

# International Best Practice in Job Stress Intervention: What Does the Evidence Tell Us to Do?

**Safety Discovery & Injury Recovery Conference  
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McCaughey Centre**

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**<http://www.mccaugheycentre.unimelb.edu.au/>**



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# Contributors

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- 
- VicHealth report: Workplace Stress in Victoria  
[www.vichealth.vic.gov.au/workplacestress](http://www.vichealth.vic.gov.au/workplacestress)
- 
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# Psychosocial Working Conditions: An Emerging Concern for All Working People

- Job stress
- Job insecurity
- Bullying
- Occupational violence
- Sexual harassment
- Shift work
- Working hours



# Presentation Outline

1. Primer on job stress concepts & terms
2. Our job stress intervention review
3. Compare our findings to two reviews published soon after ours
4. Application of review findings in practice
5. Future directions



# Job Stress

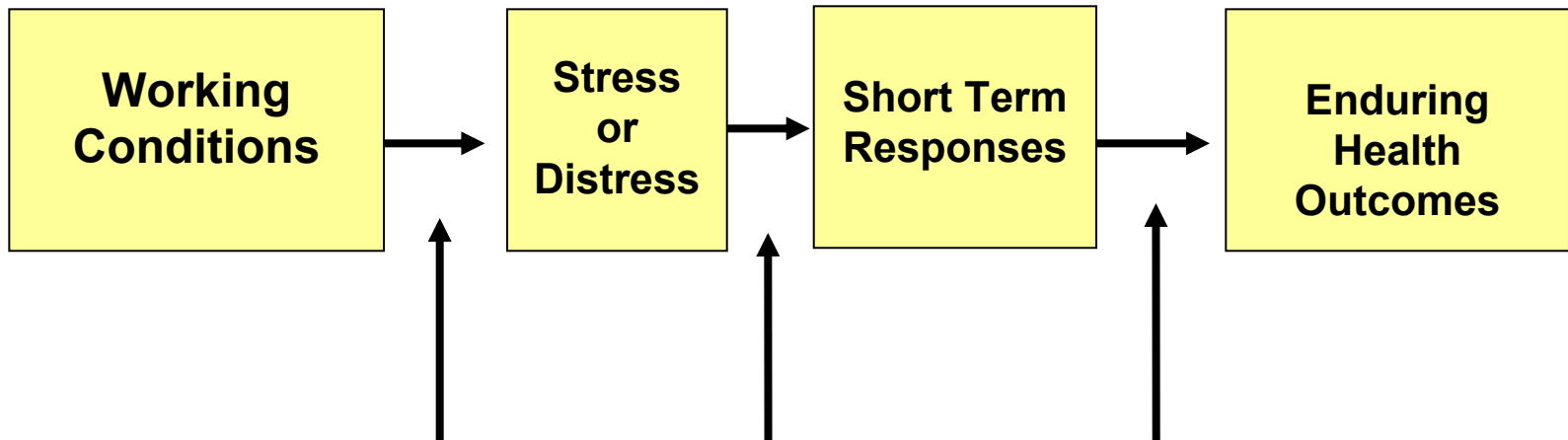
*“the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker”*

US National Institute for Occupational Safety & Health



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## Modifying Variables: Individual or Situational Characteristics

### Social

- \*Non-work stressors
- \*Socioeconomic status

### Biophysical

- \*Age
- \*Sex
- \*Health status

### Psychological

- \*Personality
- \*Coping abilities

### Behavioural

- \*Exercise
- \*Recreational activities
- \*Nutrition

### Genetic

- \*Inherited predisposition to mental illness, heart disease



# Job Stress & Health

- **Linked to poor health behaviours**
  - Smoking, alcohol consumption, BMI
- **Increased risk of physical health problems**
  - Heart disease risk factors, hypertension, & cardio-vascular disease
- **Increased risk of mental health problems**
  - Depression, anxiety, burnout

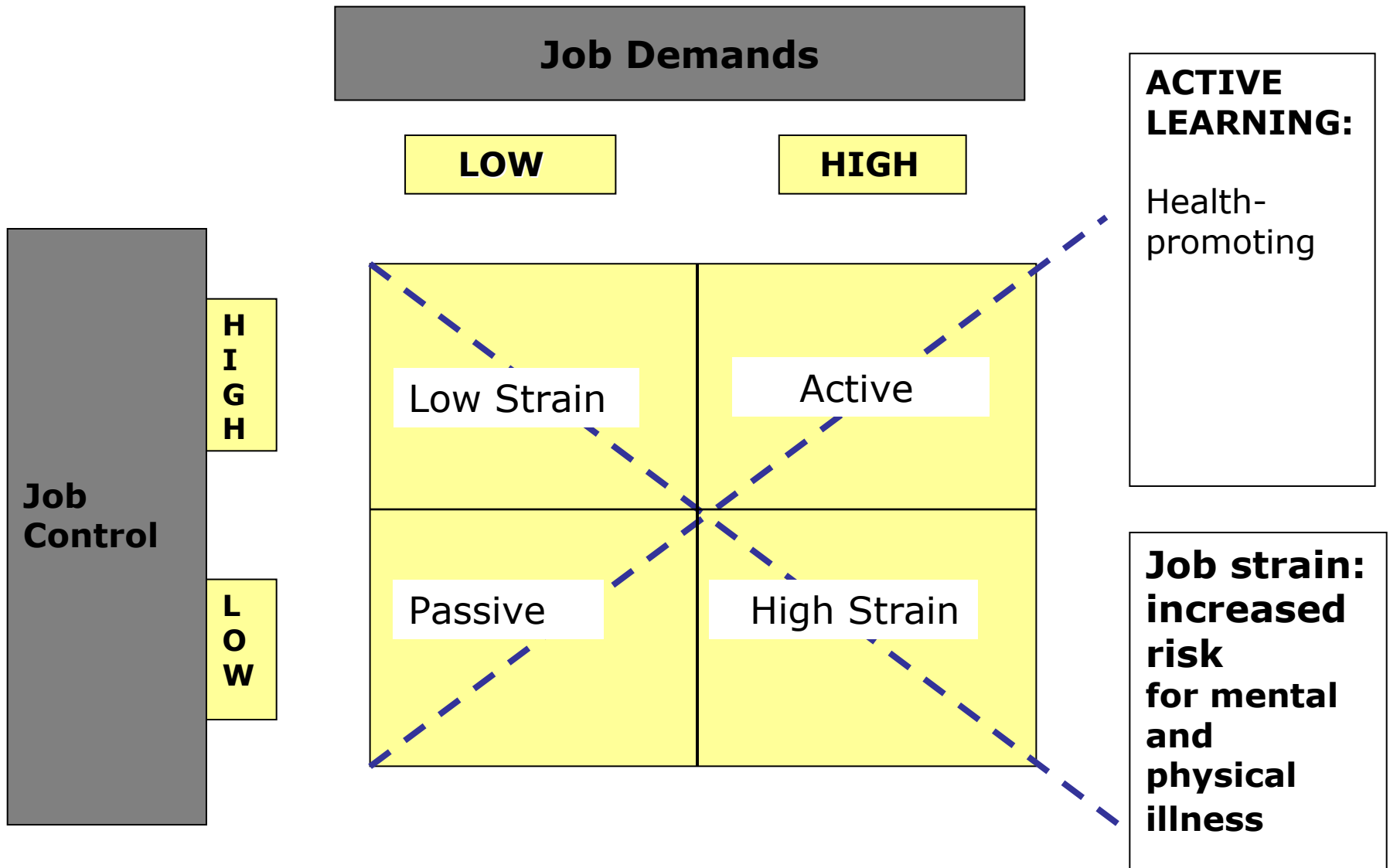


# Job Stress Models

- **Karasek & Theorell's demand-control-support model**
- **Effort-reward imbalance**
- **Organizational justice**
- **Others...**



# Karasek & Theorell Job Strain Model



# Job Stress & Mental Health

- Demand-control model the most studied
- Job strain linked to 2-3 fold increase in depression & anxiety risk (adjusted), some studies null
- Low job control the main driver
- Not explained by social class or negative personality



# Job Stress & Mental Health

- 2006 systematic review found...
- “...robust and consistent evidence that high demands, low control, and the combination of the two are prospective risks factors for common mental disorders”

Stansfeld & Candy, 2006

# Meta-analysis: Job Stress & Common Mental Disorders

- Examined relationships various job stress measures and common mental disorders
- Two prospective studies eligible for inclusion for job strain, both using depression as an outcome
- Combined Odds Ratio = 1.81 [1.06, 3.10]

Stansfeld & Candy 2006



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# Job Strain-Attributable Depression

- **Combine risk estimate with Victorian working population job strain exposure data:**
  - **Men 13.2% [1.1, 28.1]**
  - **Women 17.2% [1.5, 34.9]**

*LaMontagne et al (2008)*



# Job Stress & Organizational Health

- Demand-control, effort-reward imbalance, and organisational justice measures linked at org level to:
  - Absenteeism/sickness absence rates
  - Job satisfaction
  - Employee turnover
  - Job performance measures (e.g., org citizenship behaviours)
  - Accident & injury rates
  - Healthcare expenditures
  - Workers' Comp claims



# Workplace Stress in Victoria: Developing a Systems Approach

- VicHealth- commissioned report (2006)
- Evidence synthesis
  - Review evidence job stress related to adverse effects on worker & organizational health
  - **Review job stress intervention evaluation literature to determine whether systems approaches more effective than other available alternatives**
- Application to Victorian Context
  - Assess prevalent practice in terms of stakeholder views & activities on job stress
  - Assess patterns of job stress exposure
  - Estimate contribution of job stress to ill health

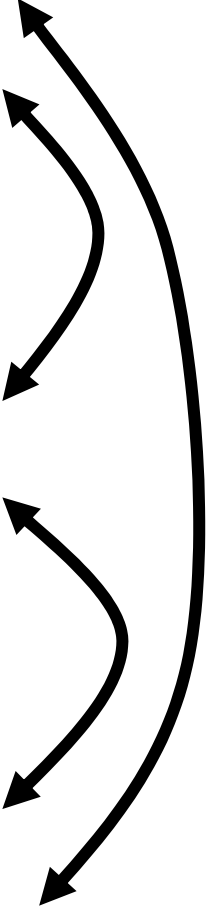


# Systems Approach

- **Systems approaches:**
  - emphasize primary prevention (dealing with job stressors at their source)
  - integrate primary with secondary & tertiary prevention
  - include meaningful participation of groups targeted by intervention
  - are context-sensitive
- **Synonymous with:**
  - comprehensive
  - comprehensive stress prevention & management
  - combined work-directed & worker-directed



INTERVENTION LEVEL	Effectiveness	INTERVENTION TARGETS
<p><b>PRIMARY (preventative)</b></p> <p>Reduce potential risk factors or altering the nature of the stressor before workers experience stress-related symptoms or disease</p>	<p>+++</p>	<p><b>Stressors at source i.e.</b></p> <ul style="list-style-type: none"> <li>•Employment arrangements</li> <li>•work organisation</li> <li>•on site working conditions</li> </ul>
<p><b>SECONDARY (protective)</b></p> <p>Equip workers with knowledge, skills, and resources to cope with stressful conditions</p>	<p>++</p>	<p><b>Employee responses to stressors</b> (perceived stress or strain)</p>
<p><b>TERTIARY (reactive)</b></p> <p>Treat, compensate, &amp; rehabilitate workers with enduring stress-related illness</p>	<p>+</p>	<p><b>Health effects of job stress</b></p>



# Other Systematic Reviews

- Updated & expanded on the most recent review available at the outset of our project—the 2003 *Beacons of Excellence* review from the UK
- Two published in late 2007 by Cochrane Collaboration—return to these at the end

# Search Strategy

- **Published 1990—2005**
- **English language**
- **Medline (OH&S, occupational medicine, other public health)**
- **ISI Web of Science (psychological and social sciences)**
- **Yielded 135 publications**



# Search Results

- **Search results crossed with the 75 studies in *Beacons (1990-2001)* review**
- **Other studies identified by investigators manually**
- **Journal articles, also non-peer-reviewed reports, books, book chapters**



# Inclusion Criteria

- **Aim: review job stress intervention studies that reported on some form of intervention evaluation**
- **Job stress intervention studies: those *‘expressly aiming to alter the sources of, responses to, or effects of job stress’* (Israel et al 1996)**
- **‘Natural experiments’ were not included in this review**



# Inclusion Criteria (continued)

- Reported on intervention evaluation of some sort, including:
  - Qualitative
  - Action research studies
  - W/ and w/o control or comparison groups
  - (excluded developmental studies)
- Minimum sample size of 30 individuals
- Interventions included employees or contractors independent of pre-existing susceptibilities, complaints, or illnesses



# What was the nature of the intervention?

- **Comparatively assessed degree of ‘systems approach’:**
  - High = both organisational- & individual-directed interventions (primary & secondary/tertiary)
  - Moderate = Org-directed only (primary)
  - Low = Individual-directed only (secondary/tertiary)

# Systems Approach Rating

- **Noted if included employee participation**
- **Noted if included systematic risk or needs assessment**
- **...but insufficient information reported to summarise across all 90 studies**



# Study Design/Causal Inference Rating

- 1 \*** Descriptive, anecdotal, or authoritative evidence
- 2 \*** Evidence obtained without intervention but that might include long-term or dramatic results

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- 3 \*** Evidence obtained without a control group or randomization but with evaluation
- 4 \*** Evidence obtained from a properly conducted study with pre & post measures and a control group but without randomization
- 5 \*** Evidence obtained from a properly conducted study with pre & post measures and a randomized control group

Adapted from Kompier & Cooper 1999, Murphy 1996, *Beacons* review

# Summary of Principal Findings for Evaluation Outcomes

- **O+** Findings favourable at the organizational level
  - Decrease in sickness absence
- **O-** Findings unfavourable at the organizational level
  - Workloads increased
- **ONS** no significant difference in outcome(s) assessed at the organizational level
  - No change in job control
- Same shorthand for individual-level (**I+/-/NS**)
- Too few studies reported on Physical Environment (**E**) to summarise



# Findings: Included Studies

- **90 studies met inclusion criteria**
- **Wide range of:**
  - **Intervention targets**
  - **Intervention durations (hours to years)**
  - **Outcomes**
  - **Study designs & methods**



# Systems Approach Ratings

	<b>Low</b>	<b>Moderate</b>	<b>High</b>
<b>N</b>	43	17	30
<b>Percent</b>	48%	19%	33%



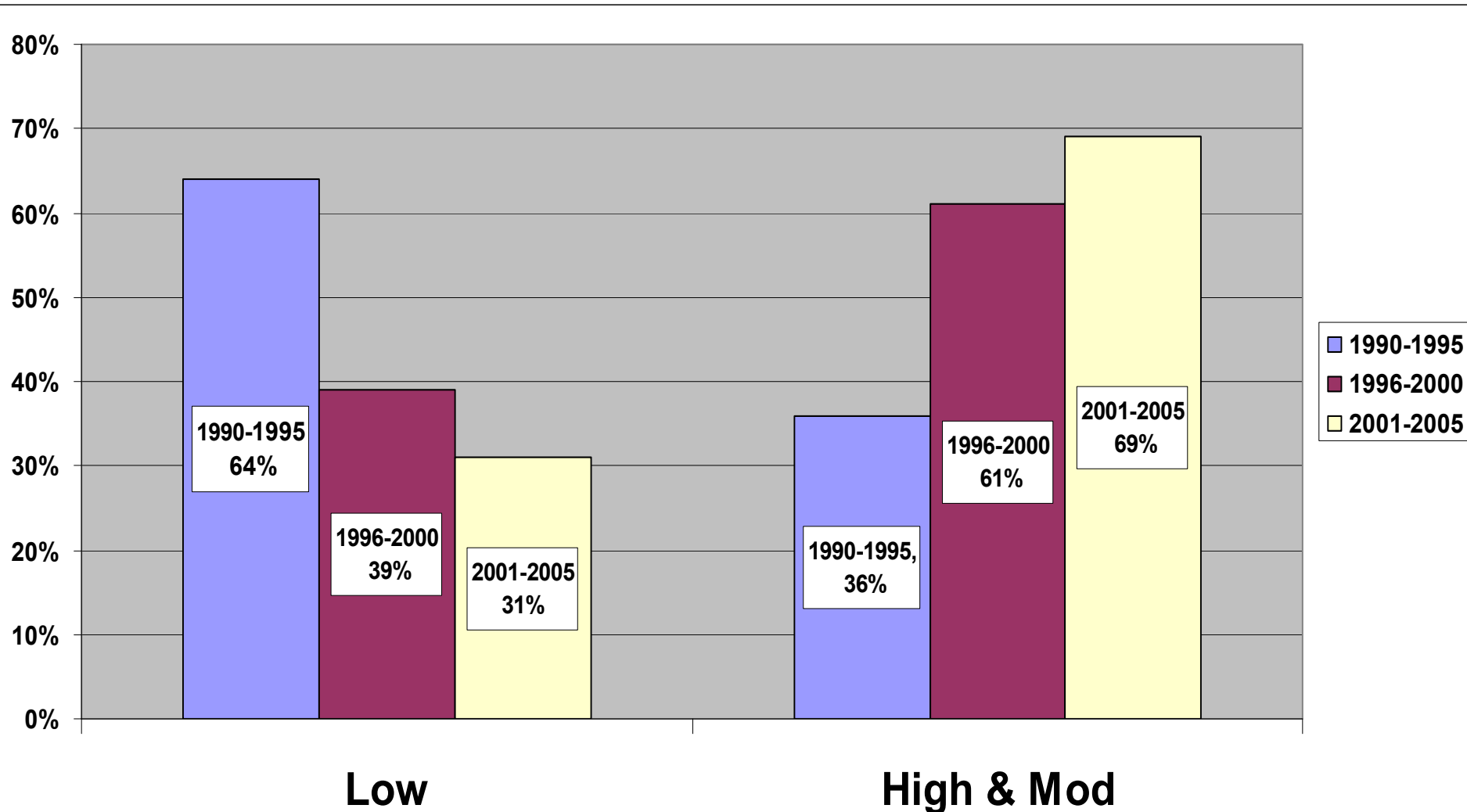
# Causal Inference Ratings by Level of Systems Approach

	Low	Moderate	High
*** no comparison group	12	7	12
**** pseudo-exptl	13	6	13
***** RCT	18	4	5

# Features of High Systems Approach Studies

- Longer intervention and evaluation follow-up periods, months to years versus hours to months for Low
- *Beacons* review rated 12% (vs 33%) of studies as 'best practice comprehensive stress prevention & management

# Low-rated Systems Approach Studies Versus High- and Moderate-rated, by 5-Year Groupings (N = 90)



# Job Stress Intervention Evaluation Review: Conclusions

- 1. High systems approach studies represent a growing proportion of the job stress evaluation literature, possibly reflecting the growing application of such approaches in practice internationally.*

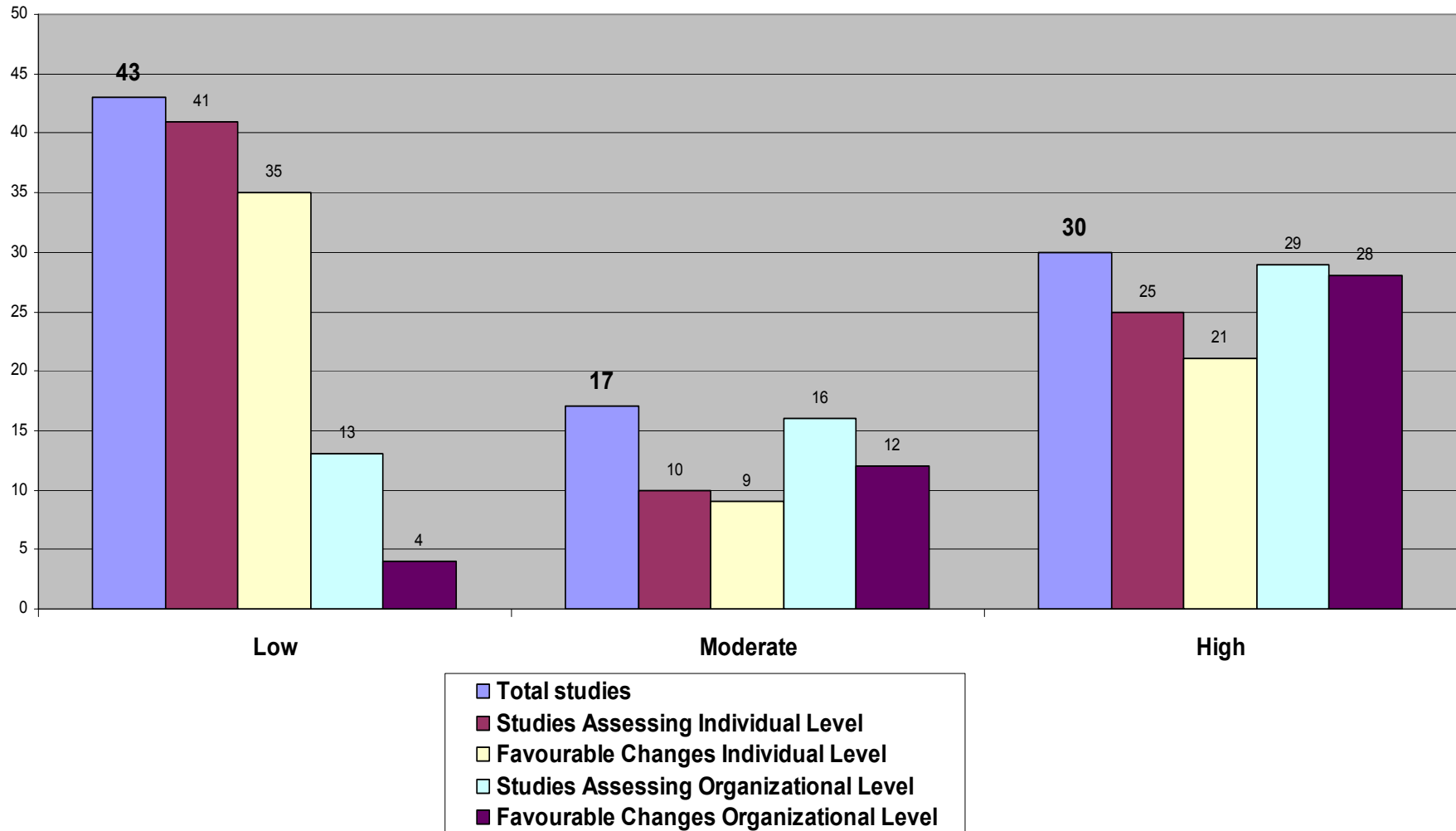


# Relative Effectiveness of H/M/L Systems Approaches

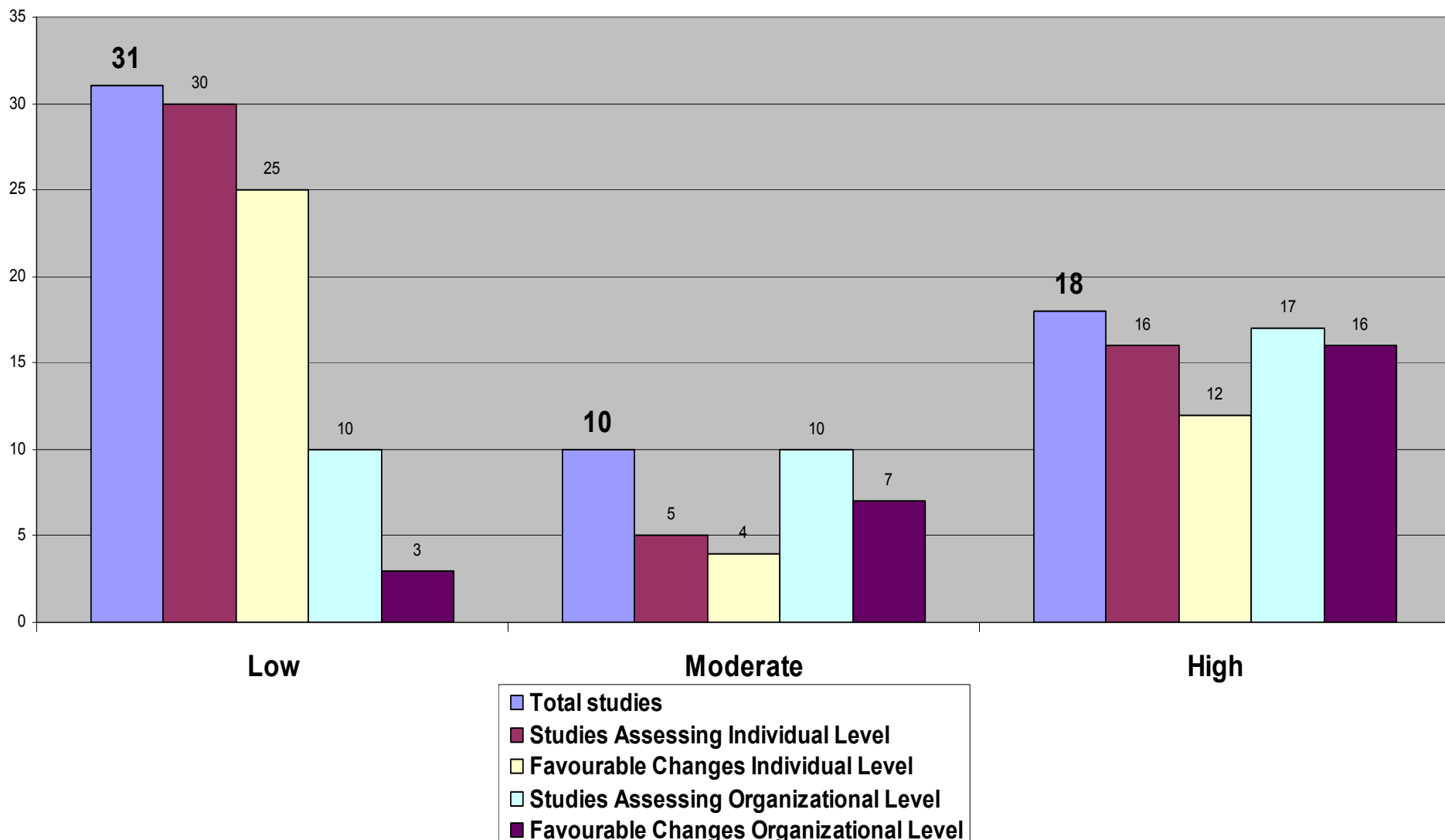
- Compare types of outcomes assessed (I and/or O)
- Whether favourable changes observed for outcomes types assessed (I and/or O)



# Job Stress Ix Studies (N = 90): Individual & Organizational Level Outcomes, by Systems Approach Rating Level



# Job Stress Ix Studies Restricted to 4\* & 5\* Designs (N = 60): Individual & Organizational Level Outcomes, by Systems Rating Level

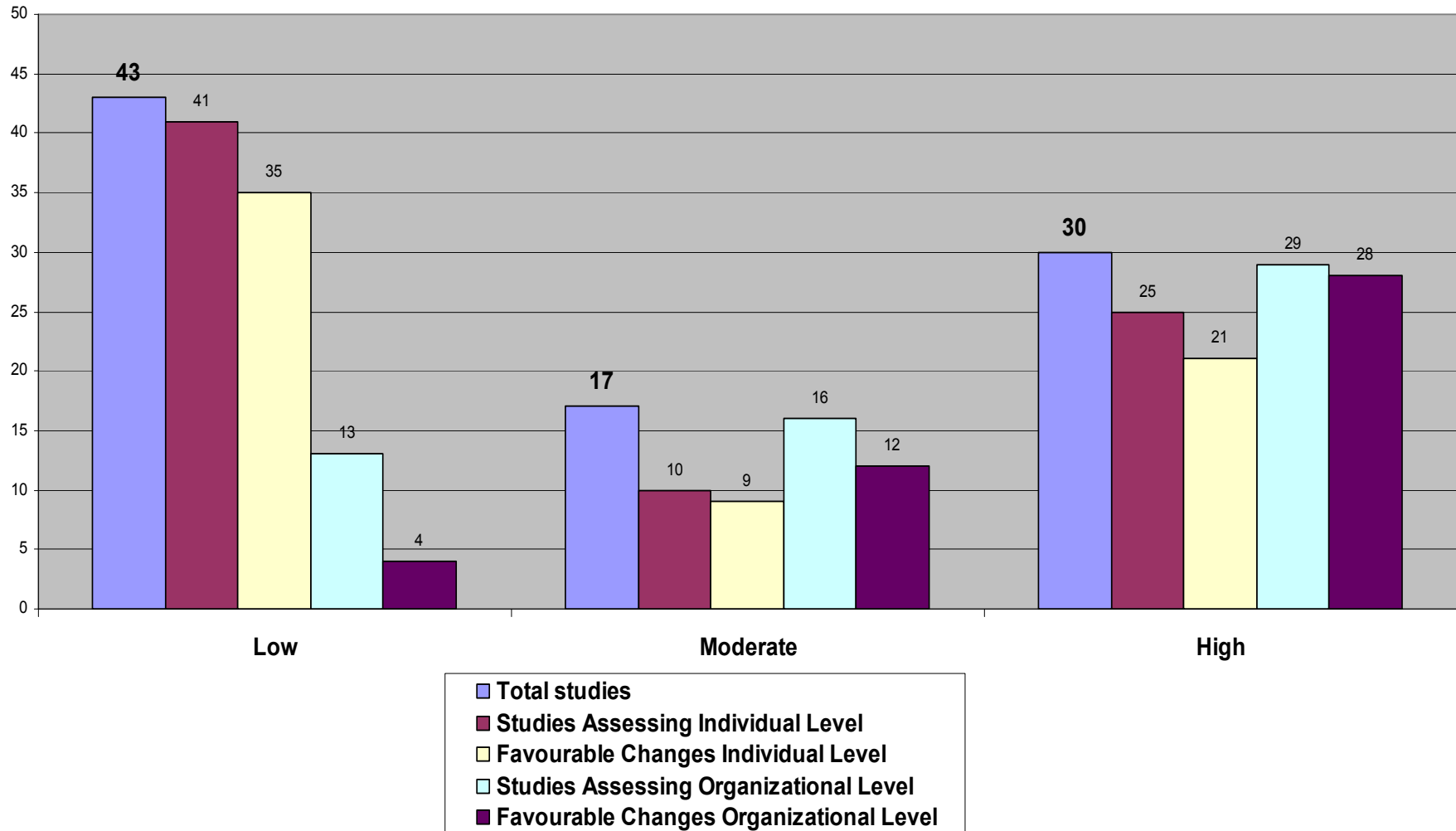


# Job Stress Intervention Evaluation Review: Conclusions

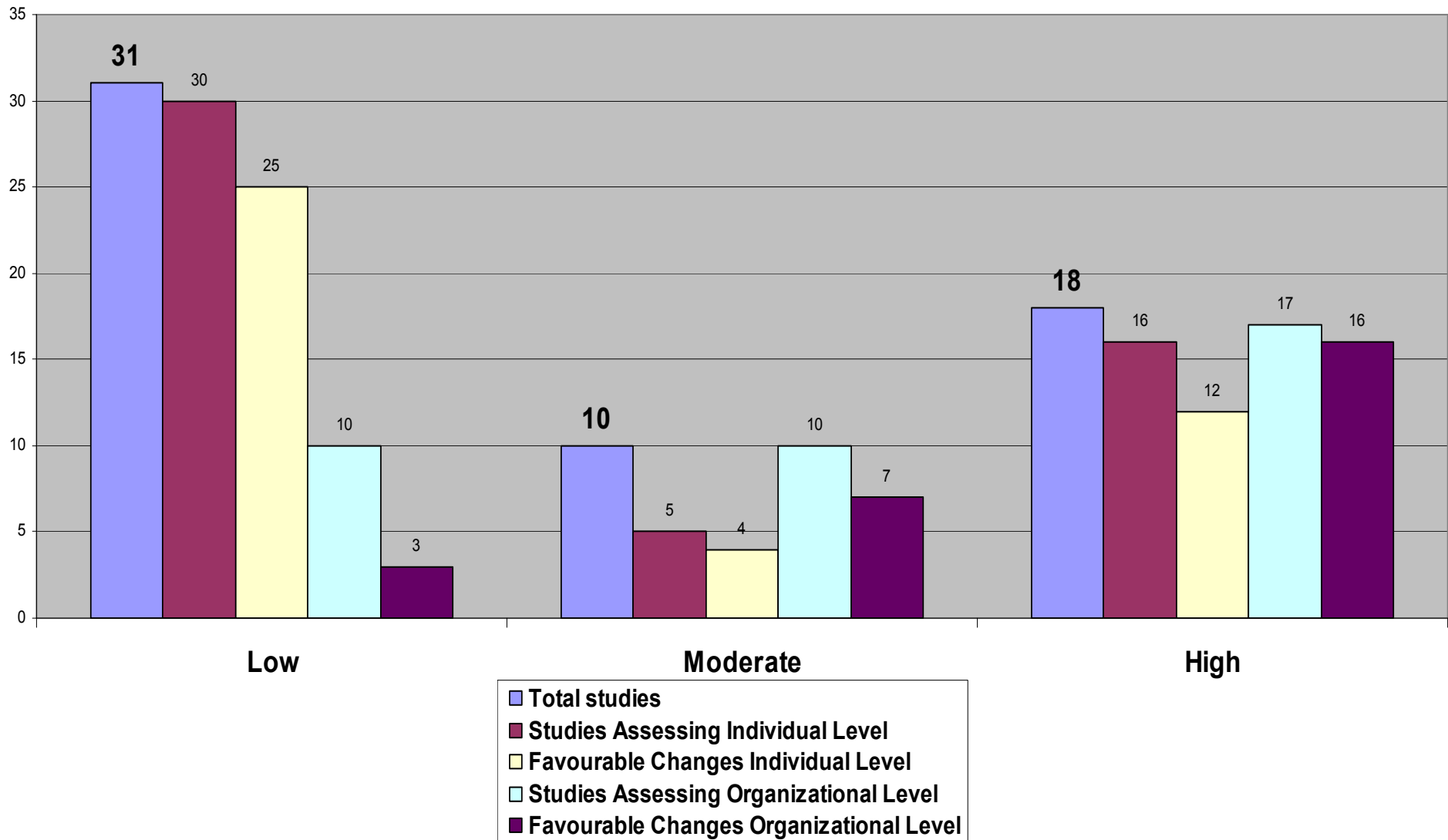
- 2. Individually-focused, Low systems approaches are effective at the individual level, favourably affecting a range of individual level outcomes.*
- 3. Individually-focused, Low systems approach interventions tend not to have favourable impacts at the organisational level.*



# Job Stress Ix Studies (N = 90): Individual & Organizational Level Outcomes, by Systems Approach Rating Level



# Job Stress Ix Studies Restricted to 4\* & 5\* Designs (N = 60): Individual & Organizational Level Outcomes, by Systems Rating Level



# Job Stress Intervention Evaluation Review: Conclusions

- 4. Organisationally-focused High and Moderate systems approach interventions have favourable impacts at both the individual and the organisational levels.*



# Features of High Systems Approach Studies

- Employee participation in intervention development or implementation
- Needs assessment before intervention
- Integration of job-stress intervention with workplace health promotion



# Other Findings

- **Economic evaluations**
  - Usually costed sickness absence
  - High SA more likely to report favourable results



# Limitations

- **Inclusiveness: causal inference limited**
  - Some non-peer reviewed studies
  - Some weak designs (w/o comparison groups), few RCT for *High* systems approach...
  - But findings same when restrict to studies with comparison groups
- **Wide variety of intervention strategies and outcomes assessed**
- **Limited information on interventions**
- **Publication bias?**



# Implications for Policy & Practice

- Further empirical support for systems approach and related policy & practice
  - Affirms I-directed as an essential complement to O-directed
  - Contrasts with prevalent practice
- Adequate evidence but inadequately convincing to all key stakeholders?

# Implications for Policy & Practice

- Integration with WHP to increase employer buy-in?
- Need for better integration across levels:
  - Only 1 study reported integration of 1<sup>0</sup>, 2<sup>0</sup>, 3<sup>0</sup>
- Strategic research need:
  - High causal inference studies of High SA with substantive economic evaluation



**Compare our review findings  
to two others that were published  
soon after ours**



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# Cochrane Public Health Review Group

**The psychosocial and health effects of workplace reorganisation:**

- 1. A systematic review of organisational-level interventions that aim to increase employee control**
- 2. A systematic review of task restructuring interventions**

**Published in *J Epidemiology & Community Health (JECH)*  
November & December 2007**



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# JECH Review #1: Objective

**Systematic review of the health and psychosocial effects of increasing employee participation and control through workplace reorganisation, with reference to the DCS model**

*Egan et al. JECH 2007; 61 p 945*



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# JECH Review #1: Findings

- Some evidence of health benefits (e.g., on mental health, including reduction in anxiety and depression) when employee control improved or (less consistently) demands decreased or support increased
- Two participatory interventions occurring alongside redundancies reported worsening employee health



# JECH Review #1: Conclusion

- Some O-level participation interventions may benefit employee health, as predicted by the Demand-Control-Support model



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# JECH Review #2: Main Objective

**To systematically review the health and psychosocial effects (with reference to the DCS model) of changes to the work environment brought about by task structure work reorganisation**

*Bambra et al. JECH 2007; 61 p 1028*



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# JECH #2: Findings

- Some interventions failed to alter the psychosocial work environment significantly
- Those that increased demand and decreased control tended to have an adverse effect on health, while those that decreased demand and increased control resulted in improved health



# JECH #2: Conclusions

Task-restructuring interventions that increase demand or decrease control adversely affect the health of employees, in line with observational research



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# Compare Approaches: IJOEH & JECH Reviews

IJOEH 2007	JECH 2007
Less selective (design & methods)	More selective (design & methods)
Less inclusive (intervention type)	More inclusive (intervention type)
Lower causal inference	Higher causal inference
Greater generalisability	Lower generalisability

# Compare Findings: IJOEH & JECH Reviews

- To complement typical systematic review approach, we emphasised:
  - Generalisability over casual inference
  - External over internal validity
- To get a better picture of what orgs are willing to do to address job stress, and what happens as a result
- Internally-initiated (vs. researcher-initiated) interventions tend to:
  - Have less developed evaluations and lower casual inference
  - Be published outside academic literature

Steckler & McLeroy 2008: The importance of external validity.  
AJPH 98(1):9-10

# Comparison of Findings: IJOEH & JECH Reviews

- Conclusions consistent, complementary, & mutually reinforcing
- IJOEH question
  - When orgs purposely intervene on job stress...
- JECH question
  - When there are changes in participation or task structure...
- IJOEH conclusion:
  - combining levels of intervention yields greatest benefits
- JECH conclusion:
  - worsening psychosocial work environment harms health



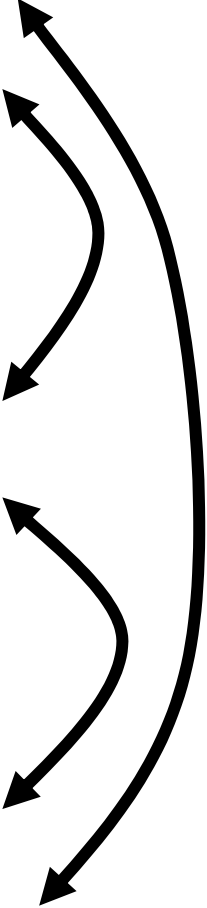
# How can these findings be applied by practicing professionals?



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INTERVENTION LEVEL	Effectiveness	INTERVENTION TARGETS
<p><b>PRIMARY (preventative)</b></p> <p>Reduce potential risk factors or altering the nature of the stressor before workers experience stress-related symptoms or disease</p>	<p>+++</p>	<p><b>Stressors at source i.e.</b></p> <ul style="list-style-type: none"> <li>• Employment arrangements</li> <li>• work organisation</li> <li>• on site working conditions</li> </ul>
<p><b>SECONDARY (protective)</b></p> <p>Equip workers with knowledge, skills, and resources to cope with stressful conditions</p>	<p>++</p>	<p><b>Employee responses to stressors</b> (perceived stress or strain)</p>
<p><b>TERTIARY (reactive)</b></p> <p>Treat, compensate, &amp; rehabilitate workers with enduring stress-related illness</p>	<p>+</p>	<p><b>Health effects of job stress</b></p>



<b>PRIMARY</b>	<b>Examples of Intervention</b>	
	<b>Objectives</b>	<b>Activities</b>
<p><b>To eliminate or reduce job stressors and risk factors for job stress</b></p>	<p><b>Reduce job Demands</b></p>	<ul style="list-style-type: none"> <li>• Limit number of working hours</li> <li>• Increase time or other resource allocations for completion of specific tasks</li> <li>• Redesign physical work environment to reduce musculoskeletal load &amp; noise</li> </ul>
	<p><b>Improve job control</b></p>	<ul style="list-style-type: none"> <li>• Decrease prevalence of precarious employment arrangements</li> <li>• Provide breaks from client- based work</li> <li>• Increase worker participation in planning &amp; decision making</li> </ul>
	<p><b>Improve social support</b></p>	<ul style="list-style-type: none"> <li>• Assess and integrate employee needs into planning of work schedules</li> </ul>

# Illustrative Quotes

(courtesy Cheryl Beale, Master's thesis)

- Job demands:

*There will always be some stress in the workplace because they are just not giving you enough staff to cope with the amount of work there is (Tessa, aged 46-50, aged carer)*

# Illustrative Quotes

(courtesy Cheryl Beale, Master's thesis)

- Job control:

*Not a huge amount - small decisions on how I do each individual job - if I'm not sure - I'd ask, but how I prioritise the tasks I do - that's pretty much the decisions involved (admin assistant's suggestion on how to improve job autonomy)*

<b>Secondary</b>	<b>Examples of Intervention</b>	
	<b>Objectives</b>	<b>Activities</b>
<b>Alteration of an individual's perception or response to stressors</b>	<b>Alter individual responses to job stressors</b>	<ul style="list-style-type: none"> <li>• Provide cognitive behavioural therapy or relaxation response training.</li> </ul>
	<b>Improve individual ability to cope with short-term stress responses</b>	<ul style="list-style-type: none"> <li>• Provide anger management training</li> <li>• Improve co worker and supervisory support</li> </ul>
	<b>Detect stress-related symptoms and intervene early</b>	<ul style="list-style-type: none"> <li>• Conduct health screening for stress symptoms, ambulatory blood pressure, hypertension—and assess results on work group level</li> </ul>

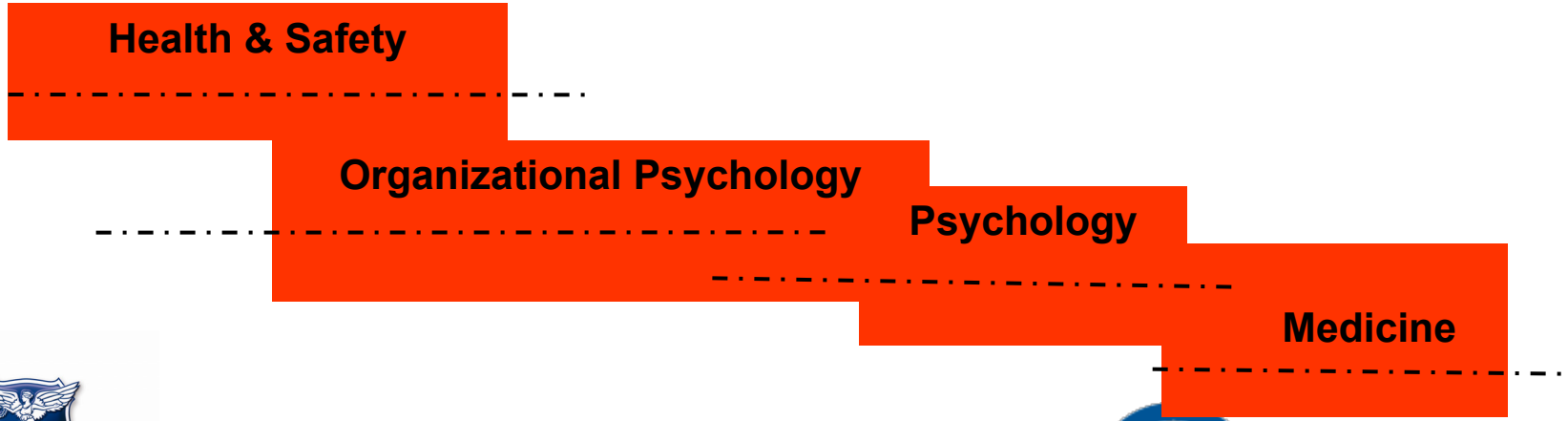
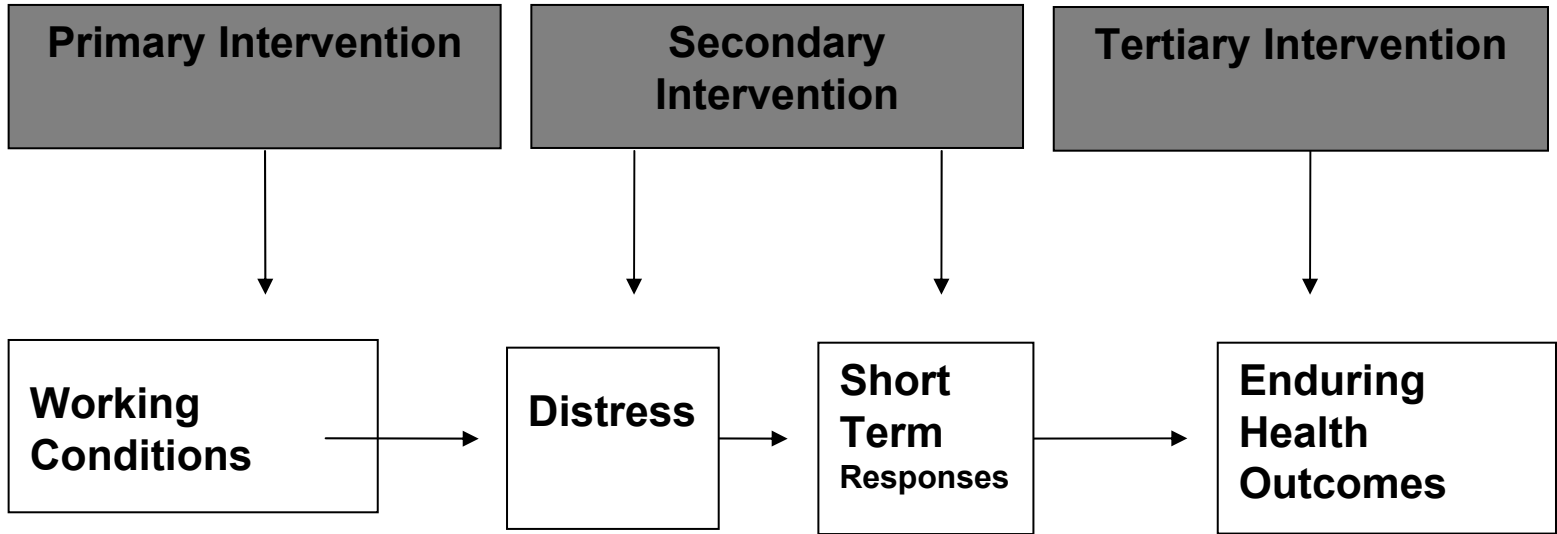
# Illustrative Quotes

(courtesy Cheryl Beale, Master's thesis)

- Co-worker social support:

*I probably talked to a couple of girls in the office. That relieved the stress, because they got off their chest what they were annoyed about and I did the same*  
(Cassie, age 25-29, clerical assistant).

<b>Tertiary</b>	<b>Examples of Intervention</b>	
	<b>Objectives</b>	<b>Activities</b>
<b>To treat those with illness &amp; facilitate safe return to work</b>	<b>Treat job stress related illness</b>	<ul style="list-style-type: none"> <li>• Medical care, counselling &amp; employee assistance</li> </ul>
	<b>Compensate job stress related illness</b>	<ul style="list-style-type: none"> <li>• Reduce adversarial aspects of compensation process</li> </ul>
	<b>Rehabilitate job stress affected workers</b>	<ul style="list-style-type: none"> <li>• Include modification of job stressors in return-to-work plans</li> </ul>



# Future Directions

Example:

*Integration of intervention  
on psychosocial working conditions  
and mental health*



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# Collaborators

- Clare Shann
  - *Beyondblue* Senior Program Manager, National Workplace Program
- Verna Blewett
  - Uni South Australia, OH&S Research
- Andrea Shaw
  - Shaw Idea Pty Ltd

# Integrated *beyondblue* & job stress workplace intervention project

- 3-year project funded by ACT Health
- 10 volunteer organisations in Canberra
- Develop, implement, and evaluate a new approach to workplace mental health promotion
- Combines *beyondblue* workplace training and job stress intervention



# *beyondblue* Workplace Program

- Raise awareness of depression as a treatable illness
- Destigmatise depression
- Develop skills on how assist someone who may be experiencing depression to seek help
- Presented in >300 orgs to >25,000 ee's

<http://www.beyondblue.org.au>



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# Initial Site Visits

- Information sessions for management and general staff
- Outline projects goals and procedures
- Describe baseline survey for quantitative evaluation (anonymous)
- Initiate planning for participatory workshops



# Project Components

- Pre & post anonymous survey on work and health – return by prepaid mailers
- Participatory Future Inquiry workshop to:
  - identify site-specific ix priorities
  - develop an action plan for the coming year



# Project Components

- Activities to implement the workplan (site)
- *beyondblue* 2-3 hour training sessions for staff and managers
- Mid-intervention key informant interviews on implementation of action plans



# Progress to Date

- Intervention period coming to close
  - Future Inquiry workshops conducted 1 year ago
  - *beyondblue*/job stress trainings conducted
  - Varied follow-through by sites on Action Plans
- Post-intervention survey underway

# Conclusions

- International best practice in job stress intervention:
- High systems approach... comprehensive... combined worker- and work-directed...
- ...approaches are most effective in preventing and reducing the adverse health and organisational impacts of job stress



# Cited References

- **LaMontagne et al (2007): A systematic review of the job stress intervention evaluation literature: 1990—2005. *Intl J Occup & Environ Health* 13(3):268-280. Open access at [www.ijoeh.com](http://www.ijoeh.com).  
– Full details of reviewed studies available electronically (but not in print) at [www.ijoeh.com](http://www.ijoeh.com), 61 pages.**
- **LaMontagne et al (2007): Protecting & promoting mental health in the workplace: developing a systems approach to job stress. *Health Promotion J of Australia* 18(3):221-228.**
- **LaMontagne et al (27 May 2008): Job strain—attributable depression in a sample of working Australians: Assessing the contribution to health inequalities. *BMC Public Health* 8:181 (9 pages) at <http://www.biomedcentral.com/content/pdf/1471-2458-8-181.pdf>**



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- Shaw A and LaMontagne AD (2006): "Acting on job stress –do we have a context for action?" Proceedings of the 42nd Annual Conference of the Human Factors & Ergonomics Society of Australia, New Technology--Putting Macro and Micro in Context, 20—22 November 2006, Sydney, Australia
- Shaw A et al (in review): Shifting boundaries – the context for acting on job stress in the Australian state of Victoria.

Other related publications:

[www.mccaugheycentre.unimelb.edu.au/staff/8140\\_lamontagne\\_profile.php](http://www.mccaugheycentre.unimelb.edu.au/staff/8140_lamontagne_profile.php)

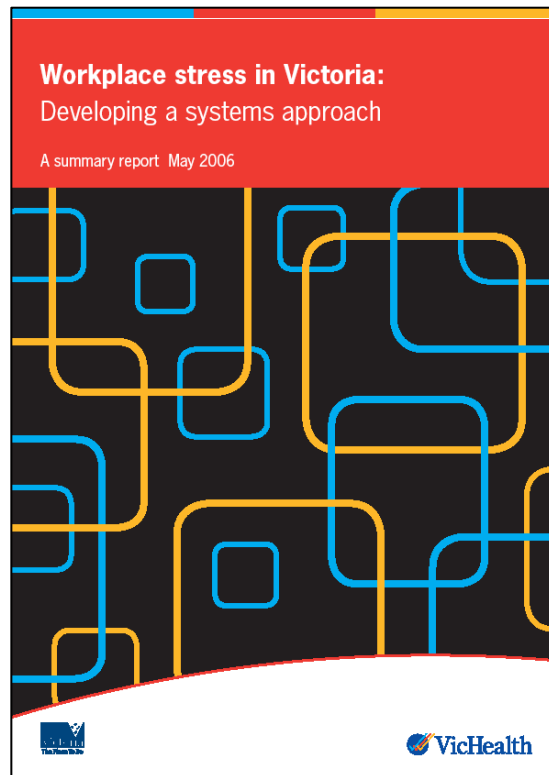
# ***Cited References :*** **Cochrane Reviews**

- **Egan et al: The psychosocial and health effects of workplace reorganisation.**  
**1. A systematic review of organisational-level interventions that aim to increase employee control. *J Epi Comm Health* 2007 61(11):945-954**
- **Bambra et al. The psychosocial and health effects of workplace reorganisation.**  
**2. A systematic review of task restructuring interventions. *J Epi Comm Health* 2007 61(12):1028-37**



# *Workplace Stress in Victoria: Developing a Systems Approach*

[www.vichealth.vic.gov.au/workplacestress](http://www.vichealth.vic.gov.au/workplacestress)



**Full report, 152 pages**  
**Summary Report, 24 pages**



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# Intervention Targets

**E** physical work environment

- noise levels

**O** organization

- job redesign, workload reduction

**I** the individual worker

- coping skills training, employee-assistance programs

**O/I** interface of the organization with individual workers

- mechanisms for employee participation, co-worker support groups

**E/O/I** provides complementary intervention description to systems approach and 1<sup>o</sup>, 2<sup>o</sup>, 3<sup>o</sup> intervention levels

# Picturing a systems approach above the organisational level



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# Interventions: what is being changed?

## Primary prevention

Social change



**Economic, political context**



Organizational change



**Organizational context**

Downsizing

Contingent work

New systems of work organization



Job redesign



**Job characteristics**

Low job control

High job demands

Social isolation



## Secondary prevention

Individual coping



**Stress response**

Physiological effects (e.g., BP)

Psychological effects (e.g., burnout)

Health behaviors



## Tertiary prevention

Individual Tx, rehab



**Illness**

# How do we go about changing it?

