

The role of psychosocial and physical factors in the development of MSDs: a comparison of 3 different industry sectors

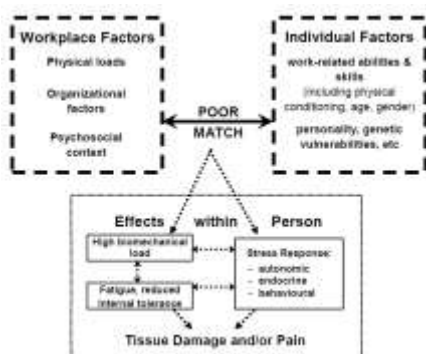
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Current project at La Trobe University

- We are developing a risk management toolkit for workplace use in reducing current levels of MSDs in healthcare workers
- Currently working with 3 organisations ...
 - 2 large hospital networks
 - 1 ambulance service
- Previous project with manufacturing and logistics
- Plans to extend to other sectors

Our conceptual framework



What is a toolkit?

As defined by WHO Occupational Health people:

- A toolkit provides practicable, user-friendly guidance on how to reduce risk from a *particular hazard*, or risk of a *particular health problem* such as MSDs
- It must include:
 - **Evidence-based conceptual framework**
 - Description of the **process** to be followed
 - One or more **'tools'** (e.g. risk assessment procedures) to be used as *part* of the overall process
- WHO plans to develop a 'toolbox' of various toolkits for use in improving various aspects of occupational health

Users of toolkits

- Toolkits are mainly intended for use by **non-experts in their own workplaces** ... employers, workers or their representatives, etc
- Particularly useful in workplaces when access to specialist expertise is limited – e.g.
 - SMEs
 - In emerging economies and developing nations

Why this toolkit is needed

- Current MSD risk management strategies don't reflect research evidence as depicted in our framework model
- Barriers to more effective MSD risk management :
 - Usual approach is too narrowly focused on just a subset of hazards
 - Common concepts of 'a hazard' focuses attention on a single event or object as the problem, rather than several interacting agents or events

Project Method

- Occupational target groups (jobs) selected in consultation with the organisations
- Focus groups and interviews with people from each group
- Information from these used to modify a survey previously developed and validated in manufacturing / warehousing sectors
- Survey then implemented – online / paper

Survey constructs

- Manual handling hazards
- WOAQ:
 - Relationships with manage't
 - Reward / Recognition
 - Workload
 - Relationships with colleagues
 - Physical environment
- Safety Culture
- Teamwork
- Role Clarity
- Bullying
- Workability
- Mental Health
- Job Satisfaction
- Work/life Balance
- Discomfort/Pain levels ... (proxy for MSD risk)
- Time off work

Ratings of Discomfort / Pain ... total score out of 60

HOW OFTEN have you felt discomfort or pain? **AND** for each area where you've felt it (that is – where you circle '1' or higher) ... **HOW BAD** has it been?

| Body Area | HOW OFTEN | | | | | How Bad |
|--------------------------|-----------|------------|-----------|-------|---------------|---------------------------------------------|
| | Never | Occasional | Sometimes | Often | Almost always | |
| Neck, Shoulders | 0 | 1 | 2 | 3 | 4 | Mild 1 Moderate 2 Severe discomfort 3 |
| Hands, Fingers | 0 | 1 | 2 | 3 | 4 | Mild 1 Moderate 2 Severe discomfort 3 |
| Arms | 0 | 1 | 2 | 3 | 4 | Mild 1 Moderate 2 Severe discomfort 3 |
| Middle to Lower Back | 0 | 1 | 2 | 3 | 4 | Mild 1 Moderate 2 Severe discomfort 3 |
| Hips, Bottom, Legs, Feet | 0 | 1 | 2 | 3 | 4 | Mild 1 Moderate 2 Severe discomfort 3 |

Respondents

| | Organisation 1 | Organisation 2 | Organisation 3 |
|-----------------------------------|--------------------------|--------------------------|---------------------|
| Responses | n=254 (37.9%) | n=160 (32%) | n= 957 (32%) |
| Mean age | 44.2 years (19-71 years) | 46.2 years (23-74 years) | 40.25 (20-65 years) |
| Mean time in job | 7 years | 11 years | 12 years |
| Any discomfort? | 85% yes | 84% yes | 84% yes |
| Mean discomfort score / 60 | 12.4 (range 0-46) | 17.3 (range 0-55) | 14.9 (range 0-55) |

Organisation 1 Predictors of DISCOMFORT

- MODEL 1:** Age and Gender (n.s)
MODEL 2: Physical demands (.30); WOAQ Score (-.26)
MODEL 3: Job Satisfaction and Work-life Balance (n.s)
MODEL 4: above + job: (n.s)

| MODEL | R ² | Adj. R ² | R ² Change | Sig. F change |
|-------|----------------|---------------------|-----------------------|---------------|
| 1 | .052 | .025 | .052 | .042 |
| 2 | .261 | .236 | .209 | .000 |
| 3 | .270 | .232 | .009 | .495 |

Organisation 2 Predictors of DISCOMFORT

- MODEL 1:** Age (.27) and Gender (n.s)
MODEL 2: Physical demands (.42); WOAQ Score (-.19)
MODEL 3: Job Satisfaction and Work-life Balance (n.s)
MODEL 4: above + job (.26)

| MODEL | R ² | Adj. R ² | R ² Change | Sig. F change |
|-------|----------------|---------------------|-----------------------|---------------|
| 1 | .078 | .068 | .078 | .001 |
| 2 | .345 | .330 | .267 | .000 |
| 3 | .367 | .345 | .021 | .055 |
| 4 | .393 | .368 | .026 | .007 |

Organisation 3 Predictors of DISCOMFORT

- MODEL 1:** Age (.19) and Gender (.11)
MODEL 2: Physical demands (.34); WOAQ Score (-.26)
MODEL 3: Job Satisfaction(.19) and Work-life Balance (n.s)

| MODEL | R ² | Adj. R ² | R ² Change | Sig. F change |
|-------|----------------|---------------------|-----------------------|---------------|
| 1 | .027 | .025 | .027 | .000 |
| 2 | .245 | .241 | .217 | .000 |
| 3 | .277 | .271 | .032 | .000 |

Predictors of DISCOMFORT – manufacturing, warehousing

MODEL 1 ... Workplace Factors

WOAQ Score (-.474); Manual handling (.471);
 Workload (.308); Work faster to meet targets/deadlines (.205);
 Time employed there (.111)

MODEL 2 ... above + Hazardous Personal States

Exhaustion Score (.441); Job (dis)Satisfaction (-.358);
 Work- Life Balance (-.296).

MODEL 3 ... above + Work Site: No effect

| MODEL | R ² | Adj. R ² | R ² Change | Sig'c of F change |
|-------|----------------|---------------------|-----------------------|-------------------|
| 1 | .314 | .307 | .314 | .000 |
| 2 | .365 | .354 | .051 | .000 |
| 3 | .365 | .351 | .001 | .835 |

In summary

- Up to 35% of variance in predicting discomfort scores can be accounted for by the measures of workplace physical and psychosocial risks
- Variation between organisations
- More measures of other aspects of the workplace were used but are not reported here, because we trying to come up with a common set of measures for a standard toolkit

Project results at this stage

- Confirmed that an MSDs risk management toolkit must address psychosocial hazards as well as physical hazards
- Results very useful in recent participative workshops in each organisation – involving employee reps, supervisors, OHS reps, Union reps, Managers, OHS personnel – together they identified potentially cost-effective interventions.
- But ... toolkit needed to achieve sustainability

What will our toolkit look like?

- Currently in early stage of development – working with the organisations to customise toolkit to their existing OHS management systems
- Will be interactive, allowing users to customise further, and to enter their own workplace data to obtain guidance on risk control options
- Future work will entail implementation, evaluation and comparison of data across different sectors
- A key question – to what extent will we need to customise for different jobs/sectors?

Where next?

- The current project has focused on large organisations, need to understand what kind of toolkit would be most useful in smaller workplaces
- Evaluation of interventions and whether they reduce MSDs is needed and will form part of our next project

