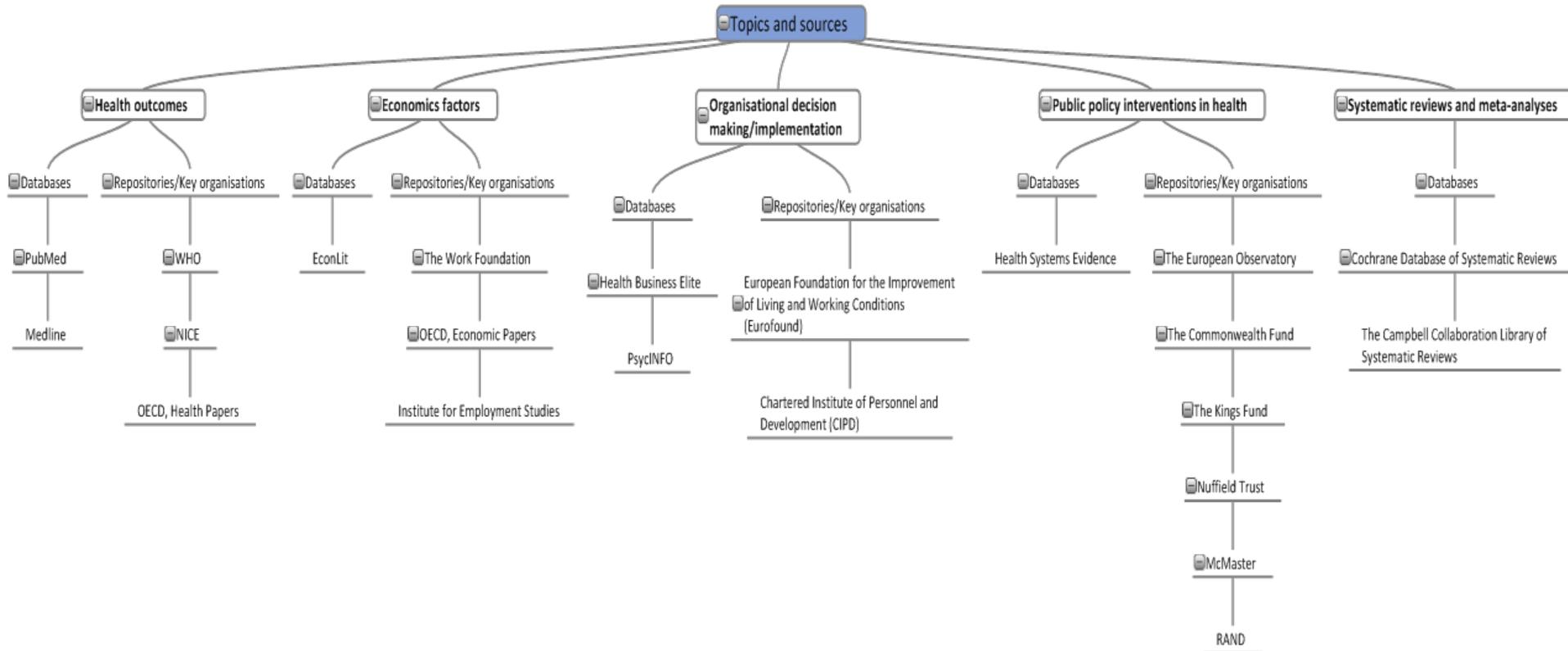
Uman (2011)

These form the basis for analysis but the report sets our overall summary relative to other literature reviews

We used a broad search strategy



Databases and websites searched by “topic”



For search terms used the Cochrane PICO

<u>P</u> atient, Population, or Problem		<u>I</u> ntervention, Prognostic Factor, or Exposure	<u>C</u> omparison or Intervention (if appropriate)	<u>O</u> utcome you would like to measure or achieve		What type of question are you asking?	Type of study
work* OR employ*	AND	intervention OR program OR strateg* OR initiative* OR promotion OR prevention OR psychoeducation OR education OR invest* OR approaches OR promotion OR environment	+	wellbeing OR health OR mental health OR stress OR nutrition OR diet OR weight OR obesity OR physical OR exercise OR smoking OR alcohol OR health risk	+	effect OR effectiveness OR impact OR cost-effectiveness OR benefit OR cost OR return OR efficiency OR return on investment OR ROI OR productivity OR satisfaction OR retention OR absenteeism	MA OR SR OR meta*

We found . . .

A relatively large number of SRs/MAs

There is not a neat definition of workplace WB programmes

The basis for including studies in SRs and MAs is typically

- focus on the programme
or
- the outcomes measured

but a small number of papers confuse the two
(intervention v. outcome).

Nevertheless . . .

It is possible to categorise programmes according to their focus

1. Single or dual focus programmes

- **physical activity, dietary behaviour and weight management**
- **smoking and alcohol behaviours (not covered today)**
- **stress, anxiety and depression**

2. Multi-focus programmes: WHPP, W/O Wellness Programmes

- **Combination of physical activity, weight, nutrition and physical activity, stress management and anxiety/depression, and lifestyle interventions**

A range of measures of effect are used . . .

- health behaviours
- health outcomes
- economic or organisational outcomes

Implicit logic model:

Intervention: change in behaviour > health > organ. performance

Very few papers look across all three types

Most of the evidence from MA is on health outcomes followed by organisational outcomes, and finally health behaviours

We briefly described each MA/SR . . .

Sample extract

Anderson et al. (2009) conducted a systematic review (with meta-analysis) of the effectiveness of worksite *nutrition and physical activity programs to promote healthy weight* among employees. Weight-related outcomes, including weight in pounds or kilograms, BMI, and percentage body fat were used to assess effectiveness of these programs. Most of the studies combined informational and behavioral strategies to influence diet and physical activity; fewer studies modified the work environment (e.g., cafeteria, exercise facilities) to promote healthy choices.

Their study selection included that evaluated a worksite health promotion program that included strategies involving diet, physical activity, or both. The results are pooled across all interventions that fit these categories (could include diet; physical activity; or diet and physical activity).

The review found that worksite programmes with nutrition and/or physical activity programmes achieve modest improvements in employee weight status at the 6-12-month follow-up. A pooled effect estimate of -2.8 pounds (95% CI= -4.6, -1.0) was found based on nine RCTs, and a decrease in BMI of -0.5 (95% CI= -0.8, -0.2) was found based on six RCTs. Anderson et al. (2012) note that “The findings appear to be applicable to both male and female employees, across a range of worksite settings.”

.. and captured the conclusions in a standardised table

Intervention	Outcomes focus	Effective?	Summary sentence	Study T.	Author
Universal					
Nutrition and/or physical activity programs to promote healthy weight (includes combined)	Weight	v	Favourable effect, pooled effect of – 2.8 pounds.	Meta-A	Anderson et al. (2009)
	BMI	v	Favourable effect, pooled effect of – 0.5 BMI. The findings appear to be applicable to both male and female employees, across a range of worksite settings.		

We summarise the evidence by . . .

Colour code for strength of effect or not:

Strong evidence, conclusion of at least two meta-analyses

Moderate evidence, conclusion of the one meta-analysis found

Some evidence, conclusion of the systematic review(s) found

Inconclusive, mixed findings or insufficient study no./quality

Do not know, not measured in any SR or MA

We summarise the evidence by . . .

We present our synthesis by . . .

- **type of programme**
- **outcomes across all programmes**

Physical activity, nutrition, weight management and loss

PROGRAMMES	BEHAVIOUR	HEALTH	ORGANISATIONAL
PHYSICAL ACTIVITY &/ NUTRITION	✓ PHYSICAL ACTIVITY 1 OF 1 SR ¹	✓ WEIGHT & BMI 2 OF 2 MAS ✓ BODY FAT % 1 OF 1 MA	? No MA OR SR
PHYSICAL ACTIVITY	✓ PHYSICAL ACTIVITY & FITNESS 3 OF 4 MAS	✓ WEIGHT & BMI 1 OF 1 MA ² ✓ STRESS 1 OF 1 MA ✓ ANXIETY 1 OF 1 MA	✓ WORK ATTENDANCE 1 OF 1 MA × SICK LEAVE 1 OF 1 SR
NUTRITION & DIETARY	✓ FRUIT & VEG. 1 OF 1 SR ✓ DIETARY 1 OF 1 SR	~ INCONCLUSIVE/INS. STUDIES 1 MA & 2 SR	~ INCONCLUSIVE/INS. STUDIES 1 SR
WEIGHT LOSS OR MANAGEMENT	? No MA OR SR	? No MA & 1 SR	? No MA OR SR

¹Limited evidence for educational only interventions. ² Reported as low quality evidence.

Stress, anxiety and depression

PROGRAMMES	BEHAVIOUR	HEALTH	ORGANISATIONAL
STRESS MANAGEMENT PROGRAMMES	? NO MA OR SR	✓ STRESS/DISTRESS 3 OF 3 MAS ✓ ANXIETY & MENTAL HEALTH 1 OF 1 MA ✓ PHYSIOLOGICAL, E.G. BLOOD PRESSURE, CHOLESTEROL 1 OF 1 MA	✓ PRODUCTIVITY 1 OF 1 MA ✗ ABSENTEEISM 1 OF 1 MA
ANXIETY & DEPRESSION	? NO MA OR SR	✓ ANXIETY & DEPRESSION 4 OF 4 MAS ✓ WELLBEING OUTCOMES 1 OF 1 MA ¹	✓ SUPERVISOR'S RATING 1 OF 1 MA ¹ ✓ TASK COMPLETION 1 OF 1 MA ¹
1 Impact diminished over time except for programmes targeting individuals thought to be at greater risk of experiencing stress and lacking core protective factors.			

Workplace health promotion programmes

PROGRAMMES	BEHAVIOUR	HEALTH	ORGANISATIONAL
WHPP OR ORGANISATIONAL WELLNESS PROGRAMMES	? NO MA & 4 SRS¹	✓ MENTAL WELLBEING 2 OF 2 MAS ✓ SELF-PERCEIVED HEALTH 1 OF 1 MA ✗ PHYSICAL WELL-BEING 1 OF 1 MA	✓ SICKNESS ABSENCES 2 OF 2 MAS ✓ WORK ABILITY 2 OF 2 MAS ² ✓ ABSENTEEISM 1 OF 1 MA ✓ JOB SATISFACTION 1 OF 1 MA ✓ PRODUCTIVITY 1 OF 1 MA

¹ Effect of WHPP on behaviour outcomes is generally inconclusive. One SR found no effect while two conclude the evidence to be inconclusive for physical activity, one found an effect while two judge the effect to be inconclusive for dietary behaviour, two judge the evidence to be inconclusive for smoking cessation and one judges the evidence to be inconclusive for alcohol use. ² One meta-analysis is based on two studies, and found the effect size was higher for the study rated as 'Poor/fair quality' 0.41 (0.04, 0.78) than the study rated 'Good/excellent quality' 0.10 (-0.14, 0.35).

All programmes covered*

BEHAVIOUR	HEALTH	ORGANISATIONAL
✓ PHYSICAL ACTIVITY & FITNESS (PAP)	✓ WEIGHT & BMI (PANP)	✓ WORK ABILITY ⁴ (WHPP)
✓ PHYSICAL ACTIVITY ¹ (PANP)	✓ WEIGHT & BMI ² (PAP)	✓ TASK COMPLETION ³ (ADP)
✓ FRUIT & VEG. (NDP)	✓ BODY FAT % (PANP)	✓ SUPERVISOR'S RATING ³ (ADP)
✓ DIETARY (NDP)	✓ PHYSIOLOGICAL, E.G. BLOOD PRESSURE, CHOLESTEROL (SMP)	✓ JOB SATISFACTION (WHPP)
? NO MA OR SRs (WLM)	✗ PHYSICAL WELL-BEING (WHPP)	✓ PRODUCTIVITY (WHPP)
? NO MA OR SR (SMP)	✓ MENTAL WELLBEING (WHPP)	✓ PRODUCTIVITY (SMP)
? NO MA OR SR (ADP)	✓ STRESS/DISTRESS (SMP)	✓ SICKNESS ABSENCES (WHPP)
? NO MA & 4 SRs (WHPP)	✓ STRESS (PAP)	✗ SICK LEAVE (PAP)
	✓ ANXIETY & DEPRESSION (ADP)	✓ ABSENTEEISM (WHPP)
	✓ ANXIETY (PAP)	✗ ABSENTEEISM (SMP)
	✓ ANXIETY & M. HEALTH (SMP)	✓ WORK ATTENDANCE (PAP)
	✓ WELLBEING ³ (ADP)	~ INCONCLUSIVE (NDP)
	✓ SELF-PERCEIVED HEALTH (WHPP)	? NO MA OR SR (PANP)
	~ INCONCLUSIVE/NO STUDIES (NDP)	? NO MA OR SRs (WLM)
	? NO MA & 1SR (WLM)	

Programme Abbreviations:
 PANP = Physical Activity and Nutrition Programmes;
 PAP = Physical Activity Programmes;
 NDP = Nutrition and Dietary Programmes;
 WLM = Weight loss or management;
 SMP = Stress Management Programmes;
 A&DP = Anxiety and Depression Programmes;
 WHPP = Workplace Health Promotion Programmes.

¹ Reported as limited evidence for educational only interventions. ² Reported as low quality evidence. ³ Programme effects diminish over time. ⁴ One meta-analysis is based on two studies, and found the effect size was higher for the study rated as 'Poor/fair quality' 0.41 (0.04, 0.78) than the study rated 'Good/excellent quality' 0.10 (-0.14, 0.35). * Smoking and alcohol programmes not reported here.

**Are workplace wellbeing programmes
worth the investment?**

How one decides depends on one's perspective

Lens

Basis

Employer facing a tight labour market

Facilitate hiring, retention

Organisation trying to maximise return

Help worker performance, costs

Public health perspective

One of a no. of positive tools

Public policy analysis

CBA, Cost effectiveness analysis

We found a smaller number of reviews of CBA and CEA

Public policy analysis techniques

Cost benefit analysis

- Effects and costs both expressed in monetary terms
- The decision rule focuses on monetary benefits v. costs

Net benefit (NB) > 0, benefit to cost ratio (BCR) > 1 and return on investment (ROI) > 0

Cost effectiveness analysis

- Effects expressed in common non-monetary measure, costs expressed in monetary terms
- Difference in cost, divided by the difference in their effect – incremental cost effectiveness ratio (ICER)
- The decision rule focuses on ICER v. threshold costs

ICER < threshold, NICE cost per quality-adjusted life year (QALY) gained < £20-30,000

Physical activity and/or nutrition programmes

Some evidence that the **financial returns** from worksite programmes aimed at improving are positive overall

Costs \$155 (n = 21), Benefits \$324 (n = 15) for absenteeism, \$187 (n = 13) for medical benefits, \$158 (n = 3) for presenteeism

Median NB = \$91, BCR = 1.42, ROI = 42%

But does not hold for randomised controlled studies (13 NRS, 4 RCT)

	Return on investment (ROI)			Benefit to cost ratio (BCR)		
	All	NRS	RCT	All	NRS	RCT
Absent. benefits	200%	325%	-49%	3	4.25	0.51
Medical benefits	22%	95%	-112%	1.22	1.95	-0.12
Both	174%	387%	-92%,	2.74	4.87	0.08

Physical activity and/or nutrition programmes

This may be due to

- better design of RCTs, or
- because the follow-up period in the RCTs is shorter than in the non-randomised studies

“Therefore, conclusions about the extent to which financial return estimates were overestimated in NRSs cannot be made.”

**Also additional types of benefits associated with the programmes have not been captured in the studies
(all costs captured but not all benefits)**

Physical activity and/or nutrition programmes

Evidence relevant to **cost-effectiveness** suggests they are more effective and more costly, e.g. \$26 per kilogram of weight loss

But there are no established thresholds to compare the extra outcome per extra cost against

Decision makers willingness to pay for improvements in the typical outcome indicators is unknown

- reduced body weight, cholesterol levels and CVD risks

Plus the vast majority of studies do not compute QALYs for which thresholds are available

Therefore, no technical conclusions on cost-effectiveness

Other programmes

Mental health programmes

There is some evidence of favourable financial returns

- One SR concludes insufficient evidence
- More recent SR favourable evidence (9 out of 10 studies), but strikes a note of caution

WHP Programmes

Strong evidence that result in favourable financial returns

Measure	Average value (unweighted)
% Change in Sick Leave Absenteeism	-25.1% (26 studies)
% Change in Health Costs	-24.5% (32 studies)
% Change in WC/DM Costs ¹	-32% (7 studies)
Cost-Benefit Ratio Reported	5.56 (25 studies)

In summary

PROGRAMMES	FINANCIAL RETURNS	COST EFFECTIVENESS/UTILITY
PHYSICAL ACTIVITY &/ NUTRITION	<p>~ INCONCLUSIVE/INS. STUDIES (1 SR)</p> <p>AVERAGE +<u>VE</u> F. RETURNS</p> <p><u>NB</u> = \$91, BCR = 1.42, ROI = 42%</p> <p>BUT:</p> <p>F. RETURNS NOT +<u>VE</u> IN RCTs</p> <p>FOLLOW-UP SHORTER IN RCTs</p> <p>NOT ALL BENEFITS COUNTED¹</p>	<p>? UNKNOWN (1 SR)</p> <p>EVIDENCE OF BETTER OUTCOMES AT HIGHER COST BUT NO ESTABLISHED "WILLINGNESS TO PAY" THRESHOLDS TO COMPARE AGAINST</p>
PROMOTING MENTAL HEALTH	<p>✓ ECONOMIC RETURNS²</p> <p>1 OF 2 SR</p>	<p>? UNKNOWN (2 SRs)</p> <p>NO STUDIES</p>
SINGLE/MULTIPLE FOCUS OR MULTI-COMPONENT	<p>✓ FINANCIAL RETURNS</p> <p>1 OF 1 MA AND 2 OF 2 SRs</p>	<p>? UNKNOWN (3 SRs)</p> <p>NO STUDIES</p>

¹ Benefits covered in studies were medical, absenteeism, and presenteeism. ² Most of these studies looked solely at the impacts for employers, either in terms of paying for the health care of their employees or dealing with absenteeism and poor performance at work.

**What factors should
organisations consider?**

Factors to consider

1. Key **steps in the process** of building and sustaining workplace wellbeing/health promotion programmes as identified by international models
2. Key **programme features** or elements of workplace health promotion programmes reported by international models, frameworks and quality criteria to increase the likelihood of programme success
3. The documented **views of others'** experience of workplace health promotion
4. The specific **intervention features** associated with increased intervention effects

Six documents set out the steps in the process of building and sustaining Workplace W/HPP (1)

	Author(s)	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8
1.	WHO Healthy Workplace Model	Mobilize	Assemble	Assess	Prioritize	Plan	Do	Evaluate	Improve
2.	CDC Workplace Health Model	Assessment	Planning and management	Implementation	Evaluation				
3.	NIOSH The Essential Elements of Effective Workplace Programs	Organizational Culture and Leadership	Program Design	Program Implementation and Resources	Program Evaluation				
4.	European Methodology for Workplace Health Promotion	Getting started	Identifying needs and problems	Organising solutions and planning health programme	Implementation	Evaluation and consolidation			
5.	Australian D. of Health, Healthy Workers Initiative	Gain support from management	Engage your employees	Assess your needs	Choose health issues you would like to include	Plan and deliver your program			
6.	PWC's Framework	Plan	Execute	Manage					

From an examination of the six models we identified five common steps (1)

- 1. Gaining and demonstrating support**
- 2. Assessing needs and objectives**
- 3. Planning and resourcing**
- 4. Implementing**
- 5. Evaluating and improving**

Features Reported as Likely to Increase Initiatives' Success (2)

- **We looked for features reported in literature on models, guidelines or quality criteria as likely to increase success**
- **Outside scope were documents that**
 - relate to specific forms of interventions
 - relate to health in the workplace more broadly
 - documents that specifically relate to how to integrate health promotion with occupational safety and health

NICE guidelines Smoking: workplace interventions, 2007, and Physical activity in the workplace, 2008

NICE guidelines Mental wellbeing at work, 2009, and Workplace health: management practices, 2015; ILO's Improving health in the workplace: ILO's framework for action, 2014; CIPD document Growing the health and well-being agenda: From first steps to full potential, 2016

ILO's SOLVE: Integrating Health Promotion into Workplace OSH Policies, 2012

Three documents within the scope report features (2)

Healthy workplaces a model for action, WHO

“While all enterprises have different needs . . . there are **some key underlying principles of a healthy workplace initiative that will raise its likelihood of success.**”

Quality criteria of workplace health promotion, ENWHP

“ . . . the quality criteria on hand. . . **can help to determine how well an organization is performing** . . . corporate health policy.”

Building the case for wellness, PWC

“As many large scale initiatives fail without the appropriate supports, it is critical that an organisation **ensures certain enablers are in place** before implementing a wellness programme.”

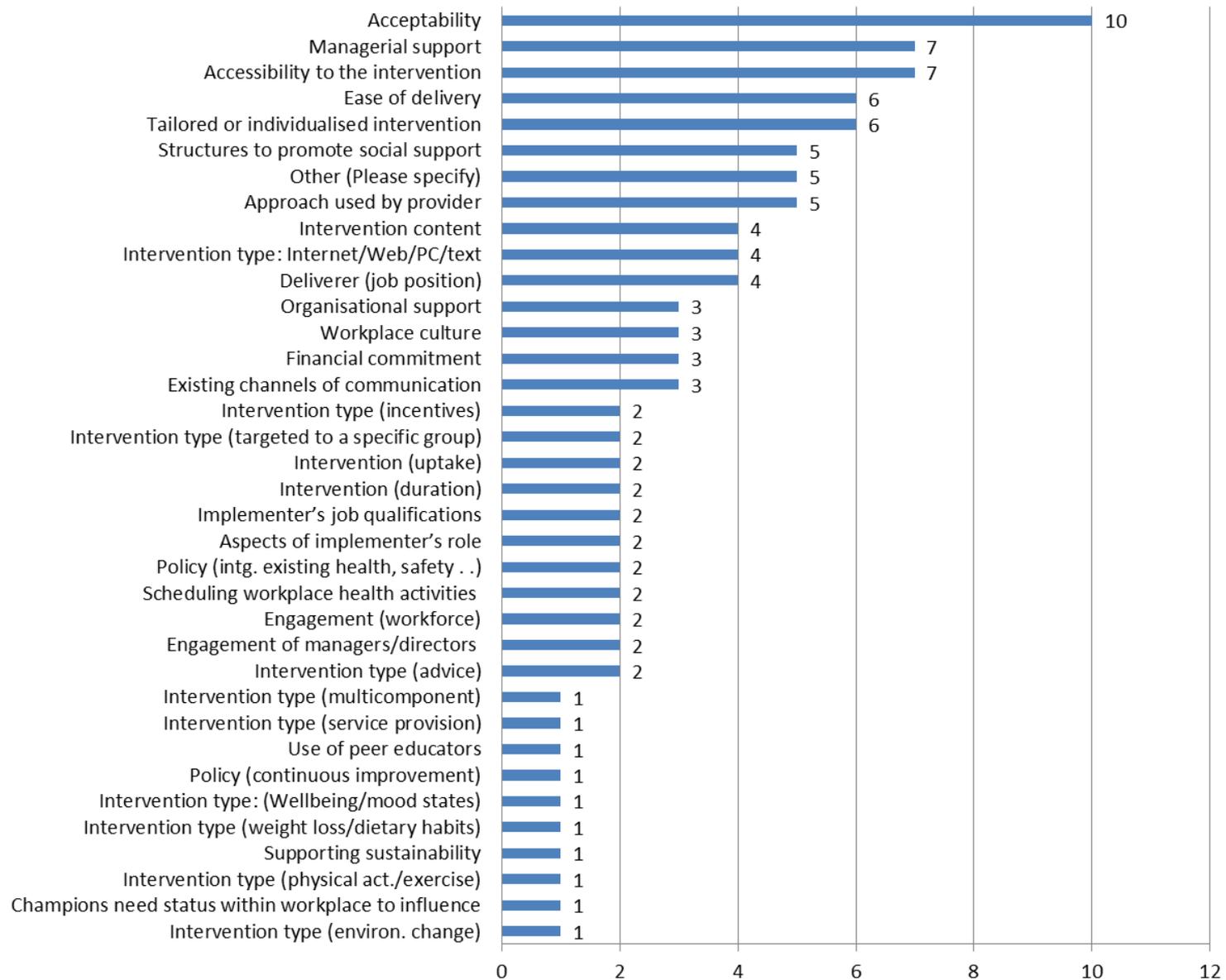
A range of features are reported . . . (2)

Healthy workplaces a model for action, WHO	Quality criteria of workplace health promotion, ENWHP	Building the case for wellness, PWC
1. Leadership engagement based on core values.	1.WHP should be a management responsibility with: - support and integration of management and executive staff - integration in company policy - provision of sufficient financial and material resources.	1. Leadership goes beyond endorsement of programmes and involves active and visible participation of senior management in wellness programmes.
2. Involve workers and their representatives.	2. Employee participation in planning and implementation of the WHP measures.	2. Create a culture of wellness that aligns wellness with a business' overall goals and missions.
3. Gap analysis: dealing with the gap between "what the situation is now" as compared to ideal conditions.	3. WHP should be based on a comprehensive understanding of health.	3. Create effective communication channels that ensure employees are consulted and continually informed of wellness initiatives.
4. Learn from others.	4. WHP should be based on accurate analysis and continually improved.	
5. Sustainability: ensuring healthy workplace initiatives are integrated into business plans along with evaluation and continuous improvement is key.	5. WHP should be professionally coordinated and information should be made available regularly to all the staff.	
6. The Importance of integration across the organisation	6. The benefits of WHP are evaluated and quantified on the basis of specific indicators.	

. . . and we identified six common themes (2)

- **Organisational leadership**
- **Management, integration and co-ordination**
- **Employee participation**
- **Analysis of needs and motivations**
- **Information and communication**
- **Sustainability**

The views of others experience of workplace health promotion has been identified by Brunton et al.(Sept. 2016) based on 10 studies (3)



Intervention features associated with increased effects (4)

We examined 17 reports that looked for differences in estimated pooled effects by features (moderator analysis)

Many features are examined

Sub-group or intervention features examined in reviews	
Counselling component	Intervention delivery
Educational component	Intervention duration
Exercise component	Intervention Type
Frequency of contact	Length of treatment
Group Size	One component interventions
Homework	Relaxation component
In-class hours	Remedial programs
Individual intervention	Targeted Programs

It is difficult to identify patterns and caution needed (4)

- **in many cases there is an inconsistency in results across different metrics**
- **limited by the fact that in most cases the extent to which a particular intervention feature is associated with increased effect size is not examined in more than one review**

Nevertheless, there seems to be some support for increased intervention effects for (4)

- **PA: targeting one behaviour, theory based, individual delivery, supervision, higher intensity**
- **PA &/ N: scheduled sessions, behavioural counselling**
- **SMI: individual focused, one component, include CBI**
- **SRI: CBI, individual**
- **WHPP: weekly contact**

Caution required on this question! Context and limited evidence.

Discussion

Practice	Research	Policy response
Returns wider public gains, PHS uncertainty		?
Information plethora of sources few all encompassing search costs		?
Advice few practical written guides most post application of beh. insights person to person		?
	Gaps RCTs of sufficient duration range of outcomes types of interventions features which increase effectiveness	?