

Table 1 Mediation effects in prospective studies.

| Author, year | Journal | Study design and setting | Socioeconomic position | Work characteristics | Health outcomes | Adjustments | Main findings %-Reduction by mediation |
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| Marmot et al. 1997 ²⁶ | The Lancet | London-based Civil servants N=7372 Mean follow-up: 5.3 yrs | Employment grade: high, medium, low | job control, effort-reward imbalance | CHD (Angina Pectoris, Severe chest pain, diagnosed ischaemia) | Age, separated by sex | Reduction of OR after adjustment for job control in men of low employment grade (ref.: high): 64%* (OR: 1.50 to 1.18). In women: 51%* (OR: 1.47 to 1.23). |
| Andersen et al. 2004 ²⁴ | Occupational and Environmental Medicine | Copenhagen, Denmark N=16216 Follow-up: 4-22 yrs | Occupational position in 5 categories | JEM: psychosocial working conditions: skill discretion and decision authority | Myocardial infarction | Cohort of investigation, age, cohabitation, sex, smoking, BMI, alcohol intake, physical activity, Systolic blood pressure, cholesterol | Reduction of HR after adjustment for skill discretion in unskilled workers (ref.: executive managers) by 79%* (HR: 1.33 to 1.07 (n.s.)). Reverse trend after adjusting for decision authority. |
| Chandola et al. 2005 ²¹ | Occupational and Environmental Medicine | London-based Civil servants N= 3697 Follow-up: up to 16 yrs | Employment grade in 3 categories | Effort-reward imbalance | Angina | Age, obesity, blood pressure. Separated by sex. | Men: Small but significant direct and indirect effects (through imbalance at phase 5) of employment grade on angina. The effect of grade on angina is in part mediated by ERI. Women: direct effects of grade on angina, but no indirect effects through ERI. |
| Melchior et al. 2005 ²⁷ | American Journal of Public Health | France Employees of a gas and electricity company N=11733 Follow-up: 6 yrs | Employment grade in 6 categories | Physical work factors (postural complaints Occupational hazards Night work Outdoor work activities Customer contact) Job strain | All-cause Sickness absence | Age, demographics, health behaviours, stressful life events Separated by sex | Reduction of occupational class gradient of all-cause sickness absence after adjustment for work characteristics in male manual workers (ref.: managers) by 23% (RR: 3.06 to 2.95). In male clerks: 24% (RR: 2.88 to 2.42), female clerks (ref.: managers): 26% (RR: 2.76 to 2.30). |
| Hagen et al. 2006 ¹⁶ | Social Science & Medicine | Nord-Trøndelag, Norway N=26823 Follow-up: 7 yrs | Education | Physical demands, concentration and attention, stress and tension, authority to plan own work, job satisfaction | Disability pension caused by Back Pain | Age, separated by sex | Reduction of HR (men: 0.77; women: 0.76) after adjustment for work characteristics: 24% (HR: 0.82) in men and 13% (HR: 0.79) in women. |

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| Toivanen et al. 2006 ³⁵ | International Journal of Behavioral Medicine | Sweden - ULF survey Age: 40-64 N=6405 follow-up: 6 yrs - Swedish Census Age 40-64 N= 1,858,373 Follow-up: 5 yrs | Income | Job control Physical work demands | Cardiovascular disease (ULF) Mortality from Cardiovascular disease (Census) | -Year, age, sex, smoking -Age, sex | ULF: Reduction in OR after adjustment for work characteristics: 8-10% in income quartiles (OR of lowest income quartile (ref.: highest): 3.63-3.43). Swedish Census: Reduction in RR after adjustment for dichotomized job control in all income quartiles 10% each (OR of lowest income quartile (ref.: highest): 2.10-1.99), job control in quartiles: reduction amounts to 14-18% (OR of lowest income quartile (ref.: highest): 2.10-1.95). |
| Huisman et al. 2008 ³⁷ | Social Science & Medicine | southeastern Netherlands N=5757 Follow-up: up to 12 yrs | Education Occupation in 3 categories | Job strain | Myocardial infarction | Sex, age, marital status | Reduction of HR of education after adjustment for job strain: 23%* HR: (1.97 to 1.75). Reduction in HR of occupation after adjustment for job strain in manual workers (ref.: non-manual): 44%.* (HR: 1.62 to 1.35(n.s.)). |
| Laaksonen et al. 2009 ²⁸ | Journal of Epidemiology and Community Health | Helsinki, Finland N=6934 Mean follow-up: 3,9 yrs | Occupational class in 4 categories | Work arrangements (working hours, shift work, permanent and temporary work contract), physical (physical work load, exposure to hazardous substances, sedentary work and computer use) and psychosocial (job demands, job control, social support at work, job satisfaction, workplace climate) working conditions | Sickness absence | age | Men: HR of work arrangements among manual workers (ref.: managers and professionals) is 2.78, physical working conditions: 2.08, psychosocial working conditions: 2.87. Adjustment for work arrangements slightly narrowed the class differences. Physical working conditions attenuated the social gradient by about 40 %. Women: HR of work arrangements among manual workers (ref.: managers and professionals) is 2.98, physical working conditions: 2.00, psychosocial working conditions: 3.41. Adjustment for work arrangements and physical working conditions narrowed the class differences, and psychosocial working conditions widened them. |
| Menvielle et al. 2010 ²⁵ | International Journal of Cancer | Europe 23 centers in 10 countries Men N=88,265 Mean Follow-up: 8.4 yrs | Education | Exposure to asbestos, heavy metals, and PAH | First primary lung cancer | Smoking, dietary habits | Reduction of HR after adjustment for job exposures in lowest education: 12%* (HR: 1.6 to 1.53). |

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| Ferrario et al. 2011 ²⁹ | Occupational and Environmental Medicine | Brianza, Italy N= 1441 Median Follow-up: 12 yrs (8-16 yrs) | Occupational class in 4 categories | Job strain | First CHD event | Age, systolic blood pressure, total cholesterol, HDL-cholesterol, current smoking, diabetes mellitus, alcohol intake, sport physical activity index | Reduction of HR of manual workers (ref.: non-manual) from 1.18 (n.s.) to 1.12 (n.s.). Differences between occupational classes are not significant. |
| Haukenes et al. 2011 ³⁶ | BMC Public Health | Hordaland County, Norway Age: 40-45 N=7031 Follow-up: 7 yrs | Employment grade (ISCO-88 and education) in 4 categories | Job demands Job control Physical demands Paid working hours years in current occupation | Disability pension | Sex, health at baseline | Reduction of HR after adjustment for work characteristics: 24% (HR: 2.78 to 2.12) in unskilled manual workers (ref.: administrators and professionals). |
| Borg et al. 2000 ²⁰ | Social Science & Medicine | Denmark N=4751 Follow-up: 5 yrs | Employment grade in 5 categories, based on job title and education | Job demands, decision authority, social support, skill discretion, conflicts at work, job insecurity, repetitive work ergonomic, chemical, climatic, and physical exposures | Self-rated health | Age, sex, disease, injury or long lasting illness | Reduction of OR (4.23) after adjustment for ergonomic exposures: 34% (OR: 3.13); repetitive work: 24% (OR: 3.44); job insecurity (OR: 3.9), climatic (OR: 3.88), and physical exposures (OR: 3.95) in each case ca. 10% (OR: 3.88 to 3.95). The combined adjustment for this exposures explained 59% (OR: 2.34) of the gradient. |
| Ferrie et al. 2003 ³⁰ | Social Science & Medicine | London-based Civil servants N= depends on model: 1089 to 3239 Follow-up: up to 14 yrs | Employment grade in 2 categories | Job insecurity Financial insecurity | Self-rated health Depression | Age Separated by sex. | Reduction of OR of self-rated health (men: 2.24; women: 4.35) after adjustment for job insecurity by 6% in men and 4% in women. Reduction of OR of self-rated health (men: 2.23; women: 3.92) after adjustment for financial insecurity by 33% in men and 13% in women. Reduction of Diff of depression (men: 0.51; women: 0.43) after adjustment for job insecurity by 9% in men and 16% in women. Reduction of Diff of depression (men: 0.49; women: 0.52) after adjustment for financial insecurity by 49% in men and 14% in women. |
| Mustard et al. 2003 ³¹ | Social Science & Medicine | Canada N=5691 Follow-up: 4 yrs | Employment grade in 4 categories | Work demands/ work control Job strain | Self-perceived general health status | Age, sex, health conditions (chronic conditions, back pain, BMI, psychological distress and depression) at baseline | Reduction of OR of the lowest occupational position (ref.: highest) by 17% (OR: 1.72 to 1.60) in men after adjustment for job demands/control and by 11% (OR: 1.72 to 1.64) after adjustment for job strain. No reduction in women and in the full sample. |

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| Stansfeld et al. 2003 ³² | Journal of Epidemiology and Community Health | London-based Civil servants N=5912 Follow-up: 11 yrs. | Employment grade as linear term | Decision latitude Job demands Work social supports ERI | Depressive symptoms | Age, separated by sex | Decline of grade gradient in depression after adjustment: 66% (coefficient: 0.105-0.036) in men and 43% (0.096-0.055) in women. |
| Plouvier et al. 2009 ³³ | Scandinavian Journal of Work, Environment & Health | France Male Employees of a gas and electricity company N=1487 Follow-up: 12 yrs | Employment grade in 4 categories | Biomechanical strains (driving, pushing, pulling or carrying heavy loads, bending or twisting) Psychosocial strains (psychological demands, decision latitude, social support) | Low back pain | Age | Reduction of PR after adjustment for biomechanical strains (ref. managers): in blue collar workers: 73% (PR: 1.92 to 1.25). Adjustment for psychosocial strains: in blue collar workers: 11% (PR: 1.92 to 1.81). Reduction after combined adjustment: 77% (PR: 1.92 to 1.21). |
| Pietiläinen et al. 2012 ³⁴ | Journal of Epidemiology and Community Health | Helsinki, Finland N= 7332 Mean Follow-up: 6 yrs | Occupational class in 4 categories | Physical and psychosocial (demand-control-model) working conditions | Physical functioning | Age, separated by sex | Women: Physical working conditions had marginal effects on the difference between occupational classes, adding psychosocial working characteristics narrowed the differences. Men: Adjusting for physical working conditions slightly widened the not significant differences between the occupational classes; psychosocial working conditions slightly narrowed the differences. |

*own calculations based on ORs/HRs reported in the paper

OR= Odds Ratio, HR= Hazard Ratio, RR= Rate Ratio, PR= Prevalence Ratio, IRR= Incidence Rate Ratio, Diff= difference, n.s.= not significant, ERI= Effort-reward imbalance, CHD= Coronary heart disease, BMI= Body Mass Index, JEM= Job Exposure Matrix

Table 2 Moderation effects in prospective studies.

| Author, year | Journal | Study design and setting | Socioeconomic position | Work characteristics | Health outcomes | Adjustments | Main findings |
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| Hemingway et al. 1997 ³⁸ | Scandinavian Journal of Work, Environment & Health | London-based Civil servants N= 5620 Mean follow-up: 4 yrs | Employment grade (3 categories in men, 2 categories in women) | Job control | Sickness absence due to back pain | Age, education, housing tenure, access to use of car, BMI, exercise, smoking habits, number of questionnaire reports of back pain at baseline, separated by sex | Men: RR of low job control (ref.: high control) is 3.42 in the top grade, and 0.78 in the lowest grade. Women: RR of low job control is 0.80 in the higher grade and 1.35 in the lower grade. |
| Kuper et al. 2002 ⁴² | Occupational and Environmental Medicine | London-based Civil servants N= 9870 Mean follow-up: 11 yrs | Employment grade in 3 categories | ERI | CHD | Age, sex | OR of ERI is 1.56 in clerical, 1.26 (n.s.) in professional and 1.19 (n.s.) in administrative workers. |
| Kuper et al. 2003 ³⁹ | Journal of Epidemiology and Community Health | London-based Civil servants N=9746 Median follow-up: 11.2 yrs | Employment grade in 3 categories | Job strain | CHD (non-fatal myocardial infarction, angina events) | Age, sex | HR of high demand/low control (ref. low demand/high control) is 1.31 (n.s.) in clerical, 1.51 in professional and 1.81 in administrative workers. |
| Tsutsumi et al. 2011 ⁴⁰ | Social Science & Medicine | Japan N= 6553 Follow-up: 11 yrs | Occupational class (white-/blue-collar) Occupational position (manager/non-manager) | Job strain | Stroke | Age, educational attainment, smoking status, alcohol consumption, physical activity, separated by gender | Men: HR of high job strain (ref. low strain) is 3.1 among blue collar and 1.4 (n.s.) among white collar workers. HR is 8.9 among non-managers and 2.0 (n.s.) among managers. Women: HR of high job strain is 5.6 among blue collar and 1.0 (n.s.) among white collar workers. HR is 5.3 among non-managers and 0.7 (n.s.) among managers. |
| von Bonsdorff et al. 2012 ⁴¹ | British Medical Journal | Finland N= 5731 Follow-up: 28 yrs | Occupational class (blue- and white collar) | Job strain | Mortality | Age, smoking, alcohol intake, physical activity, prevalent CVD, metabolic disorders and cancer. Separated by sex | Men: HR of high strain (ref.: low strain) is 1.38 (n.s.) in white collar, and 1.09 (n.s.) in blue collar workers. Women: HR of high strain (ref.: low strain) is 0.81 (n.s.) in white collar, and 0.97 (n.s.) in blue collar workers. |

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| Väänänen et al. 2004 ⁴⁴ | Social Science & Medicine | Finland Industrial company N= 2225 Follow-up: 4 yrs | Occupational class (white- and blue-collar) | Experienced change in job position Organizational support Supervisor's support Coworker's support | Functional incapacity | Age, sex, sickness absence, pre-merger functional incapacity | OR of weak Supervisor's support (ref.: strong support) is 2.13 among white collar workers and 1.19 among blue collar workers OR of weak organizational support is 1.71 in both white- and blue-collar workers. OR of weak coworker's support is 1.37 (n.s.) among white collar workers and 1.24 (n.s.) among blue collar workers. |
| Ibrahim et al. 2009 ⁹ | Social Science & Medicine | Canada, N=2556 Follow-up: 2-6 yrs | Employment grade in 2 categories | Job strain Work social support Job insecurity | Depression Distress Self-rated health | Age, sex, marital status and part-time/full-time work hours | Higher social support at work and low job insecurity were each associated with lower distress among the lower occupational group, but not in the higher group. The other pathways showed only limited differences among occupational groups. |
| Rugulies et al. 2012 ⁴³ | European Journal of Public Health | Denmark Follow-up: 5 yrs N=2701 | Employment grade in 3 categories | ERI | Severe depressive symptoms | Sex, age, family status, survey method, smoking, heavy alcohol consumption, leisure time physical activity, self-rated health, sleep disturbances, non-severe depressive symptom score at baseline | OR of high ERI is 4.08 among manual workers, 2.11 (n.s.) among low grade non-manual workers and 1.30 (n.s.) among executives, academics and middle managers. |
| Sabbath et al. 2012 ⁴⁵ | Neurology | GAZEL Male French national gas and electricity employees N=4134 Follow-up: | Education (dichotomized) | JEM: Lifetime exposure to 4 solvent types (chlorinated, petroleum, benzene, and nonbenzene aromatic solvents) | Cognition | age, smoking status, alcohol consumption, Occupational grade at age 35 | Higher RRs of exposure to solvents among less-educated individuals than in more-educated. Significant associations of exposure to petroleum, benzene, and aromatic solvents among the less-educated, no significant associations among the more-educated. |

OR= Odds Ratio, HR= Hazard Ratio, RR= Rate Ratio, n.s.= not significant, ERI= Effort-reward imbalance, CHD= Coronary heart disease, CVD= cardiovascular disease, BMI= Body Mass Index, JEM= Job Exposure Matrix