

Psychosocial Job Exposure Matrix

Challenges and Opportunities

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DET NATIONALE

FORSKNINGSCENTER FOR ARBEJDSMILJØ

Fælles medlemsmøde Dansk Selskab for Arbejds- og Miljømedicin (DASAM) og Dansk Epidemiologisk Selskab (DES) : Registerbaseret epidemiologi med særligt fokus på forskning i arbejdsmiljø.
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Content of this presentation

- Job exposure matrix for measuring the psychosocial work environment. History and current developments
- Challenges with psychosocial job exposure matrices
- Opportunities with psychosocial job exposure matrices

JEM for assessing psychosocial working conditions is not exactly a new idea

Actually, a rather old idea, that played an important role when psychosocial occupational epidemiology emerged in the 1980s (particular on job strain and risk of coronary heart disease)

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MYOCARDIAL INFARCTION RISK AND PSYCHOSOCIAL WORK ENVIRONMENT: AN ANALYSIS OF THE MALE SWEDISH WORKING FORCE

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Abstract—The project was designed to test the assumption that certain psychosocial characteristics of occupational groups are associated with elevated myocardial infarction risk.

Psychosocial JEM study, Sweden, 1993

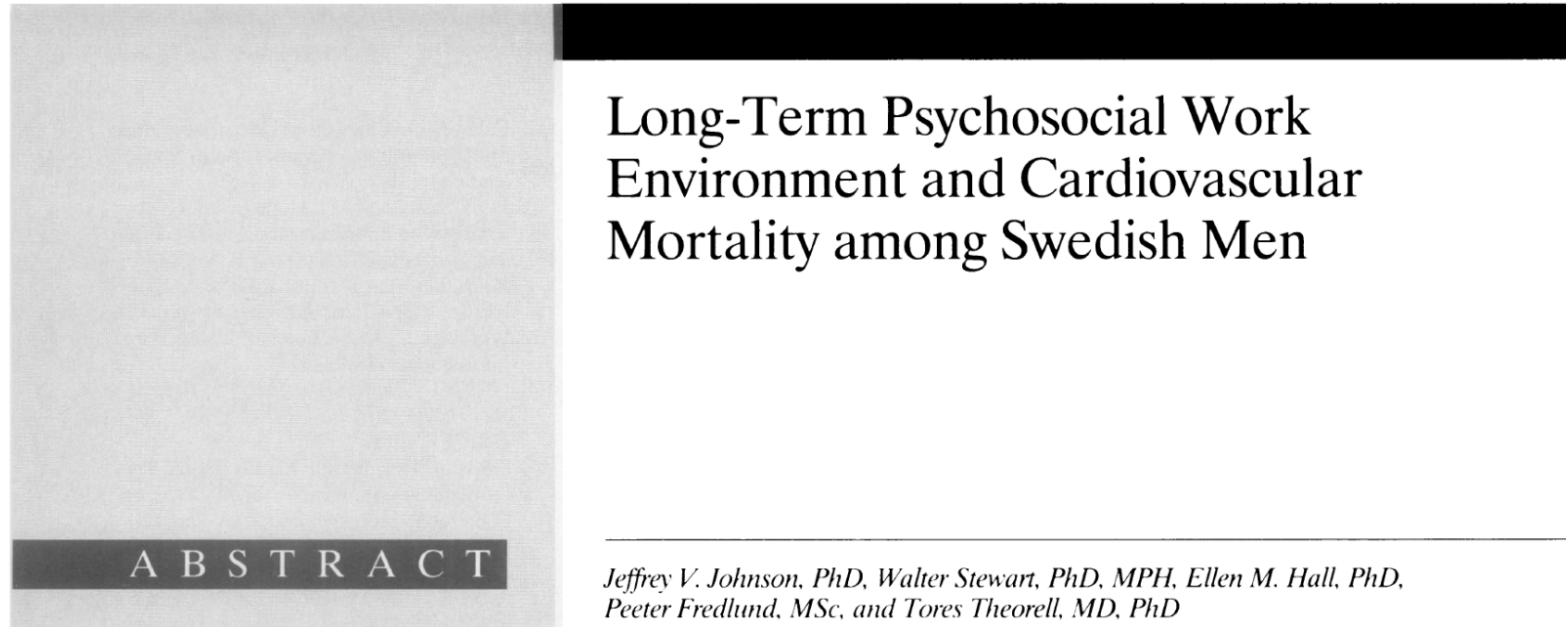
Scand J Work Environ Health 1993;19:21—8

Measuring work organization exposure over the life course with a job-exposure matrix

by Jeffrey V Johnson, PhD,¹ Walter F Stewart, PhD²

JOHNSON JV, STEWART WF. Measuring work organization exposure over the life course with a job-exposure matrix. *Scand J Work Environ Health* 1993;19:21—8. In most epidemiologic studies of occupational stress, work exposure is measured at only one point in time. This article presents a meth-

Psychosocial JEM study, Sweden, 1996



American Journal of Public Health 1996;86(3):324-331

Psychosocial JEM study, Sweden, 1998

Occup Environ Med 1998;55:548–553

Job strain, social support at work, and incidence of myocardial infarction

Niklas Hammar, Lars Alfredsson, Jeffrey V Johnson

Abstract

Objectives—The combination of high psychological job demands and low decision latitude (high job strain) has been associ-

According to this model, which has been used in several studies, a high strain job is characterised by high psychological demands in combination with low decision latitude. Schnall *et al*,

**But then focus shifted from psychosocial
JEM studies to large cohort studies that
had individual-level exposure measurement
(and information on potential confounders)**

Job strain as a risk factor for coronary heart disease: a collaborative meta-analysis of individual participant data



Mika Kivimäki, Solja T Nyberg, G David Batty, Eleonor I Fransson, Katriina Heikkilä, Lars Alfredsson, Jakob B Bjorner, Marianne Borritz, Hermann Burr, Annalisa Casini, Els Clays, Dirk De Bacquer, Nico Dragano, Jane E Ferrie, Goedele A Geuskens, Marcel Goldberg, Mark Hamer, Wendela E Hooftman, Irene L Houtman, Matti Joensuu, Markus Jokela, France Kittel, Anders Knutsson, Markku Koskenvuo, Aki Koskinen, Anne Kouvonen, Meena Kumari, Ida E H Madsen, Michael G Marmot, Martin L Nielsen, Maria Nordin, Tuula Oksanen, Jaana Pentti, Reiner Rugulies, Paula Salo, Johannes Siegrist, Archana Singh-Manoux, Sakari B Suominen, Ari Väänänen, Jussi Vahtera, Marianna Virtanen, Peter J M Westerholm, Hugo Westerlund, Marie Zins, Andrew Steptoe, Töres Theorell, for the IPD-Work Consortium

Lancet 2012; 380: 1491-97

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S0140-6736(12)60994-5

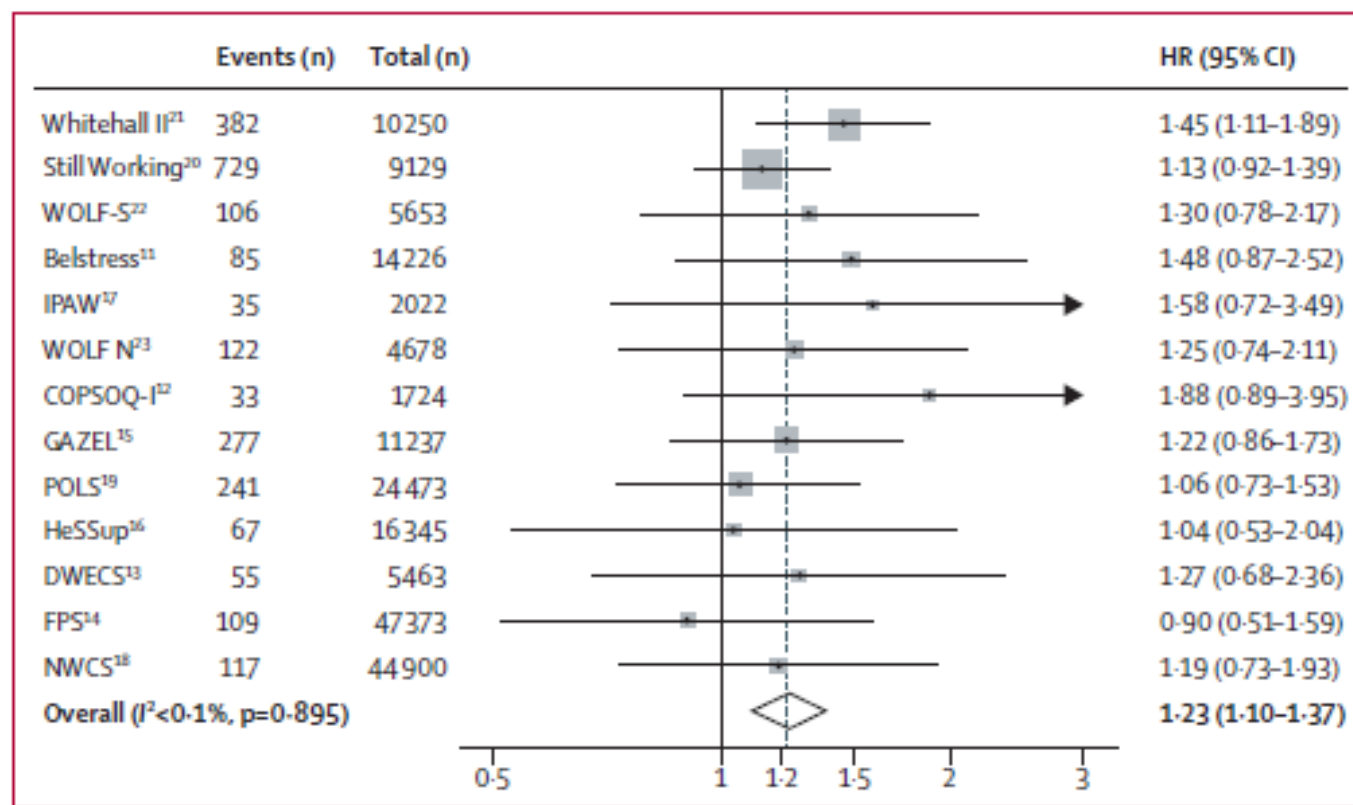


Figure 1: Random-effects meta-analysis of the association between job strain and incident coronary heart disease

Job strain and CHD: Cumulative meta-analysis of cohort studies

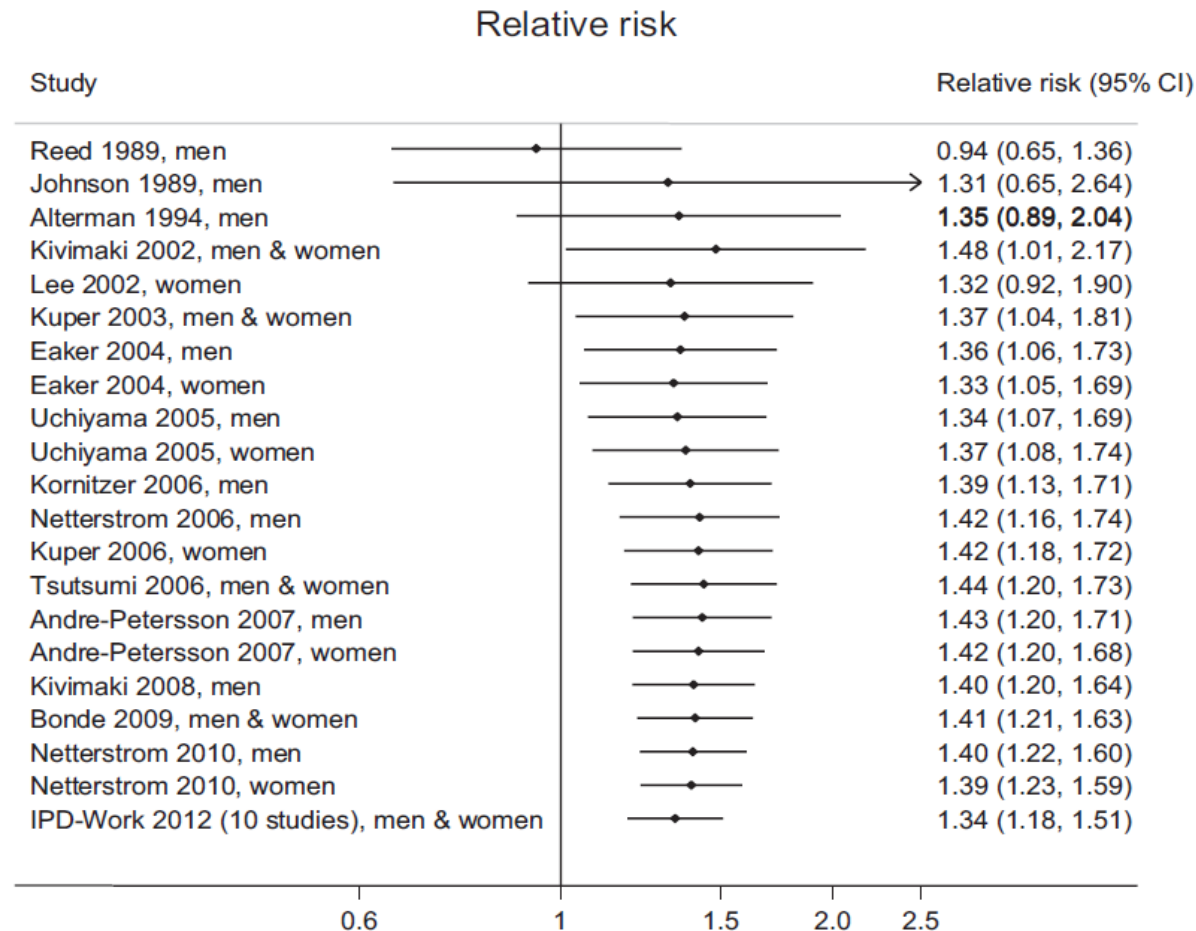


FIGURE. Cumulative meta-analysis of cohort studies on job strain and incident coronary heart disease for studies identified in the most recent systematic review.³ Full references for the constituent studies are available in the eAppendix (<http://links.lww.com/EDE/A772>).

Revival of psychosocial JEM studies

Work related violence and threats and the risk of depression and stress disorders

Joanna Wieclaw, Esben Agerbo, Preben Bo Mortensen, Hermann Burr, Finn Tüchsen, Jens Peter Bonde

J Epidemiol Community Health 2006;**60**:771–775. doi: 10.1136/jech.2005.042986

- Case control study
 - 14 166 cases (psychiatric hospital treatment for affective disorders (F30-39) and neurotic, stress-related and somatoform disorders (F40-48) and 58 060 controls. JEM based on Danish Work Environment Cohort Study 2000 (DWECS 2000)

Results

- Exposure to violence associated with higher risk for both types of disorders in both genders
- Exposure to threats associated with higher risk of affective disorders in women and higher risk of neurotic, stress-related and somatoform disorders in men

Research article

Open Access

Psychosocial working conditions and the risk of depression and anxiety disorders in the Danish workforce

Joanna Wieclaw^{*1}, Esben Agerbo², Preben Bo Mortensen², Hermann Burr³, Finn Tuchsén³ and Jens Peter Bonde¹

- Case control study
 - Same sample as in Wieclaw et al 2006. Same endpoints (affective disorders (F30-39) and neurotic, stress-related and somatoform disorders (F40-48). JEM again based on DWECS 2000

Results: Low job control was associated with an increased risk of anxiety disorders in men (IRR 1.40, 95% CI 1.24–1.58).

In women an elevated risk of depression was related to high emotional demands (IRR 1.39, 95%CI 1.22–1.58) and to working with people (IRR 1.15, 95% CI 1.01–1.30). In both sexes high demands were associated with a decreased risk of anxiety disorders. There was a weak association between job strain and anxiety disorders in men (IRR 1.13, 95%, CI 1.02–1.25)

Study of the validity of a job-exposure matrix for psychosocial work factors: results from the national French SUMER survey

Isabelle Niedhammer · Jean-François Chastang ·
David Levy · Simone David · Stéphanie Degioanni ·
Töres Theorell

- **Psychosocial exposures**

- High psychological demands; Low job control; Low workplace social support

Conclusions

The study on the validity of a French JEM for psychosocial work factors showed a limited validity for psychological demands and social support, and a relatively higher validity for decision latitude. Such a JEM for decision latitude might be useful as a complementary method to self-reported assessment in other French data sets. At the inter-

Evaluation of the Validity of Job Exposure Matrix for Psychosocial Factors at Work

Svetlana Solovieva^{1,2*}, Tiina Pensola¹, Johanna Kausto^{1,2}, Rahman Shiri^{1,2}, Markku Heliövaara³, Alex Burdorf⁴, Kirsti Husgafvel-Pursiainen^{1,2}, Eira Viikari-Juntura²

- **Psychosocial exposures**

- High psychological demands; Low job control; Monotonous work; Low social support; High job strain

Conclusions

Our results suggest that JEM more accurately identifies occupations with low control and high strain than those with high demands or low social support. Although the JEM is a rather crude exposure assessment method, it can be a useful source of job-level psychosocial exposures in epidemiological studies lacking individual-level exposure. Furthermore, we showed the applica-

Psychosocial JEM, Finland, 2014



Finnish Institute of
Occupational Health

Development of physical and psychosocial job exposure matrices

| | |
|--------------------|----------------------|
| Svetlana Solovieva | Markku Heliövaara |
| Irmeli Pehkonen | Alex Burdorf |
| Tiina Pensola | Kirsti Husgafvel- |
| Eija Haukka | Pursiainen |
| Johanna Kausto | Eira Viikari-Juntura |
| Terje Leivategija | |
| Rahman Shiri | |

Psychosocial JEM, Australia, 2016

Validity of a Job-Exposure Matrix for Psychosocial Job Stressors: Results from the Household Income and Labour Dynamics in Australia Survey

A. Milner^{1,2*}, I. Niedhammer^{3,4}, J.-F. Chastang^{3,4}, M. J. Spittal⁵, A. D. LaMontagne^{1,2*}

- **Psychosocial exposures**

- High psychological demands; Low job control; Low job security; Low fairness of pay

Discussion

These JEM-based estimates of stressors exposure provide a conservative proxy for individual-level data, and can be applied to a range of health and organisational outcomes.

Results from the Australian Psychosocial JEM

Low Control and High Demands at Work as Risk Factors for Suicide: An Australian National Population-Level Case-Control Study

Allison Milner, PhD, Matthew J. Spittal, PhD, Jane Pirkis, PhD, Jean-François Chastang, PhD, Isabelle Niedhammer, PhD, and Anthony D. LaMontagne, ScD

- **Among men, risk of death due to suicide**
 - High job demands: OR=1.36, 95% CI=1.26-1.46
 - Low job control: OR=1.35, 95% CI=1.26-1.44
- **Among women, risk of death due to suicide**
 - High job demands: OR=0.81, 95% CI=0.72-0.92
 - Low job control: OR=0.91, 95% CI=0.80-1.02

Challenges for Psychosocial JEMs

- Usually limited and very traditional psychosocial exposures (quantitative demands, job control) although there are some exceptions
- Job titles may say more about socioeconomic position than about psychosocial working conditions
- Several psychosocial exposures that may be of high relevance, in particular for risk of mental ill-health, are likely not suitable for JEMs
 - Workplace bullying, Organizational justice, Workplace social capital, Social relations at work


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ORIGINAL ARTICLE

WILEY COMMUNITY
DENTISTRY AND
ORAL EPIDEMIOLOGY

It is not just about occupation, but also about where you work

Hanne Berthelsen¹  | Hugo Westerlund² | Jari J. Hakanen³ | Tage S. Kristensen⁴

Opportunities for Psychosocial JEMs

- JEMs are good for addressing reporting bias, a major issue in psychosocial occupational epidemiology
- JEMs give the opportunity to study the whole workforce in health registers, taking advantage of the great health registries we have in Denmark
- JEMs that are regularly updated (per year, per months, continuously), allow studying accumulation of exposure and analysing the effects of onset and removal of exposure (pseudo-trials)

Conclusion and future prospects

- Psychosocial JEMs come with major challenges and major opportunities.
- Current Danish psychosocial JEM projects
 - DOC*X, the big Danish JEM project (psychosocial and other exposure), aiming to establish an open research resource (PI: Jens Peter Bonde)
 - YA, a JEM about young employees entering the labour market (PI: Ida Madsen)
 - Følkæt, a JEM about emotional demands and labour market participation (PI: Elisabeth Framke)
 - JEMPAD, a JEM that is part of a larger international collaboration project on psychosocial work environment and healthy ageing (PI: Mika Kivimäki, Hugo Westerlund, Reiner Rugulies)

Thanks

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