The Association between Job Demand, Control and Depression in Workplaces in Japan

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Short Communication

The Association between Job Demand, Control and Depression in Workplaces in Japan

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Karasek[1] suggested that the work environment could be defined by two important elements, the psychological job demands (demand) placed on the worker and the decision latitude (control) permitted in deciding how to meet these demands. The demand-control (DC) model of job stress was therefore proposed. The DC model is one of the most popular models in the domain of job stress and employee well being[2]. Although there has been an increase in the number of overseas studies on the DC model, reports in Japan are much less common. We targeted the Japanese population to examine associations between job demand, control and the depressive state.

Subjects and Methods

The target population was intermediate managers working for a manufacturing company (n=8,342; male=5,443, female=2,899) in Japan. The company consisted of high-rank managers (n=261), intermediate managers (n=770), and general workers (n=7,311). The intermediate managers mainly manage clerical work and supervisory work in the manufacturing sections. Those managers were all male. Subjects were 687 intermediate managers who participated in the annual health check-up program in 1999. All subjects completed the self-administrated questionnaires leaving them with complete data. The age range was 35–60 yr and the mean age was 48.1 yr (SD=5.8 yr).

Demand and control were measured with Karasek's Job Content Questionnaire (JCQ)[3]. The Japanese version of the JCQ was developed by Kawakami *et al.*[4,5] in collaboration with Karasek. In the present study the recommended Japanese JCQ version of 4/23/96 was adopted with both questions and scoring algorithms. The demand scale is the weighted sum of five items that measure the level of psychological demands at work. The control scale is the weighted sum of nine items that measure the level of skill discretion and decision authority. Depression was measured with the Japanese version of the Self-rating Depression Scale (SDS)[6,7]. The SDS is a diagnostic tool assessing 20 commonly agreed-upon symptoms of depression.

Results

The mean scores on the demand and control scale were 31.84 (SD=4.68) and 71.57 (SD=7.91), respectively. Subjects were divided into four groups according to average demand and control scale scores, as follows: high-strain group (high demand and low control), passive group (low demand and low control), active group (high demand and high control) and low-strain group (low demand and high control). SDS score for the high-strain group was highest at 40.7 (SD=6.1), followed by the passive group at 38.9 (SD=6.9), the active group at 37.5 (SD=7.2) and the low-strain group at 35.3 (SD=6.9) (Fig.1). Analysis of variance was conducted with a two-way ANOVA to ascertain the relationships between SDS, demand (high vs. low) and control (high vs. low). The

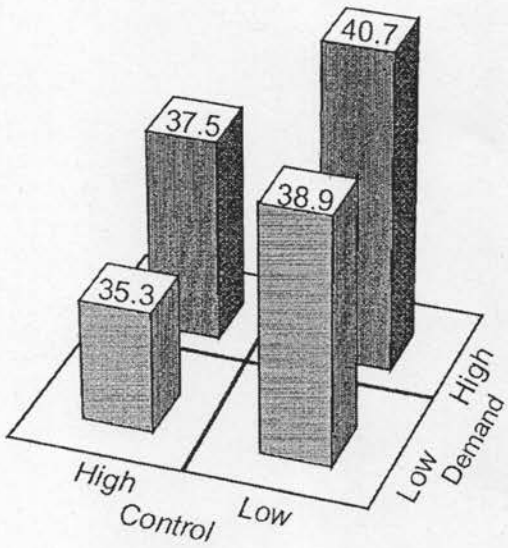

Fig. 1. SDS mean scores by four groups (high-strain, passive, active, low-strain)
Note. n=687 intermediate managers in a Japanese manufacturing company

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results showed that the main effect of demand ($F(1,683)=14.17$, $p<0.001$) and the main effect of control ($F(1,683)=41.75$, $p<0.001$) were significant, but the interaction between demand and control was not significant. The results were the same for analysis of covariance with age as a co-variable.

Next, depression and its relationship to demand and control were examined by stepwise multiple regression analysis. It was carried out on the object variable for SDS and the explanatory variables for demand and control. The explanatory rates for demand and control were 4.8% and 9.1%, respectively.

Discussion

Since the results of variance analyses demonstrated no interaction, the tendency was observed that, irrespective of the level of control, the higher the demands of the job, the greater the SDS. Conversely, the tendency was observed that, irrespective of the level of demand, the greater the degree of control, the lower the SDS. Subsequently, the SDS reported by the high-strain group was significantly greater than that reported by the low-strain group. The primary prediction of the DC model is that the strongest aversive job-related strain reactions (such as depression, exhaustion and health complaints) occur when jobs are simultaneously high in job demands and low in decision latitude[8]. The results achieved in the present study of a Japanese population supported the DC model study results. Moreover, symptoms of exhaustion are more strongly related to psychological demands, whereas the more serious strain symptoms such as depression are more strongly associated with low decision latitude[8]. The results of the present study supported this indication.

The original DC model was later expanded by Karasek and his colleagues[9] to include social support based on existing research concerning the impact of social support on well-being. This expanded model is known as the demand-control-support (DCS) model. In this study we did not analyze the roles of social support at the workplaces. Further investigation is needed to understand how demand, control and social support contribute to Japanese employee well-being.

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