

Developing a Systems Approach to Job Stress: Current Evidence & Future Directions

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**McCaughey Centre: VicHealth Centre for the Promotion of Mental Health
& Community Wellbeing**

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



Contributors

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- VicHealth report: Workplace Stress in Victoria
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

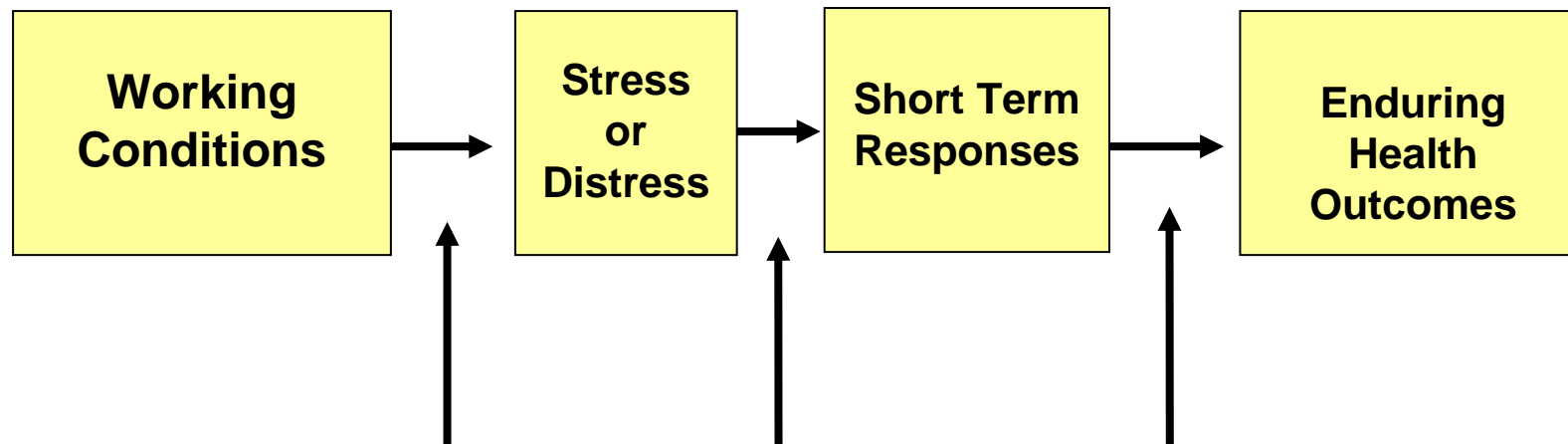
1. Primer on job stress concepts & terms
2. Our job stress intervention review
3. Compare our findings to two reviews published soon after ours
4. Application of review findings in practice
5. Future directions

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





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

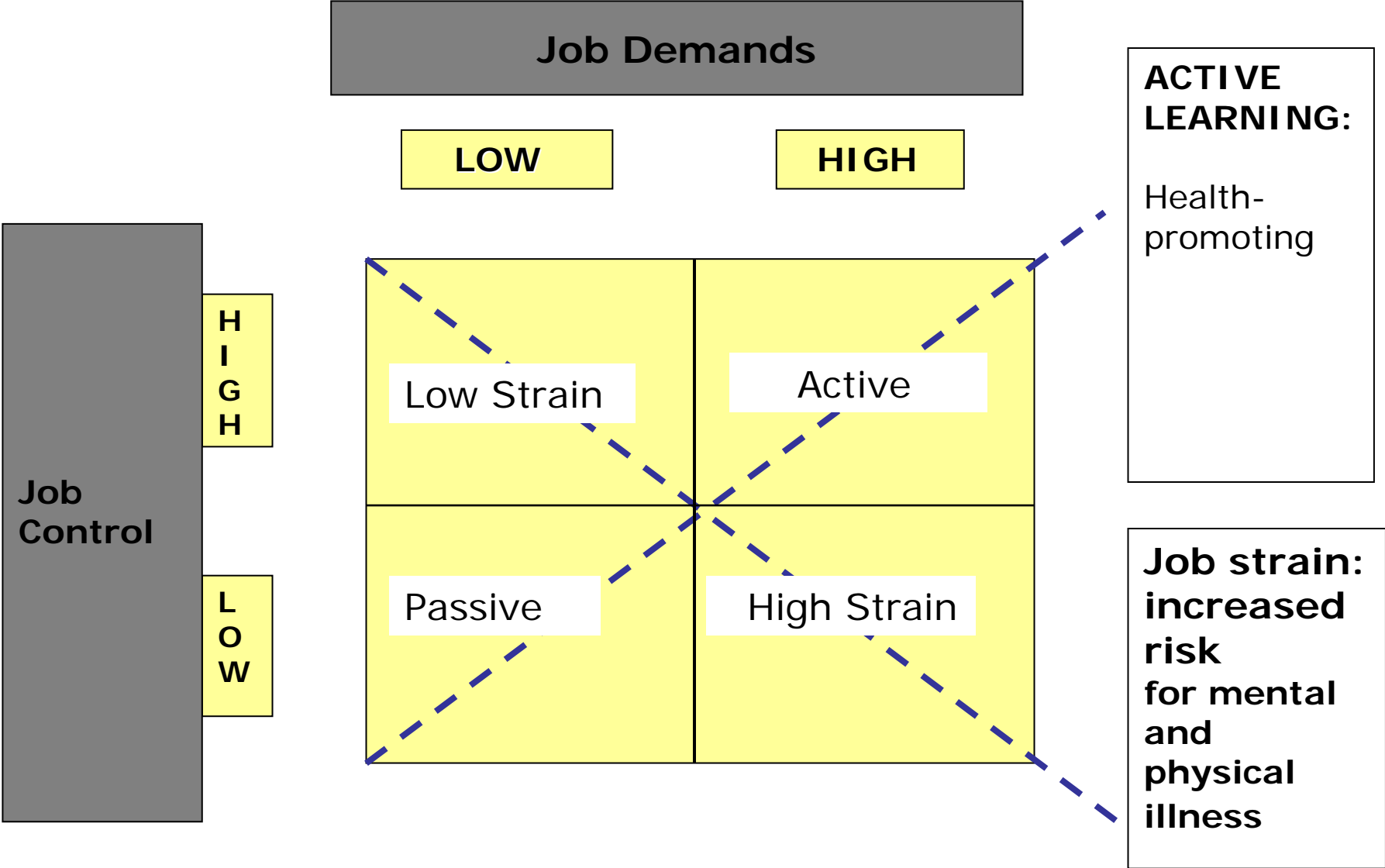
Job Stress & Health

- **Linked to poor health behaviours**
 - Smoking, alcohol consumption, BMI
- **Increased risk of physical health problems**
 - Heart disease risk factors & heart 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), a few studies null
- Low job control the main driver
- Not explained by social class or negative personality

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 = 1.815 [1.062, 3.101]

Stansfeld & Candy 2006

Job Strain-Attributable Depression: Recent Estimate

- **Combine risk estimate with 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

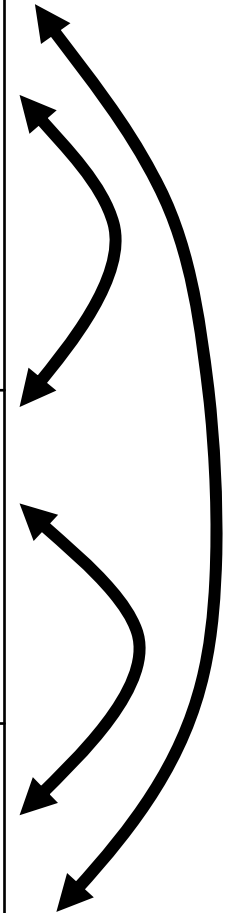
- VicHealth- commissioned report
- Evidence synthesis
 - Review evidence job stress related to adverse effects on worker & organizational health
 - **Review job stress intervention evaluation literature to determine whether systems approaches more effective than other available alternatives**
- Application 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>PRIMARY (preventative)</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>Stressors at source i.e.</p> <ul style="list-style-type: none"> •Employment arrangements •work organisation •on site working conditions
<p>SECONDARY (protective)</p> <p>Equip workers with knowledge, skills, and resources to cope with stressful conditions</p>	<p>++</p>	<p>Employee responses to stressors (perceived stress or strain)</p>
<p>TERTIARY (reactive)</p> <p>Treat, compensate, & rehabilitate workers with enduring stress-related illness</p>	<p>+</p>	<p>Health effects of job stress</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)**



Electronic Search Results

	ISI	Medline
Occupational/job/work stress	2287	986
Intervention, evaluation, stress management	192,479	251,666
Combining search term groups	51	116
Removal of reviews (Medline)	--	91
Merge ISI & Medline	142	
Removal of duplicates	135	
Articles to review	135	

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**

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 1⁰, 2⁰, 3⁰ intervention levels

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
-
- 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

Critical Review and Assessment

- Each study reviewed by at least 2 reviewers, plus a third where needed to resolve differences in ratings

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

	Low	Moderate	High
N	43	17	30
Percent	48%	19%	33%

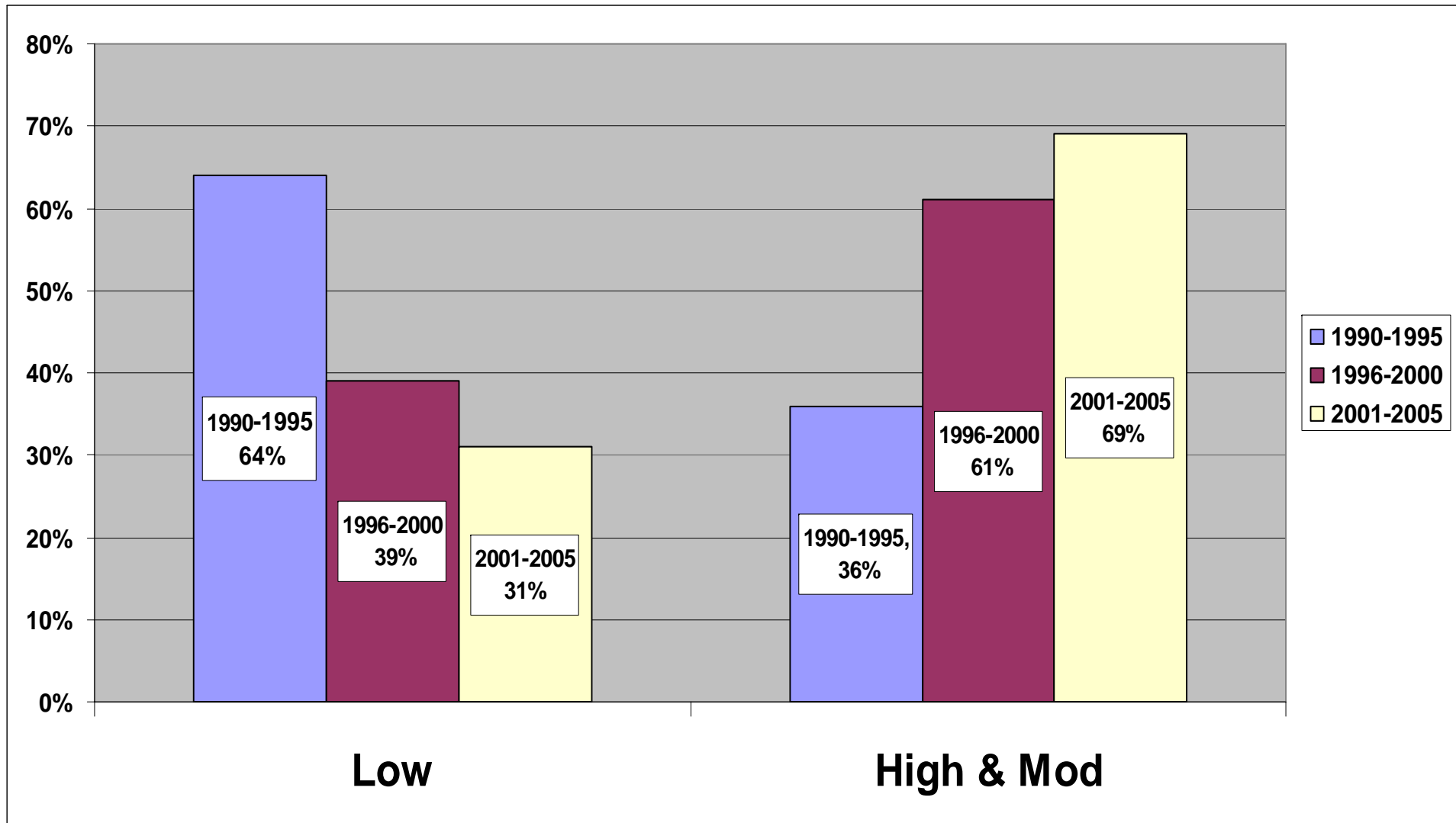
Causal Inference Ratings by Level of Systems Approach

	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

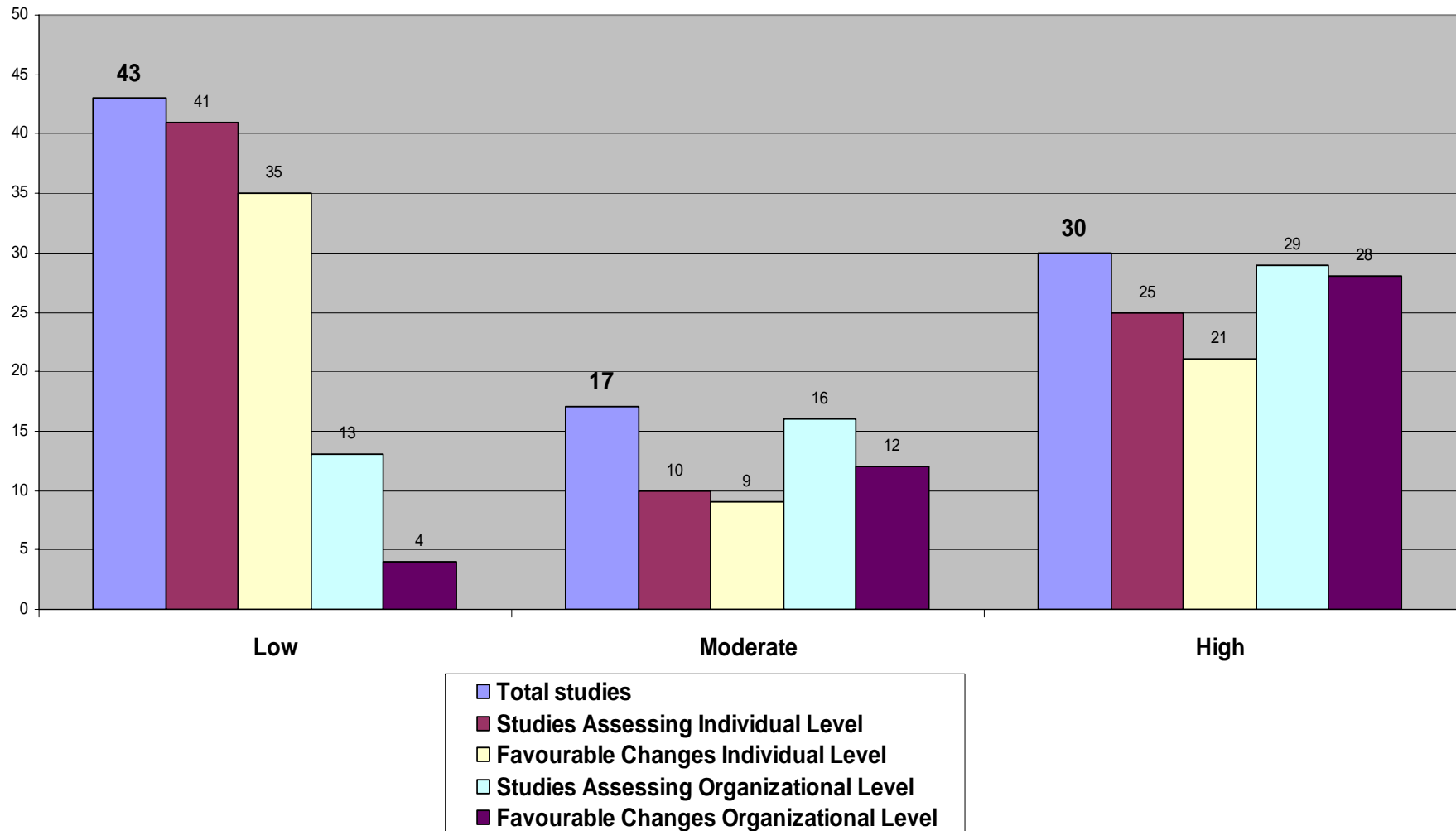
- 1. High systems approach studies represent a growing proportion of the job stress ix evaluation literature, possibly reflecting the growing application of such approaches in practice internationally.*

Relative Effectiveness of H/M/L Systems Approaches

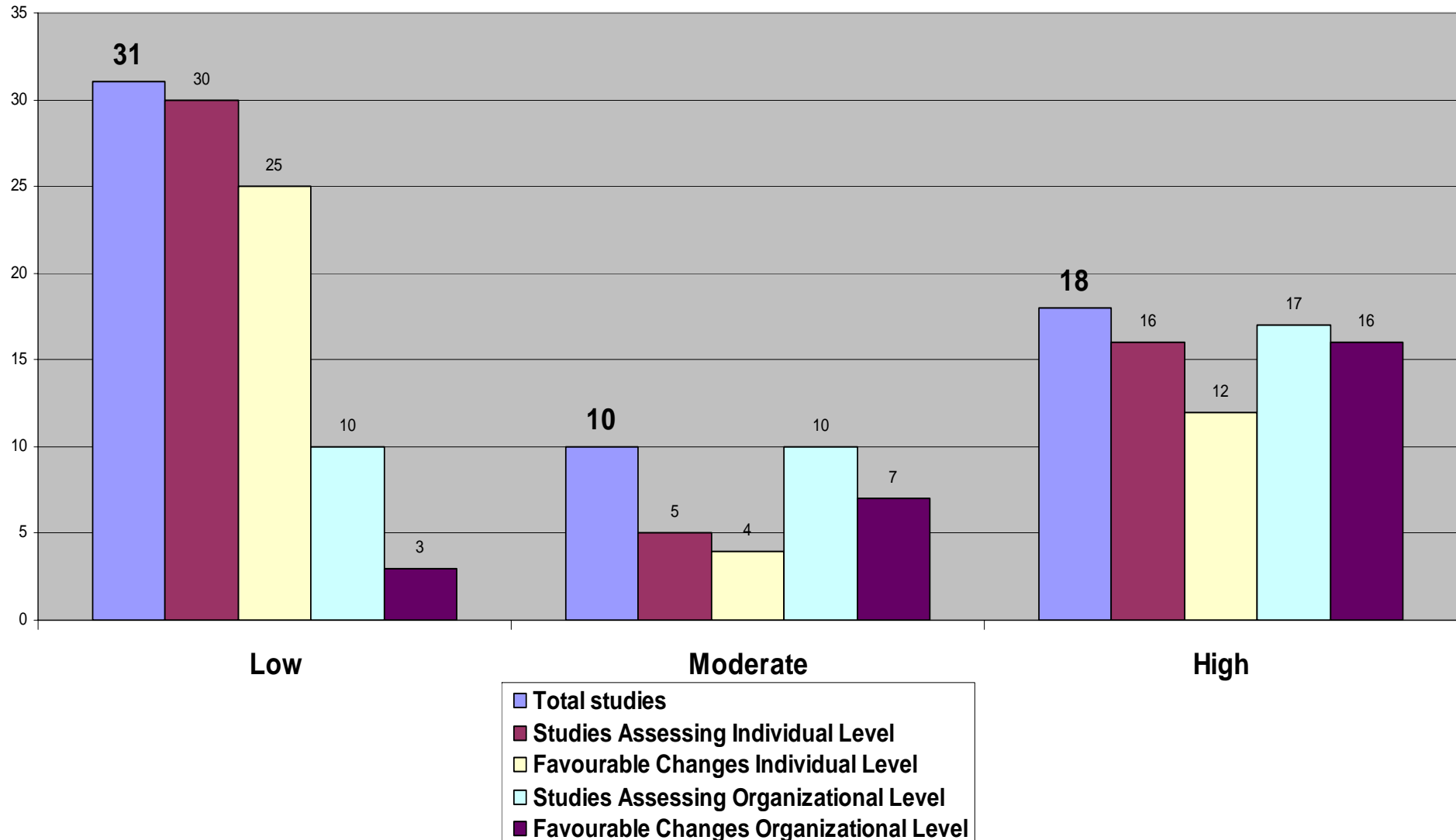
- Compare types of outcomes assessed (I and/or O)
- Whether favourable changes observed for outcomes types assessed (I and/or O)



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



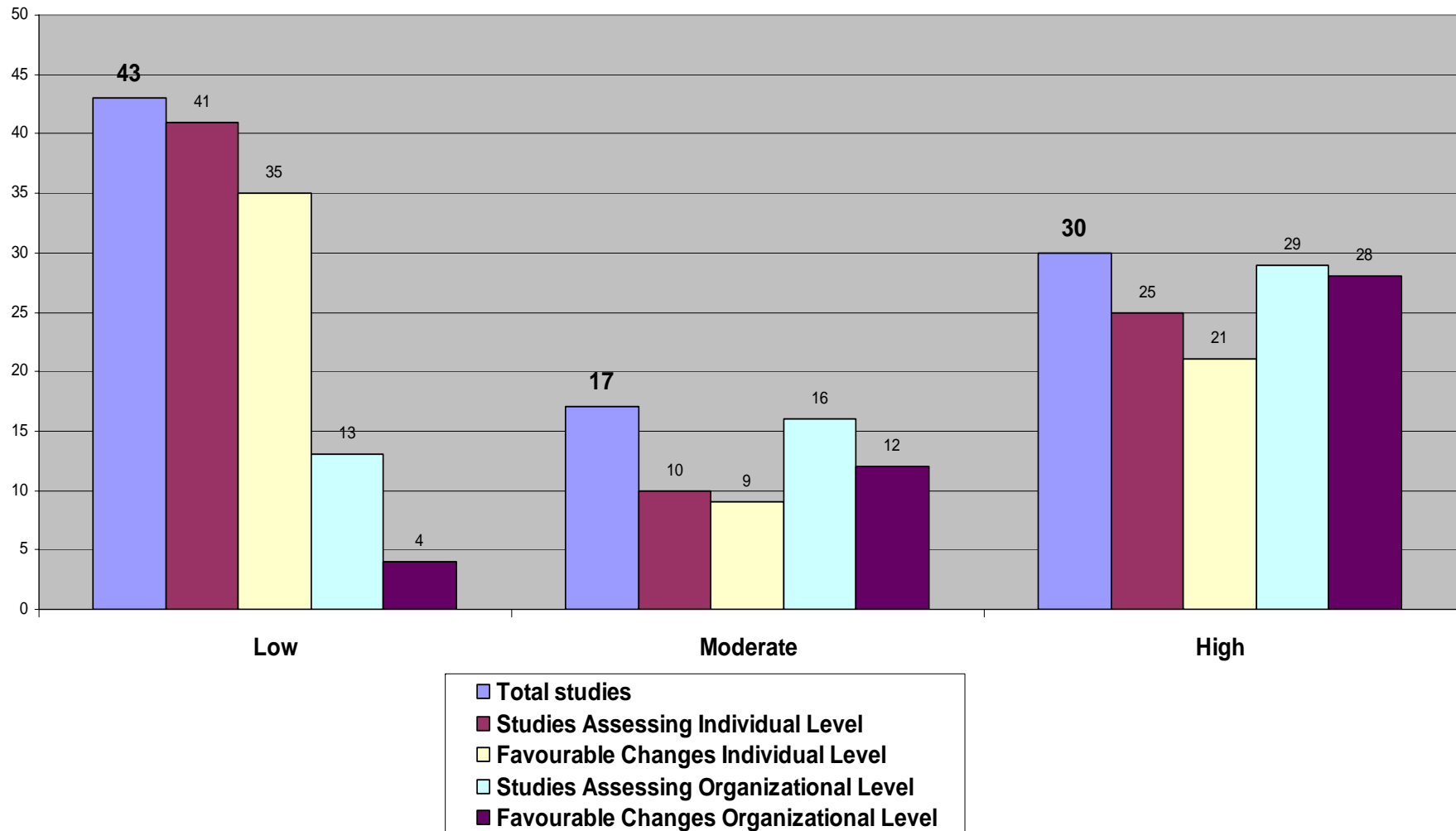
Job Stress Ix Studies Restricted to 4* & 5* Designs (N = 60): Individual & Organizational Level Outcomes, by Systems Rating Level



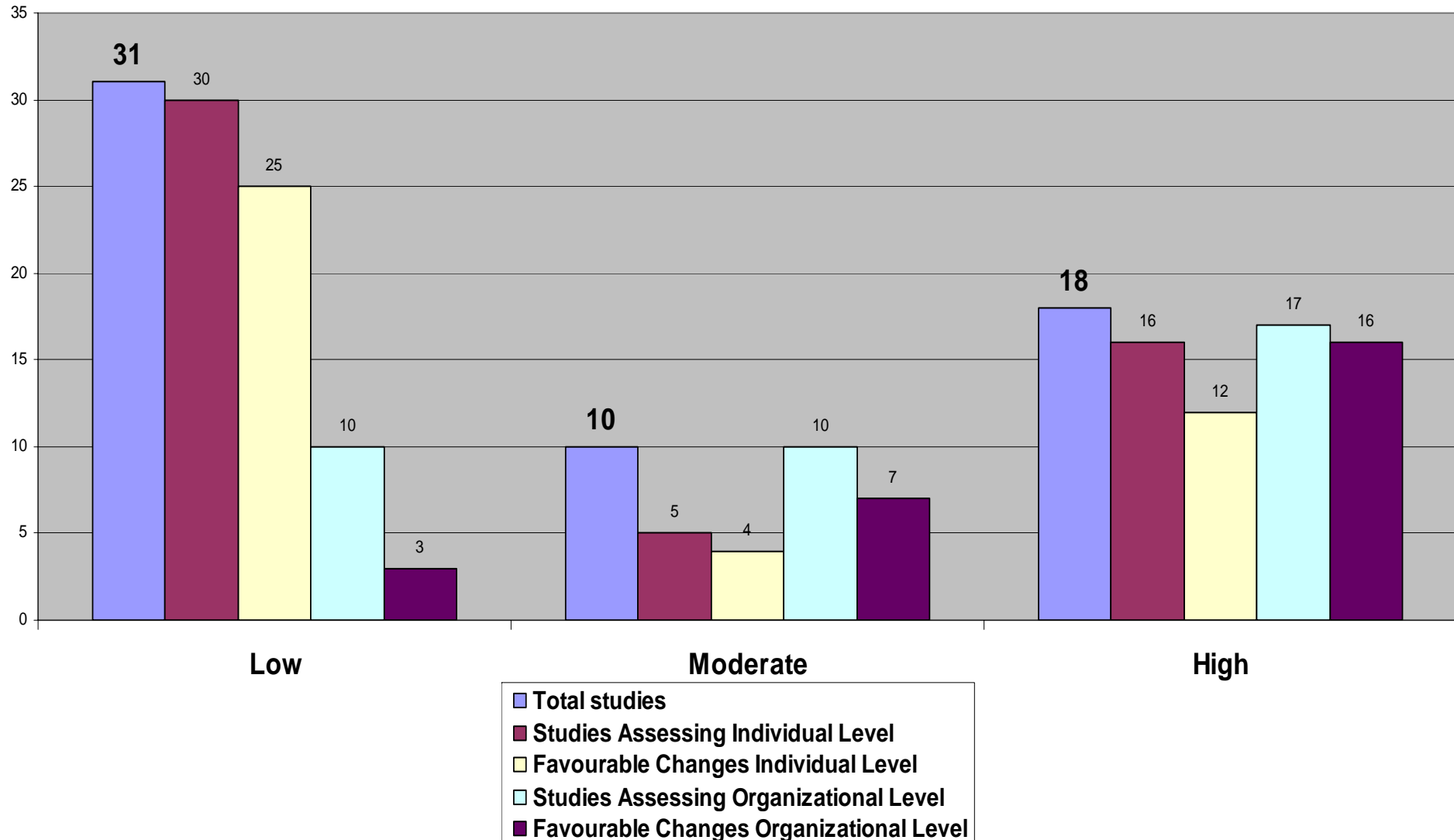
Job Stress Intervention Evaluation Review: Conclusions

- 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 1⁰, 2⁰, 3⁰
- 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**



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 *Journal of Epidemiology & Community Health*
November & December 2007**



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



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 DCS model

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



JECH #2: Findings

- Some ix 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



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	Greater 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



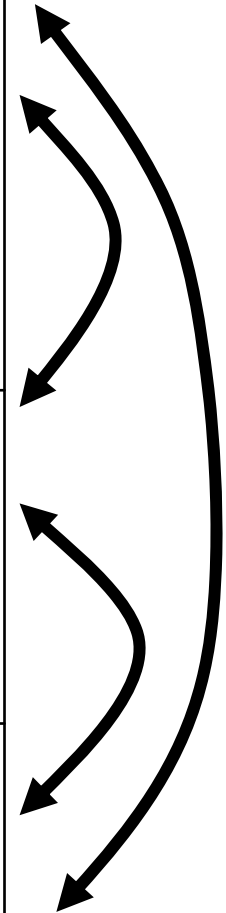
Comparison of Findings: IJOEH & JECH Reviews

- 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?**



INTERVENTION LEVEL	Effectiveness	INTERVENTION TARGETS
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<p>SECONDARY (protective)</p> <p>Equip workers with knowledge, skills, and resources to cope with stressful conditions</p>	<p>++</p>	<p>Employee responses to stressors (perceived stress or strain)</p>
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PRIMARY	Examples of Intervention	
	Objectives	Activities
<p>To eliminate or reduce job stressors and risk factors for job stress</p>	<p>Reduce job Demands</p>	<ul style="list-style-type: none"> • Limit number of working hours • Increase time or other resource allocations for completion of specific tasks • Redesign physical work environment to reduce musculoskeletal load & noise
	<p>Improve job control</p>	<ul style="list-style-type: none"> • Decrease prevalence of precarious employment arrangements • Provide breaks from client-based work • Increase worker participation in planning & decision making
	<p>Improve social support</p>	<ul style="list-style-type: none"> • Assess and integrate employee needs into planning of work schedules

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)

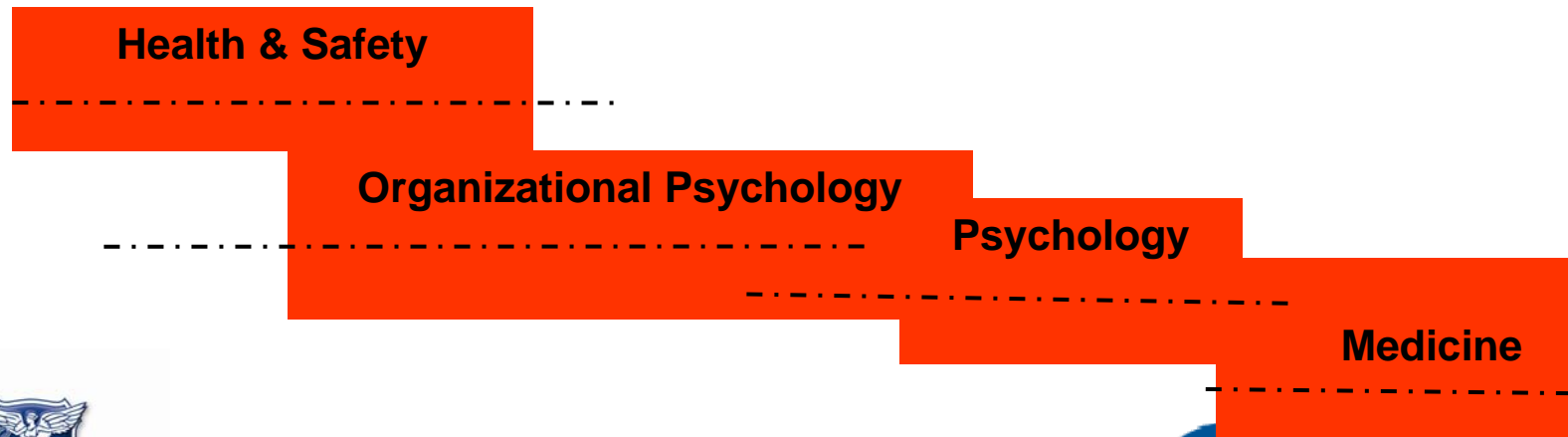
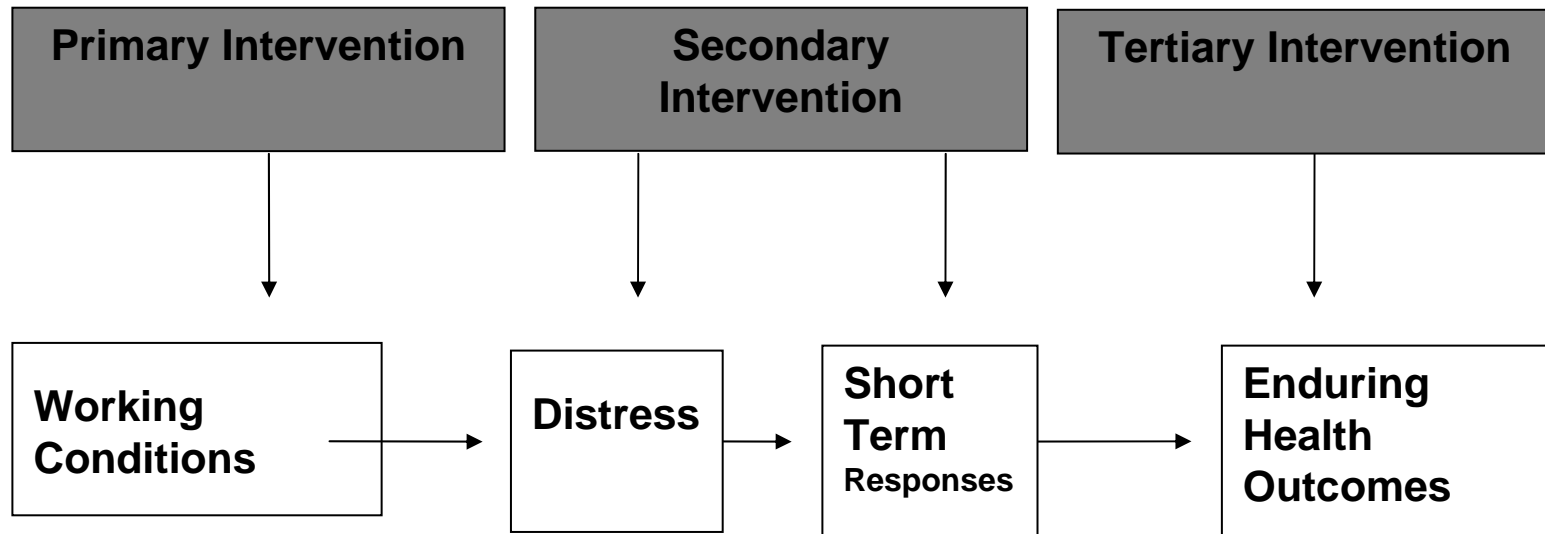
Secondary	Examples of Intervention	
	Objectives	Activities
Alteration of an individual's perception or response to stressors	Alter individual responses to job stressors	<ul style="list-style-type: none"> • Provide cognitive behavioural therapy or relaxation response training.
	Improve individual ability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

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).*

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



Picturing a systems approach above the organisational level



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



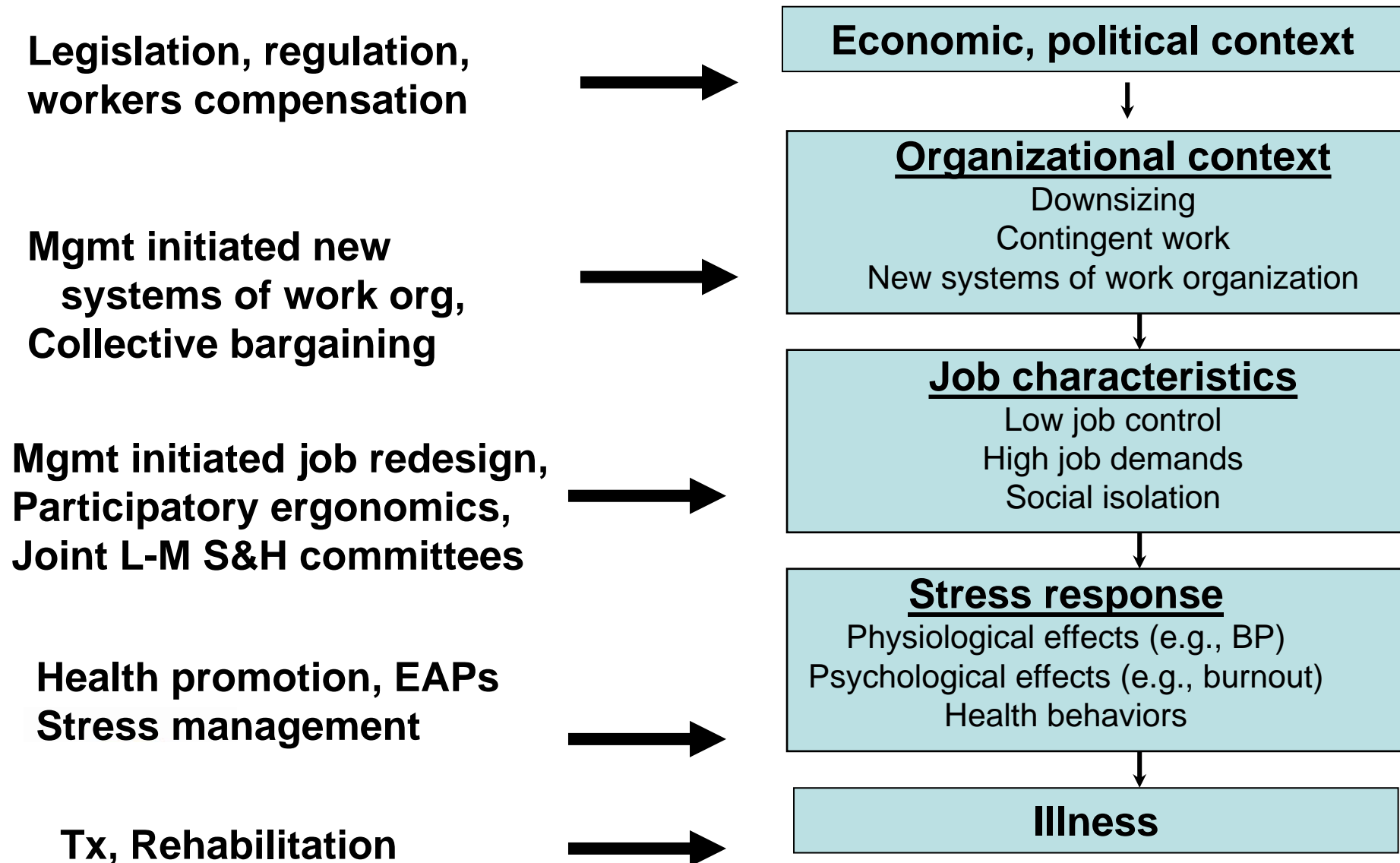
Tertiary prevention

Individual Tx, rehab



Illness

How do we go about changing it?



Future Directions

Example:

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



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>



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- and post-ix key informant interviews with 2-4 employees on implementation of action plans



Initial Site Visits

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

Progress to Date

- Survey returns low (1—65% response)
 - Challenge of org-administered anonymous survey and limited on-site presence
- Future Inquiry workshops conducted in July/August 2008
 - previous presentation
 - Some sites reluctant to commit

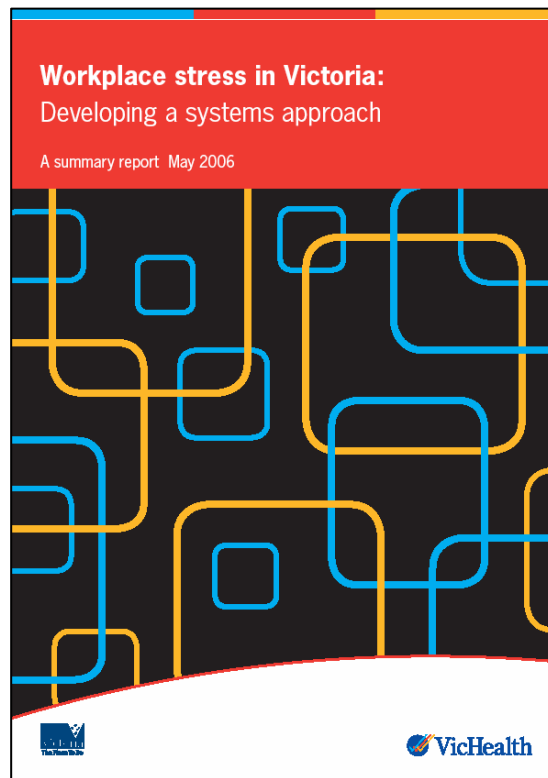
Progress to Date

- Currently scheduling *beyondblue* workplace program training
- Will integrate action plan implementation support with key informant interviews in Nov/Dec 2008



Workplace Stress in Victoria: Developing a Systems Approach

www.vichealth.vic.gov.au/workplacestress



Full report, 152 pages
Summary Report, 24 pages



Workplace Stress in Victoria: Journal Publications

- **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.ijoe.com.**
 - Full details of reviewed studies available electronically (but not in print) at www.ijoe.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>**

Workplace Stress in Victoria: **Journal Publications**

- Keegel T, Ostry A, LaMontagne AD (in review): Job strain exposures versus stress-related Workers Compensation claims in Victoria (Australia): Developing a public health response to job stress.
- Shaw A, LaMontagne AD (in review): Shifting boundaries – the context for acting on job stress in the Australian state of Victoria.
- 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

Other related publications:

www.mccaugheycentre.unimelb.edu.au/staff/8140_lamontagne_profile.php

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. *JECH* 2007 61(11):945-954
- Bambra et al. The psychosocial and health effects of workplace reorganisation.
 2. A systematic review of task restructuring interventions. *JECH* 2007 61(12):1028-37



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