Systematic Review Protocol

Title:
The psychosocial and health effects of workplace reorganisation 2: A systematic review of task restructuring interventions.

Clare Bambra,1 Matt Egan2 Sian Thomas2, Mark Petticrew2, Margaret Whitehead3

1Centre for Public Policy and Health, School for Health, Durham University
2Medical Research Council Social and Public Health Sciences Unit, University of Glasgow
3Division of Public Health, University of Liverpool

Corresponding author: Dr Clare Bambra, Lecturer in Public Health Policy, Centre for Public Policy & Health, School for Health, Wolfson Research Institute, Durham University, Queen’s Campus, Stockton-on-Tees, TS17 6BH.
Email: clare.bambra@durham.ac.uk
Tel: 0191 3340417
Fax: 0191 3340361

Sources of Support: Economic and Social Research Council and the Chief Scientist Office of the Scottish Executive Health Department.
1. Background

Work has long been acknowledged as an important social determinant of health and health inequalities. Employment, or lack of it, and the quality and type of employment are vital in terms of income and social status in all advanced industrialised societies. Work also dominates adult life. However, the nature of work has altered considerably in the UK and Europe over the past two decades, not least as there has been a significant decrease in levels of physical work based in industrial and manufacturing employment, and an increase in the size of the service sector. The labour market has also seen considerable changes with increases in part-time work, more participation by women, and the emergence of structural unemployment and job insecurity.\(^1\) This has also been accompanied by the cultivation of labour market practices in which skills, working hours, contracts, conditions, pay and location are more flexible. Research into work and health has therefore concentrated on work related psychological stress and particularly the interaction between the psychosocial work environment and employee health.

The demand-control (support) theoretical model of the role of stressful psychosocial work environments on the health of employees has dominated the research literature (although more recently the effort-reward imbalance model has also emerged).\(^2\) Karasek’s demand-control model developed a two-dimensional concept of work related stress in which the culmination of high psychological work demands and low job task control (low level of decision authority and low level of skill utilisation) increased work related stress, subsequently producing higher rates of psychological and physical morbidity.\(^3\) Active jobs are those in which high work demands are counterbalanced by high levels of control, and high strain jobs are those in which work demands are high and control is low. Conventionally, high strain jobs are more common in blue-collar employment and in the manufacturing sector. However, high strain jobs are also emerging in the service sector and in white collar employment.\(^4\) Social support at work is an additional dimension of the work stress development process. Support from colleagues and supervisors has been suggested as a possible mediating factor in the relationship between high work demands, low job control and work related stress.\(^5\)
Empirical examinations of the demand-control (support) model and health have generally been positive in terms of the utility of the conceptualisation. Epidemiological research, especially from the Whitehall civil service studies, has suggested a strong relationship between levels of employee work demands, job control and social support, and inequalities in health status. The psychosocial work environment has therefore emerged as an important factor in the social gradient in health. Adverse health outcomes, including increased risk of heart disease, musculoskeletal pain, poor mental health, and sickness absence, have all been attributed to high work demands and low job control. Some studies have also supported the suggestion that enhanced social support in the workplace can reduce these negative health consequences.

The workplace, and specifically the psychosocial work environment, is therefore increasingly being considered by researchers and policymakers as an important intervention point at which health can be improved and the social gradient in health addressed. Interventions which modify the psychosocial work environment, by redesigning jobs so that work related demands are decreased or job control or social support increased, could potentially have positive impacts on the health of employed people.

Identified intervention points centre either on the individual (e.g. personal coping mechanisms) or on the reorganisation of the workplace at the macro or micro level. Macro interventions change the levels of participation in decision making, whilst micro-environment interventions change the structure of work tasks. Karasek identified three types of task structure interventions: job enrichment and enlargement (task variety), collective coping and decision making (team working), and the use of autonomous production groups (autonomous groups).

There are a number of existing reviews covering the health effects of individual-level interventions and in our companion review, we examine the health effects of macro level work reorganisation interventions. However, Karasek suggested that macro and micro workplace interventions may have differing psychosocial, and therefore health, outcomes. In
this review then, we will extend our analysis of the psychosocial work environment by examining the health impacts of reorganisation interventions that alter the micro, task structure, environment.

**Focus of Review**

We will synthesize evidence measuring the health impact of task restructuring within the workplace. We will focus on interventions implemented at an organizational or departmental level that affect workers’ every day psychosocial environment (particularly with regard to the demand control model). Included studies must evaluate the effects of such interventions on both employee health and the psychosocial environment, so that we can look at the relationship between these different sets of outcomes and consider how well they fit with the demand control support model.

In this systematic review we will focus on the health effects of ‘micro-level’ organisational interventions that typically affect the daily task structures of smaller groups of employees. Organisational change within the workplace might be implemented with a variety of aims in mind, such as worker health, motivation, efficiency and productivity. We will only concern ourselves with experimental, quasi-experimental and observational evidence of health impacts. The review will seek to identify any relevant study from any country, in any language using both electronic and manual search techniques. The output is intended for dissemination to public health practitioners, policy-makers, the business community and the research community.

2. **Objectives of Review**

In this systematic review we examine the psychosocial and health impacts of task restructuring interventions.
3. Methods

Criteria for inclusion and exclusion of studies in the review

Studies included in the review must contain the following elements:

Inclusion Criteria

General
We will include experimental and quasi-experimental, prospective and retrospective studies evaluating the effects of task structure interventions that fall into one of Karasek’s three clusters: Task variety, Team working and Autonomous groups.

We will only include studies that evaluate both the psychosocial and the health effects of such interventions, so that we could explore the relationship between the two.

Intervention
Task restructuring interventions. They may be implemented as single interventions or as part of a package of interventions that may include a range of other measures (eg. other organisational level interventions, individual-level or therapeutic interventions).

Population
Employees (including sub-contracted workers) working at the site or department in which the intervention has taken place, or who are otherwise affected by the intervention.

Health Outcomes
Included studies must contain some measurement of how an intervention has affected the health or wellbeing of the study population. This may include the following:

- Physical health
- Mental health
- Reports of ‘stress’
Psychosocial Outcomes
Psychosocial outcomes included self-reported demand, control and support or related psychosocial factors (eg. work complexity, autonomy, satisfaction with colleagues etc).

Time and Place
We will include studies conducted at any time in any country.

Methodologies of Included Studies
We will seek to identify a broad range of study types including randomised controlled trials, prospective studies using controls, prospective studies without controls, retrospective studies using controls (including historical controls), and retrospective studies without controls.

The inclusion criteria will focus on all relevant primary studies of an experimental or quasi-experimental nature (including “natural experiments” – for example observational studies of the impacts of policies). However, reviewers will assess the quality of the evidence and take this into account in the final report. Note: studies may be quantitative or qualitative. More details about methodological criteria are provided under the heading Assessment of Methodological Quality.

Exclusion criteria

Intervention
Non-work place interventions will be excluded, as will work-place interventions that fall into the following categories, unless they are part of a package of workplace measures that also include interventions that fall within our inclusion criteria:

• Explicit health interventions – i.e. any intervention which utilises the services of a health professional (eg. doctor, nurse, psychologist, dietician, physiotherapist etc.), or involves workplace health promotion that would be associated with advice or treatment usually
given by health professionals (eg. advice or treatment related to alcohol and drug misuse, diet, personal health examinations, hygiene, fitness, psychological ill health).

- Individual-level interventions, including individual-level stress management interventions. i.e. techniques designed to help employees modify their reaction to stressful situations or deal more effectively with stress symptoms. eg. muscle relaxation, meditation, biofeedback, cognitive-behavioural skills.

- Interventions aimed at preventing unsafe practices in the workplace that may lead directly to injuries or spread of disease. Technological and ergonomic interventions aimed at reducing ill health and injuries (including RSI) or improving hygiene in the workplace.

- Interventions intended to reduce bullying or physical assault of workers by fellow workers or members of the public.

- Changes to salary (note changes to wage levels are different types of interventions compared to changes in procedures for negotiating wage settlements. The former concerns material/wealth distribution and is excluded, whilst the latter concerns worker control and is included in the review).

- Macro level work reorganisation interventions such as staff meetings, participatory workers councils etc. These are the subject of a separate review.

**Population**

Studies that do not include employees in their study population will be excluded.

**Health outcomes**

Studies that focus exclusively on workplace injuries will be excluded.

Studies that do not include health outcomes will be excluded.

Studies that focus exclusively economic outcomes such as productivity and efficiency are therefore excluded, as are studies that measure general work-satisfaction but use no specific measures of physical or mental health or stress.
Psychosocial Outcomes
Studies that do not report on the psychosocial work environment beyond general job satisfaction will be excluded.

Methodologies of excluded studies
As this review focuses on experimental and observational evidence, studies with the following methodologies will be excluded:

- General discussion papers not presenting data on impacts.
- Predictive studies.

4. Search Strategy for identification of relevant studies
Academic research, local and central government studies and grey literature are all targeted. No language restrictions will be placed on this search. The search strategy has been devised in consultation with an experienced information scientist (VH), who also conducted many of the searches.

Study selection is a multi-stage process (see figure 1) and will include both manual and electronic searching strategies. Electronic searches will involve the electronic databases and search terms listed below. The initial selection criteria will be broad to ensure that as many studies as possible are assessed as to their relevance to the review. Any articles that obviously have nothing to do with workplace interventions can be excluded in the early stages or the search (for example, on the basis of abstracts and titles presented in electronic catalogues), whilst the decision to exclude or include other articles will only be made once the article has been ordered and read. The number of articles included and excluded at the various stages will be noted.

At the same time, we will be conducting follow-up searches on citations found in other studies and seeking information from experts. Journals that seem particularly relevant will be hand-searched. Individuals with specialist knowledge of the area contacted. We refer to these
search strategies as ‘manual searches’, although we may utilise information technology to help us locate articles discovered in this way. ‘Work in progress’ conference papers will help make people with potentially useful information aware that the review is taking place, as will other forms of dissemination such as the internet, posters, personal contacts etc.

Figure 1: Flow diagram of study selection procedure
Electronic Search Strategy

The following electronic databases will be searched:

### Electronic searched (hosts given in parentheses)

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSIA</td>
<td>Index to theses</td>
</tr>
<tr>
<td>British Library catalogue</td>
<td>Medline (Ovid/Dialog)</td>
</tr>
<tr>
<td>Business Periodicals Premier</td>
<td>NTIS (free version)</td>
</tr>
<tr>
<td>Conference Papers Index</td>
<td>PAIS (Dialog)</td>
</tr>
<tr>
<td>COPAC</td>
<td>Psycinfo (Webspirs/Dialog)</td>
</tr>
<tr>
<td>Dissertation abstracts</td>
<td>SIGLE</td>
</tr>
<tr>
<td>Econlit (Dialog)</td>
<td>Social Sciences Citation Index (MIMAS)</td>
</tr>
<tr>
<td>Electronic Collections Online</td>
<td>Sociological abstracts</td>
</tr>
<tr>
<td>Embase (Dialog)</td>
<td>Zetoc.</td>
</tr>
<tr>
<td>ERIC Firstsearch/Dialog)</td>
<td>Index to theses</td>
</tr>
</tbody>
</table>

World wideweb searches will also be conducted. The following list of gateways and other URLs have already been identified as potentially useful.

- OMNI and SOSIG
- Canadian Centre for Occupational Health & Safety
  [http://www.ccohs.ca/](http://www.ccohs.ca/)

Lists following databases:

- Canadiana
- *CISILO
- *HSELINE
- INRS-Bibliographie
- *NIOSHTIC®
- Toxline®
• Denmark. National Institute of Occupational Health
  http://www.ami.dk/nyheder/

• Edinburgh University Department of Community Health Sciences
  Health Environment & Work
  http://www.agius.com/hew/index.htm

• ESRC Future of Work
  http://www.leeds.ac.uk/esrcfutureofwork/index.html

• European Foundation for the Improvement of Living and Working Conditions
  http://www.eurofound.ie/working/working.htm

• Finnish Institute of Occupational Health
  http://www.occuphealth.fi/e/
  Ninth European Congress on Work and Organizational Psychology
  http://www.occuphealth.fi/e/project/eawop99/index.htm

• Health at work
  http://www.healthatwork.org.uk/home.asp

• HSE – UK Health & Safety Executive
  http://213.212.77.20/index.htm
  Healthy workplace initiative:
  http://www.signupweb.net/site_index/index.asp

• Discussion document: Managing stress at work (1999)
  http://213.212.77.20/hthdir/noframes/stressdd.htm

• ILO

• Institute for Occupational Health, Birmingham
  http://www.bham.ac.uk/IOn/
• Institute for Work & Health, Ontario, Canada
  http://www.iwh.on.ca/Pages/Publications/pubs.htm

• International Stress Management Association
  http://www.isma.org.uk/

• JISC occ-health mailing list archive
  http://www.jiscmail.ac.uk/lists/occ-health.html

• Job stress network
  http://workhealth.org/index.html
  http://www.workhealth.org/strain/jsfutdir.html
  http://workhealth.org/projects/pprim.html

• National Occupational Health & Safety Commission Australia

• NIOSH – National Institute for Occupational Safety & Health [USA]
  http://www.cdc.gov/niosh/stresshp.html

• NORA - National Occupational Research Agenda [USA]
  Part of NIOSH
  http://www.cdc.gov/niosh/NORA/default.html
  Especially: organisation of work projects
  http://www2.cdc.gov/NORA/Projecttemp.asp?rscharea=ow

• Norway. National Institute of Occupational Health
  http://193.217.184.22/

• OHStrategy.net
  http://www.ohstrategy.net/index.shtm

• OSH.NET: gateway for safety and health information sources
  http://osh.net/

• Scotland’s health at work
  http://www.shaw.uk.com/
Data management

A 'search diary' will be maintained detailing the names of the databases searched, the
keywords used and the search results. Titles and abstracts of studies to be considered for
retrieval will be recorded on an Endnote database, along with details of where the reference
has been found. Inclusion/exclusion decisions will be recorded on that database. Retrieved
studies will be filed according to inclusion/exclusion decisions.

Full details of electronic searching along with any additional sites discovered will be recorded
in this diary to be made available on request.

Key Words for Electronic Databases.

The following key words will be used when devising search strategies for electronic
databases. Different strategies will be devised for different databases as appropriate. The
exact search terms and their results will be recorded as the search strategy is refined.

blue collar or career* or demand control or earn* or employment or employee* or firm
or human-resourc* or industr* or job or jobs or labor or labour or low income or
manpower or manufactur* or occupation or occupational class or occupations or
office or professional* or white collar or work*

AND
autonomous groups or autonomy or broker or change or changes or conditions or
*centralise* or *centralize* control or decision latitude or decision-latitude or decision-making or demand control or DCS or D.C.S. or effort reward or job redesign or Karasek* or management or managerial or OD or O.D. or *organization* or *organisation* or *power* or restructur* or re-structur or structural change or support* or Theorell*

AND

absentee* or alcohol or angina or arter* or behavio*ral or blood or body mass index or bone or cardiac or cardiovascular or CHD or cholesterol or coronary or diet* or emotional or demand* or epidemiology or esteem or fatal or gastrointestinal or *health* or ill or illness or incapacity benefit or incidence of sickness or infectio* or heart disease or mastery or morbidity or mortality or myocardial infarction or sick or psychosocial or sickie or sickness* or *skeletal or mental strain* or stress*

**Expert Contacts**

A panel of expert contacts will be formed from people with a specialist interest in this area. These experts will be asked to provide information on ongoing research and comment on our review.

**Assessment of Validity and Data Abstraction**

**Relevance Decisions:** studies will be selected for retrieved after abstracts and titles identified in electronic searches have been appraised by the information scientist and lead reviewer for relevance (note that abstracts and titles that clearly have nothing to do with workplace interventions will be excluded by the information scientist only). All references provided by expert contacts will also be retrieved. All retrieved studies will be examined by two reviewers. Studies that are judged to be potentially relevant by at least one reviewer will be retrieved for closer analysis by both reviewers. Retrieved studies judged by at least one reviewer to meet the inclusion criteria will be put forward for critical appraisal.
**Assessment of Methodological Quality:** Critical appraisal of studies will be conducted by at least two reviewers independently using criteria agreed between them, and based on a review of methodological literature. Criteria will include:

- Use of matched control or control for general trends.
- Whether sample is representative
- Whether follow up rate >60%
- Appropriateness of exposure measures
- Length of follow-up
- Whether the study is prospective or retrospective
- Number of sites evaluated
- Presentation of enough data to validate results.
- Adjustment for appropriate confounders

When reviewers’ conclusions over the validity of a study differ, the study will be reviewed jointly or given to a third reviewer.

**Data Extraction**

Data will be extracted by one reviewer and checked independently by another.

**Details of Coding Characteristics**

We intend to categorise interventions and outcome measures. At least two reviewers will do this independently. When the studies themselves do not give us sufficient information to categorise, we will contact the authors. When categorising interventions, we will focus particularly on identifying interventions that affect demands on workers and interventions that affect worker control. We will distinguish between health outcomes measured: mental illness, physical illness, stress, absenteeism (differentiating between medically certified and uncertified, short-term and long-term).
Synthesis

If a meta-analysis is not possible, eg. owing to the heterogeneity of the studies, we will employ a narrative synthesis method. The studies will be grouped into intervention type and then sub-grouped by outcome type. The methodologies and results of studies belonging to both the same intervention and outcome category will then be compared to see if there is any association between methodological features and results. The results will then be discussed with appropriate emphasis given to the studies that are more methodologically robust. The results will also be tabulated in a way that demonstrates the methodological robustness of each study. The narrative will be written by the lead reviewer and then checked independently by at least one other reviewer who will then feed back with comments. Any disagreements will be decided by all reviewers.

5 Timeframe

The review is expected to take 12 months to complete.

6 Plans for Updating the Review

As part of its continuing Evaluation Programme, the MRC Social and Public Health Sciences Unit intends to employ a permanent systematic reviewer who will update this review.

7 Conflict of interests

Reviewers are unaware of any potential conflict of interests.

8 References


