

Job Strain Affects Health-related Quality of Life

Cheng Y, Kawachi I, Coakley EH, Schwartz J, Colditz G. Association between psychosocial work characteristics and health functioning in American women: prospective study. *BMJ* 2000;320:1432–6.

Study Overview

Objective. To prospectively evaluate the relationship between job demands, job control, and social support at work and health-related quality of life.

Design. Longitudinal cohort study.

Setting and participants. Research subjects were women in the Nurse's Health Study, a cohort of 75,434 formed in 1976. Women still participating in the study in 1992 and 1996 were evaluated. In 1992, 34,558 women were in the paid work force and free of coronary heart disease, stroke, and cancer; these individuals became the cohort base for this study. 21,290 of these women (69% of the original cohort) returned a questionnaire in 1992, providing the cohort that was fully analyzed for this study. 16,287 women were still working as nurses. Participants who developed 1 of the 3 diseases mentioned above during the 1992 to 1996 follow-up period (1540 women), those who retired during follow-up (6814 women), and those who returned insufficient data (1686 women) were excluded.

Exposures. Measures of job demands, job control, and work-related social support were obtained using the self-administered job content questionnaire. The first 2 scores were divided into terciles (low, medium, high) and the last into a binary variable (high, low). Researchers used the average score from the 1992 and 1996 questionnaires as the exposure variable.

Main outcome measures. Seven of 8 scales from the Medical Outcomes Study Short Form-36 (SF-36) served as markers of health-related quality of life: physical functioning, role limitations due to physical health problems, bodily pain, vitality, social functioning, role limitations due to emotional problems, and mental health. Researchers examined the 1996 scores and the change scores. Potential confounding factors, as ascertained by self-administered questionnaire, included age, body mass index, smoking status (never, former, current), alcohol intake, presence of several comorbid conditions (diabetes, hypertension, hypercholesterolemia, osteoarthritis, rheumatoid arthritis), employment status (full/part

time), presence of a confidant, marital status (married or not), educational attainment (RN/BA or advanced/graduate degree), and exercise level (metabolic equivalent of work hours per week).

Main results. Compared with women excluded from the cohort, the study group was younger, better educated, less likely to have a chronic disease, and more likely to work full time. Demand and control scores were not correlated. Work-related social support modestly correlated with demand and control scores ($r = -0.10$ to -0.22 and $r = 0.20$ to 0.37 , respectively [P value not reported]). Among the potential confounders, a body mass index greater than 29 kg/m^2 , not being married, attaining a lower level of education, and current smoking status were all associated with lower SF-36 scores in all subscales. Better health status on each of the 1996 SF-36 subscale scores was significantly related to higher levels of control, lower levels of demand, and high levels of work-related social support. (There was one exception: physical functioning did not reach significance for intermediate versus low levels of job control.) Regression coefficients demonstrated a consistent dose-response gradient increasing from low to high job control and work-related social support and decreasing with increasing job demands. All other analyses showed the same pattern, including consistent dose-response gradients.

Conclusion

High levels of job demand and low levels of job control—particularly combined in high-strain jobs—lead to decrements in health-related quality of life. These associations persist after controlling for all included potential confounders.

Commentary

An editorial side bar notes that declines in health status associated with job strain are as large as those associated with smoking and sedentary lifestyles. Given the size and quality of this study (a randomized clinical trial will never address this question), the evidence for this association is impressive. The authors, however, note a few potential weaknesses. Self-reported information may have accounted for some of the

effect if nurses with negative affects reported negatively on all measures. This potential bias could be resolved, the authors point out, with objective measures of job content. Further, Cheng and colleagues suggest that unhealthy or less socially competent people may drift to less desirable jobs with lower levels of control. Similarly, a possible selection bias could exist from a healthy worker effect. Because workers with health problems may move to jobs with less strain, healthier workers may be left in the higher strain jobs, a situation that would dilute the above associations. Notably, the authors did not discuss the absence of dietary information from their data. If increased job strain leads to poorer eating

habits, this intermediate variable could explain the association, a fact that would be important to consider when designing appropriate interventions.

Applications for Clinical Practice

While the literature on job strain is already compelling, Cheng et al expands the evidence that job strain increases risk of cardiovascular disease, suggesting a much broader effect on health. Given the magnitude of the effect, it is important to begin considering interventions to relieve the effects of job strain. Physicians and health plans should consider adding inquiries about job content to preventive health practices.

Copyright 2000 by Turner White Communications Inc., Wayne, PA. All rights reserved.