What is already known on this topic

Stressful job conditions, characterised by low control, high demands, and low social support, increase the risk of cardiovascular disease

Previous cross sectional studies suggested that job strain is associated with low functional health status

What this study adds

A prospective study of 21 290 female nurses in the United States found that low control in their jobs predicted significant declines in physical function and mental health

The effects of job strain on functioning were independent of socioeconomic status, baseline functioning, and other confounders

The declines in health functioning associated with job strain were as large as those associated with smoking and sedentary lifestyles

research into job stress.[25] It has been argued that unhealthy or less socially competent people may drift to worse jobs with lower levels of control over decision making. Both these sources of bias may partly account for the observed associations in our study. Objective measures of job content and information on personality are needed to clarify this issue.

Currently, most solutions proposed to reduce job stress, such as relaxation therapy and modification of lifestyle, target individuals rather than their social environment and tend to deal with symptoms instead of causes. If the psychosocial work environment contributes to the quality of life of the workforce—as suggested by our study—hospitals and medical practices will need to focus their strategies for health promotion on the redesign of jobs.

We thank the members of the nurses' health study for their continuing participation and support.

Contributors: YC participated in the study design, carried out the data analyses, and took primary responsibility for writing the paper. IK formulated the primary study hypotheses, designed the study, and contributed to the interpretation of the findings and the preparation of the manuscript; he will act as guarantor for the paper. EHC provided statistical and programming advice, documented the data, and participated in the preparation of the manuscript. JS provided statistical advice and helped in interpretation of the data and editing the manuscript. GC is the principal investigator of the study. He helped develop the primary study hypotheses, took part in the study design, and contributed to the interpretation of the data and editing of the manuscript.

Funding: This research was funded by a grant from the National Institute of Aging Research (R01-AG-12806). The nurses' health study is funded by a grant from the National Institutes of Health (R01-CA-40356). IK was supported by the MacArthur Foundation Network on Socioeconomic Status and Health and a career development award from the National Institutes of Health (HL03453).

Competing interests: None declared.

1 Karasek R, Theorell T. *Healthy work—stress, productivity, and the reconstruction of working life*. New York: Basic Books, 1990.
2 Karasek R, Baker D, Marxer F, Ahlbom A, Theorell T. Job decision latitude, job demands, and cardiovascular disease: a prospective study of Swedish men. *Am J Public Health* 1981;71:694-705.
3 Karasek RA, Theorell T, Schwartz JE, Schnall PL, Pieper CF, Michela JL. Job characteristics in relation to the prevalence of myocardial infarction in the US health examination survey (HES) and the health and nutrition examination survey (HANES). *Am J Public Health* 1988;78:910-8.
4 Schnall PL, Landsbergis PA, Baker D. Job strain and cardiovascular disease. *Ann Rev Public Health* 1994;15:381-411.
5 Schnall PL, Schwartz JE, Landsbergis PA, Warren K, Pickering TG. Relation between job strain, alcohol, and ambulatory blood pressure. *Hypertension* 1992;19:488-94.
6 Hellerstedt WL, Jeffery RW. The association of job strain and health behaviours in men and women. *Int J Epidemiol* 1997;26:575-83.
7 Landsbergis PA, Schnall PL, Deitz D, Friedman R, Pickering T. The patterning of psychological attributes and distress by "job strain" and social support in a sample of working men. *J Behav Med* 1992;15:379-405.
8 Homer C, James S, Siegel E. Work-related psychosocial stress and risk of preterm, low birth weight delivery. *Am J Public Health* 1990;135:173-7.
9 Fenster L, Schaefer C, Mathur A, Hiatt R, Pieper C, Hubbard A, et al. Psychologic stress in the workplace and spontaneous abortion. *Am J Epidemiol* 1995;142:1176-83.
10 Theorell T, Perski A, Akerstedt T, Sigala F, Ahlberg-Hulten G, Svensson J, et al. Changes in job strain in relation to changes in physiological state. A longitudinal study. *Scand J Work Environ Health* 1988;14:189-96.
11 Bosma H, Marmot MG, Hemingway H, Nicholson AC, Brunner E, Stansfeld SA, et al. Low job control and risk of coronary heart disease in Whitehall II (prospective cohort) study. *BMJ* 1997;314:558-65.
12 Johnson J, Hall E. Job strain, work place social support, and cardiovascular disease: a cross-sectional study of a random sample of the Swedish working population. *Am J Public Health* 1988;78:1336-42.
13 Lerner D, Levine S, Malspeis S, D'Agostino R. Job strain and health-related quality of life in a national sample. *Am J Public Health* 1994;84:1580-5.
14 Stansfeld S, Bosma H, Hemingway H, Marmot M. Psychosocial work characteristics and social support as predictors of SF-36 health functioning: the Whitehall II study. *Psychosom Med* 1998;60:247-55.
15 Amick BC 3rd, Kawachi I, Coakley EH, Lerner D, Levine S, Colditz GA. Relationship of job strain and iso-strain to health status in a cohort of women in the United States. *Scand J Work Environ Health* 1998;24:54-61.
16 Karasek R. *Job content questionnaire and user's guide*. Lowell, MA: Department of Work Environment, University of Massachusetts-Lowell, 1985.
17 Ware J, Snow K, Kosinski M, Gandek B. *SF-36 health survey: manual and interpretation guide*. Boston, MA: New England Medical Center, Health Institute, 1993.
18 Rosner B. The analysis of longitudinal data in epidemiologic studies. *J Chronic Dis* 1979;32:161-73.
19 Cain K, Kronmal R, Kosinski A. Analysing the relationship between changes in a risk factor and risk of disease. *Stat Med* 1992;11:783-97.
20 Hastie T, Tibshirani R. *Generalized additive models*. London: Chapman and Hall, 1990.
21 Marmot MG, Bosma H, Hemingway H, Brunner E, Stansfeld S. Contribution of job control and other risk factors to social variations in coronary heart disease incidence. *Lancet* 1997;350:235-9.
22 Marmot MG, Smith GD, Stansfeld S, Patel C, North F, Head J, et al. Health inequalities among British civil servants: the Whitehall II study. *Lancet* 1991;337:1387-93.
23 Achat H, Kawachi I, Levine S, Berkey C, Coakley E, Colditz G. Social networks, stress and health-related quality of life. *Qual Life Res* 1998;7:735-50.
24 Johnson JV, Hall EM, Theorell T. Combined effects of job strain and social isolation on cardiovascular disease morbidity and mortality in a random sample of the Swedish male working population. *Scand J Work Environ Health* 1989;15:271-9.
25 Zapf D, Dormann C, Frese M. Longitudinal studies in organizational stress research: a review of the literature with reference to methodological issues. *J Occup Health Psychol* 1996;1:145-69.

(Accepted 7 February 2000)

Corrections and clarifications

Using thresholds based on risk of cardiovascular disease to target treatment for hypertension: modelling events averted and number treated

Confusion over denominators led to an error in this paper by Simon Baker and colleagues (11 March, pp 680-5). In table 1 the denominators for women receiving treatment should have been 322 (not 316) for those aged 35-49 years and 353 (not 300) for those aged 50-64.

Association between teenage pregnancy rates and the age and sex of general practitioners: cross sectional survey in Trent 1994-7

In this paper by Julia Hippisley-Cox and colleagues (25 March, pp 842-5) the fourth potential confounder in table 2 should have read "rural practice *v* urban practice" (not urban practice *v* rural practice) as teenage pregnancy rates were lower in rural areas.