

Job Strain and Risk of Recurrent Coronary Events

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MOST MEN AND WOMEN SPEND A MAJOR PART OF their lifetime at work. Although their immediate reason for working is usually to earn their daily living, many have further aspirations for their careers. These may concern content of the job, satisfaction with and gratification from the job, career achievement, and personal development. Failure of fulfilling any of these goals on the job may lead to feelings of chronic stress.

In work-related theory, a job is characterized as stressful when it is high in psychological demand and low in personal control. Demand has been defined as an intense work pace, and control has been defined as the combination of authority over decisions and opportunities to develop personal skills. Demands may be healthy as long as one can say yes or no to them. If authority over decisions and opportunities for skills development are insufficient, chronic adaptation to a job strain situation may lead to illness.¹ Job strain is present when demand is too high and control is too low.

Empirical evidence of the usefulness of the concept of job strain from a public health perspective is abundant. In population-based cohort studies, coronary risk was found to increase with increasing work demands in combination with decreasing decision latitude at work. From a clinical perspective, however, the knowledge base is insufficient. In 2 previous studies—one involving men² and the other women³—patients with coronary heart disease were examined for job strain and then followed up for recurrent events. Only the study of men confirmed the hypothesis. Among 60 men with premature coronary heart disease who had their first acute event before age 45 years, those who had experienced job strain but returned to their previous jobs had a significantly increased risk of recurrence of coronary heart disease events compared with men without job strain. In contrast, women with coronary heart disease from the same geographical area who experienced job strain did not have increased risk of recurrent coronary events associated with job strain. Rather, among women, family-related stressful experiences were associated with increased risk for recurrent events.³

In this issue of JAMA, Aboa-Éboule and colleagues⁴ examine the relevance of this concept of job strain as a prog-

nostic factor after a first coronary event. The authors report findings from a cohort study of 972 patients aged 35 to 59 years who were hospitalized for an acute myocardial infarction in Quebec, Canada, and who were planning to return to work within weeks after the acute event.

Job strain among these patients was assessed twice, first at 6 weeks after return to work and then after another 2 years. Job strain was measured by validated questionnaires. Patients who reported job strain at both occasions were at highest risk of recurrent cardiac events, defined as fatal or nonfatal myocardial infarction or new occurrence of unstable angina. Those with chronic job strain had a 2-fold increase in risk of recurrent events compared with those returning to a job without strain. The association remained statistically significant, even after controlling for a large number of possible confounders. The association appeared stronger among patients with left ventricular systolic dysfunction. Neither the standard coronary risk factors—including hypertension, dyslipidemia, diabetes mellitus, and other comorbid conditions—nor clinical prognostic factors—such as thrombolysis, left ventricular ejection fraction, and medications prescribed at discharge—could fully explain the associations with job strain. Further adjustment for psychosocial measures, including social support at work, alexithymia (ie, inability to express feelings); hostility and anger, and stressful factors of the work organization, such as long working hours and night shifts, attenuated but did not abolish the association.

The concepts of high demand and low control at work are also related to the means of coping with stress through the provision of social supports. Good social networks and social support have been shown to be protective and act as buffers against the risk associated with job strain.⁵ Availability of social support depends on the number of social ties and the frequency of contacts with the social network structure, not merely contacts at work. In epidemiological studies, both structure and function of social supports should be assessed by methods that provide enough information and detail. Further stressors at work, such as having to work night shifts, having to work at odd hours, and having difficult work schedules, often lead to chronic sleep disturbance, as well as to relative social isolation, both factors that predict a poor prognosis for patients with coronary heart disease.⁵

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EDITORIAL

Depression, perhaps the most important psychosocial risk factor, was not assessed in the study by Aboa-Eboule et al.⁴ Depression, depressive symptoms, and depressed feelings are consistent predictors of poor prognosis in patients with coronary heart disease.⁶ Evidence from other studies also suggests an association between depression and both family and job strain.^{2,3}

Human and animal studies provide evidence for biological explanations of the psychosocial effects. Pathogenic mechanisms range from autonomic cardiac imbalance or dysfunction, as expressed by low heart rate variability, to stress provocation reactivity; from involving cardiovascular, inflammatory, and immune systems to lipid and metabolic dysfunction; and even from disturbed sleep to negative social interactions.⁷

For instance, a high level of job strain with too much demand and too little latitude to make one's own decisions eventually leads to chronically disturbed sleep with serious health consequences.⁸ Depressed mood follows, which may be associated with abnormalities of clotting and inflammatory processes, increasing the risk for recurrent cardiac events.⁷

Although the findings by Aboa-Eboule et al⁴ apply to men, the question about women and job strain as a prognostic factor after a first myocardial infarction is not necessarily answered. Among those younger than 60 years, coronary disease is 2 to 3 times more common in men than in women.⁹ In most countries, fewer women than men have access to cardiac rehabilitation and fewer women are employed so that relatively fewer women return to the workplace after experiencing a myocardial infarction.¹⁰ Indeed in the Quebec study, 106 patients (11%) were women, a proportion too small to allow separate analyses by sex. Thus the findings seem valid for men, whereas understanding of the risk for women remains unclear.

The role of job strain may differ between women and men. Among women, even among those who are working full time outside the home, job strain seems a less important prognostic factor than for men,³ and strains are found in other life domains, such as family and social relations. Fulfilling multiple roles may be health promoting, whereas dealing with conflicting roles often leads to stress and strain.¹¹ It appears that marital stress and strain are more important risk factors than job strain for fatal and nonfatal recurrent coronary events in women,³ with the strongest association for simultaneous strain from both sources.¹⁰ Marital stress was also strongly related to the negative influence of depression, which in turn was associated with a worsened prognosis.¹⁰ Similar findings have been reported in US women¹² and in women from Eastern European countries,^{11,13} suggesting the need for studies across nations that include adequate numbers of men and women and that report separate results of analyses by sex.

Job strain and other related psychosocial risk factors are associated with worse prognosis in patients with coronary heart disease. These influences are independent of standard risk factors and need to be addressed in clinical practice. However, knowledge is lacking on how to prevent and manage job strain

in particular and psychosocial risk in general. Therefore, there is a great need for research on methods and interventions to deal with these risk factors in the clinical setting.

Patients and physicians may benefit from widening the medical framework to include job strain evaluation. If physicians have difficulty finding adequate time to discuss job experiences with patients, this role may be adopted by other health care professionals, such as experienced cardiac rehabilitation nurses. Patients are often relieved and may spontaneously report improved quality of life and increased capacity for coping once they have their concerns assessed.³

Standardized measures of psychosocial factors and systematic evidence from randomized clinical trials of psychosocial interventions are lacking. In the recent European Guidelines on CVD Prevention,¹ cardiologists and clinicians from related disciplines agreed that scientific evidence for psychosocial risk has become convincing. The methods to measure and counteract these factors, however, are poorly understood. Although the level of scientific sophistication cannot be compared with that of pharmacological trials, a similar approach must be taken for evaluating psychosocial interventions. Rigorous, large-scale clinical trials are needed to implement these approaches among women and men and thereby complement other advances in cardiovascular medicine.¹

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TREATMENT WITH TOPIRAMATE FOR ALCOHOL DEPENDEN

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