Occupational health and wellbeing
Evidence and opportunities

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ANZSOM / SOM
8th Feb 2023

Principle references

Occupational Health:
The Value Proposition

Dr Paul J Nicholson OBE
March 2022

*Occupational health services enhance employee **health**, workforce **productivity**, business **performance** and the **economy***

ANZSOM
The Australian and New Zealand Society of Occupational Medicine Inc

GOOD WORK
SAFE WORKPLACES
HEALTHY WORKERS

Occupational Health: ADDING VALUE

March 2022

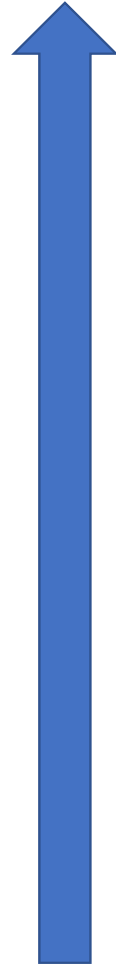
Occupational health services enhance employee health, workforce productivity, business performance and the economy

Scope

- Evidence
  - Quality
  - Limitations
  - Annoyances
- 7 lessons for users of evidence
- Key opportunities

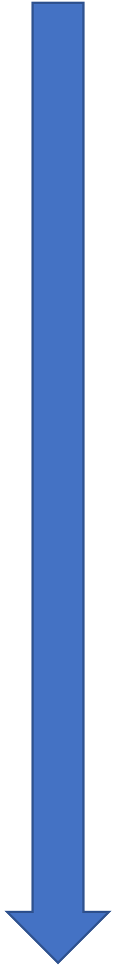
Hierarchy of evidence

Quality



- SRs and meta-analyses of RCTs
- RCTs & CRTs
- Cohort studies
- Case referent studies
- Cross-sectional studies
- Case series
- Case reports
- Expert opinion

Bias



Cross-sectional analysis

- Retrospective study
- More than 10,000 employees
- Intervention - WWP
- Followed up for 3-years
- Participants had better scores for job satisfaction and intention to stay

Ott-Holland CJ, Shepherd WJ, Ryan AM. *J Occup Health Psychol* 2019; 24: 163-179.

Longitudinal analysis

- Retrospective study
- More than 10,000 employees
- Intervention - WWP
- Followed up for 3-years
- Participants had better scores for job satisfaction and intention to stay

These effects disappeared when controlling for pre-intervention scores

Ott-Holland CJ, Shepherd WJ, Ryan AM. *J Occup Health Psychol* 2019; 24: 163-179.

Limitations of the hierarchy

- RCTs are not suitable for all OH questions
- Other study designs and hierarchies are more appropriate to investigate:
  - Aetiology
  - Pathogenesis
  - Disease frequency
  - Diagnosis and prognosis

Quality of primary research

- Overall low-quality
- Heterogeneity – design, subjects, outcomes
- Flawed designs
- Omit important costs
  - indirect costs of productivity loss and presenteeism
- Economic evaluations
  - only 44% of studies met >50% of quality criteria
- Often not feasible to draw sound conclusions

Additional issues for workplace wellbeing studies

- Only ~ 1 in 4 studies are high-quality
- Risk of biases in >2/3 of studies
- ROI inversely related to study quality
- Modelled studies especially show + ROI
  - Over-reliance on estimates to calculate ROI
- Most economic evaluations from the USA
- 11 European RCTs - most WWPs – negative ROI

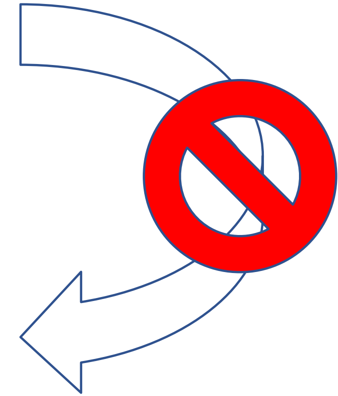
The popularity and commercial interest in WWPs is not supported by high-quality evidence for efficacy, effectiveness or cost effectiveness

Biases

- Attention bias - behaviour change caused by being observed or studied
- Selection bias - volunteers may be highly motivated and not represent the population
- Performance bias - methodology, non-randomisation, measurement errors, subjective measures, short follow-up
- Attrition bias – drop-outs omitted from results may have a worse prognosis
- Publication bias – favours studies which show positive effects

A systematic search does not make a systematic review

- Ask – questions to include
- Ascertain – inclusion criteria for studies
- Access – systematic literature search
- Appraise – accepted papers
- Aggregate – evidence and grade quality
- Advance – practice recommendations

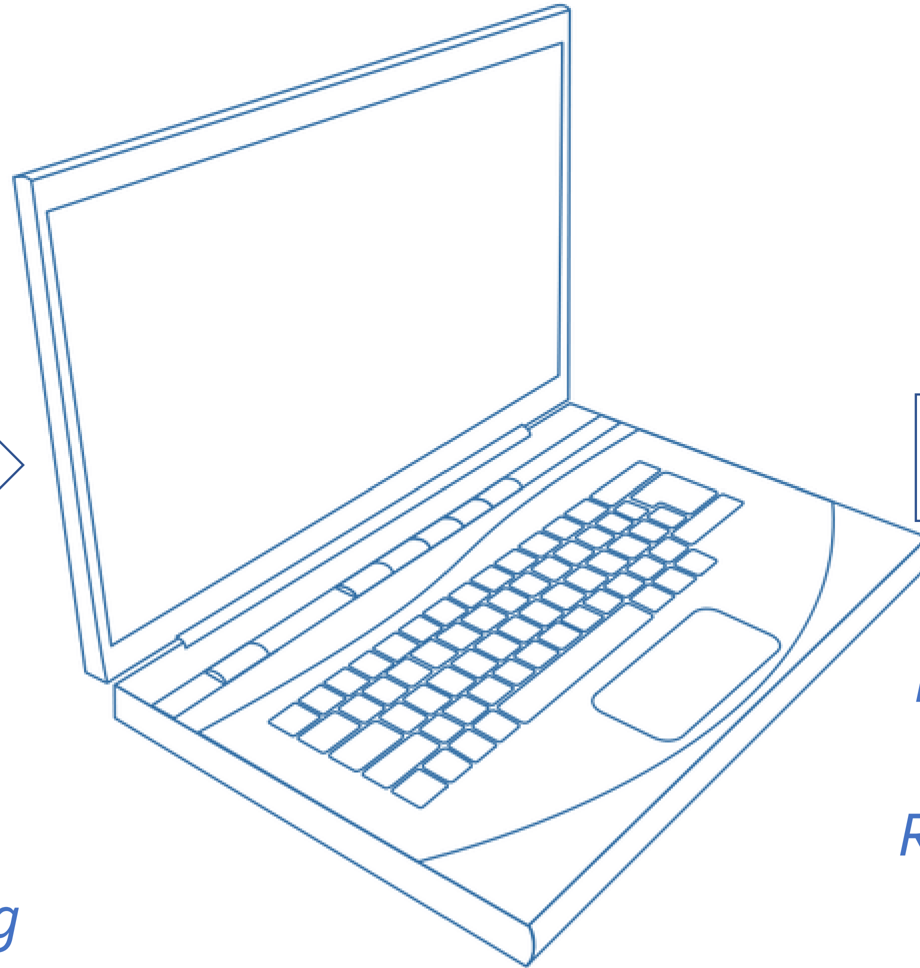


Without these and especially without double-blind critical appraisal it is just a low-quality narrative review

Annoyances

GARBAGE

Poor methods
No controls
Estimates
Hidden funding



GARBAGE

Publication bias
Naïve trust
Repeating myths
Spin

Absence of independent and rigorous peer review

People don't bother to read the small print

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People repeat what they see without any appraisal

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Use of data to support policy or profit

UK government telephone surveys

	2010	2014
Employees surveyed	2,019	2,013
Could access an OHS	38%	51%
Wouldn't use Fit to Work service (could access OHS)	-	37%

Health and wellbeing at work: a survey of employees. RR 751. DWP 2011.
Health and wellbeing at work: a survey of employees. RR901. DWP 2015.

UK government telephone surveys

	2010	2014
No. employees surveyed	2,019	2,[illegible]13
Could access an OHS	38%	5[illegible]%
Wouldn't use Fit t[illegible]ork service (could ac[illegible] OHS)	-	[illegible]

OH not defined

OH "provides advice and practical support about how to stay healthy in the workplace and how to manage health conditions"

Broad definitions

Employers reported OH provided by:

- Employees with H&S training (48%)
- Employees without H&S training (23%)
- First aiders (7%)

Survey of Use of Occupational Health Support. CRR 445. HSE. 2002

Lessons for evidence based practice

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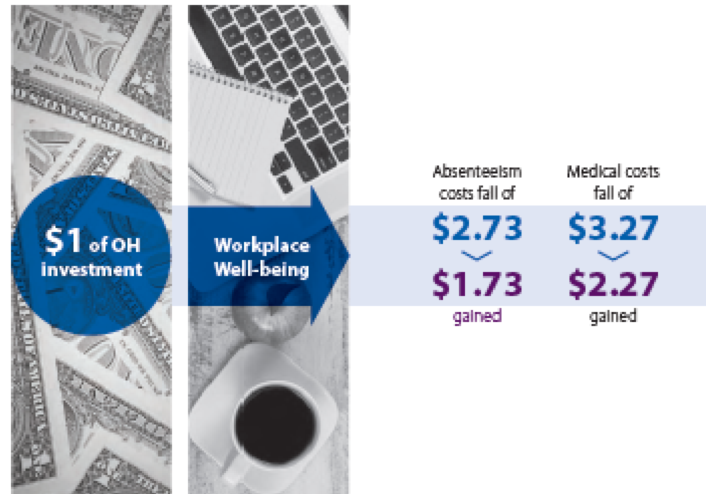
Lesson 1: Don’t trust ROI data or fancy graphics

“The Harvard Study” 2010

Absenteeism costs fall of	Medical costs fall of
$2.73	$3.27
$1.73	$2.27
gained	gained

Lesson 2: Read the small print!

Figure 1 | *Two major elements of enterprise strongly influenced by workplace health promotion: Absenteeism and Medical Costs, in numbers (49)*



Finally, a broad range of other financial consequ... can be identified. Some of these are intervention-dependent, such as the costs of damages to mater... Others depend on the regulatory context, such as fi... for non-compliance to occupational health standards, workers' claims for injuries and diseases, management, HR time for handling them, or subsidies (and tax reductions) from authorities or insurance companies

(29). It is, however, not always easy to deduce what portion of expenses and costs can be attributed to the intervention, since mostly they are not (or in insufficient detail) accounted for (20). Interestingly, research has also demonstrated a connection between implementing an effective health and safety policy (all studied firms won a Corporate Health Achievement Award) and a higher stock market performance (23, 24).

"The Harvard Study" 2010

"It is, however, not always easy to deduce what portion of expenses and costs [*savings*] can be attributed to the intervention"

Lesson 3: Check the source

Figure 1 | *Two major elements of enterprise strongly influenced by workplace health promotion: Absenteeism and Medical Costs, in numbers (49)*

Finally, a broad range of other financial consequences can be identified. Some of these are intervention-dependent, such as the costs of damages to material. Others depend on the regulatory context, such as fines for non-compliance to occupational health standards, workers' claims for injuries and diseases, management/HR time for handling them, or subsidies (and tax reductions) from authorities or insurance companies (29). It is, however, not always easy to deduce what portion of expenses and costs can be attributed to the intervention, since mostly they are not (or in insufficient detail) accounted for (20). Interestingly, research has also demonstrated a connection between implementing an effective health and safety policy (all studied firms won a Corporate Health Achievement Award) and a higher stock market performance (23, 24).

"The Harvard Study" 2010

One 'meta-analysis' whose authors stated:
"There are clearly limitations in the broader generalization of these findings"

Lesson 4: Appraise reports, systematic reviews and meta-analyses

The Harvard Study 2010

- Only included studies of 'new interventions' and only one study per intervention
- 13/22 studies lacked controls (low-quality)
- Didn't appraise / exclude studies for risk of bias
- Selection bias - motivated volunteers
- 40% of interventions included 'self help'
- Costs not known and assumed for 7/22 studies
- "Criticized for including studies that were several decades old and had substantial methodological weaknesses"[1]

1. Mattke S, et al. *Rand Health Quarterly*. 2015.

Lesson 5: Look for the latest *and* b... evi...

Large cluster randomized trials

Illinois Workplace Wellness Study (> 2y...

- Null effects on health costs
- Participants had ... at baseline
- 84% ... earlier studies unreliable

... years) [2,3]

- ... differences in health care spending or absenteeism
- ...ings may temper expectations about financial ROI from WWP
- Most prior studies had methodological shortcomings (selection bias)

Workplace wellness programs are big business. They might not work.

1. *Jones D, Quart J Economics 2019*
2. *Song Z, et al. JAMA 2019*
3. *Song Z, et al. Health Aff 2021*

Lesson 6: The latest report is not always the best!

Promoting Health and Well-being at Work Policy and Practices
OECD Report November 2022

"A 2010 meta-analysis found that for every dollar spent on workplace wellbeing programmes, medical costs fall by about USD 3.3 (Baicker, Cutler and Song, 2010[13])."

"Translated into monetary terms, for every dollar spent on workplace wellness programmes, the employer can save USD 2.7 in absenteeism costs (Baicker, Cutler and Song, 2010[13])."

Lesson 6: The latest report is not always the best!

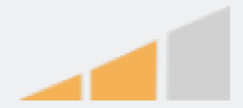
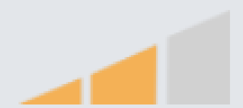
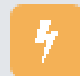
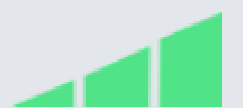
Promoting Health and Well-being at Work Policy and Practices
OECD Report November 2022

- Omitted relevant high-quality research post 2010
- OECD estimates are derived from burden-of disease modelling and are based on “a lot of assumptions”[1]
- Sedentary activity estimates rely on 5 studies of sit-stand desks and 1 of treadmill desks[1]
- Only 1 of the 6 studies lasted >3 months[1]
- Cochrane reports low-quality short-term effects[1]

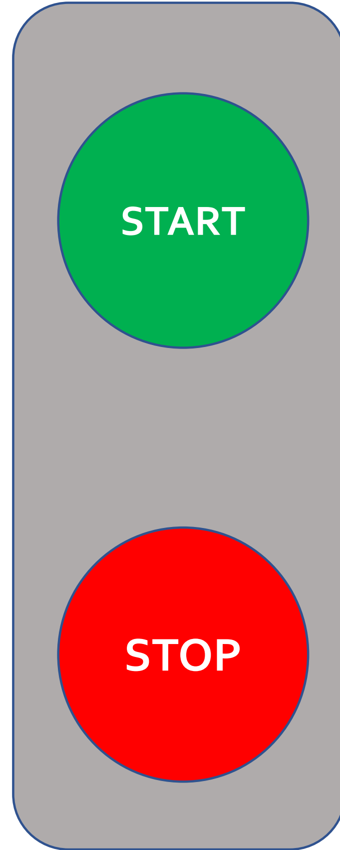
1 Ballard J, Editorial. Occupational Health [at Work]. Feb/Mar 2023

Health Evidence™

Lesson 7: Check expert appraisals

Evidence base of economic evaluations of workplace-based interventions reducing occupational sitting time: An integrative review	Akhavan Rad S, et al.	2022	
Economics of sedentary behaviour: A systematic review of cost of illness, cost-effectiveness, and return on investment studies	Nguyen P, et al.	2022	
Workplace interventions for reducing sitting at work 	Shrestha, N., et al.	2018	
Place of distancing measures in containing epidemics: A scoping review	Chebil D, et al.	2022	

Opportunities Start / Stop



High-quality longer-duration studies

Shift focus from WWP to OH

Debunking fake news

Funding 'more of the same' studies

Regurgitating unsound findings from low-quality research

Opportunities Continue / Improve

- Drive strategy for OH to survive & grow
  - Based on robust appraised research
- Build on success of collaboration / CC4.0
  - SOM Occupational health: the value proposition
  - ANZSOM Occupational Health: Adding Value
  - FOM(I) Advocating for the Value of Occupational Health in Ireland 2023 – 2026
- Involve other countries
- Extend to other projects