Short Communication

The Relationship between Job Status, Gender and Work-Related Stress amongst Middle-Aged Employees in a Computer Manufacturing Company

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Work-related stress has been noted as a risk factor in the development of coronary heart disease. Karasek et al. have proposed two scales of 'decision latitude' (DL) and 'job demand' (JD) to measure the magnitude of work-related stress, and found that people with high JD and low DL showed an increased incidence of ischemic heart disease. Johnson et al. have proposed a revised model of work-related stress which included 'work-related social support' (SS) as another scale. Low scores of SS were associated with increasing incidence of mortality from coronary heart disease. Recently, Kawakami et al. introduced a Japanese language version of the Job Content Questionnaire (JCQ) formulated by Karasek. The aim of the present study is to examine the relationship between job status, gender and work-related stress measured using the Karasek model.

Subjects and Methods

The target subjects were 308 workers aged 35 or older working in a computer manufacturing company (of total worker force was about 2,000) located in the Hokuriku area of Japan. A self-administered questionnaire of the JCQ (the Japanese language version) was completed by the subjects during a health examination.

The questionnaire consisted of 26 questions concerning JD (9 items), DL (9 items) and SS (8 items). The subjects were requested to select one of four answers (strongly disagree, disagree, agree or strongly agree) to each question, and their scores were calculated following the Likert scale of 1 to 4. The scores of DL were the sum of the lower grade scale of 6 questions on 'skill discretion' (SD) and 3 questions on 'decision authority' (DA). The scores of SS were the sum of the lower grade scale of 4 questions related to 'supervisor support' (SS') and 4 on 'coworker support' (CS). The scores of JD were directly calculated from the 9 questions. Responses were obtained from 234 men and 51 women (93% of the target subjects). Confident coefficients (Cronbach $\alpha$) according to internal consistency were calculated, and judged to be satisfactory if they were 0.75 or above.

The subjects were engaged in computer design, manufacture, management, and clerical work. They were divided into three categories of job status as follows: 124 managers (line staff supervisors: all male), permanent employees (110 male and 31 female) and 21 temporary employees (all female). The mean scores were compared between the groups of men and women. The influence of job status and gender on the scores; adjusted for the effects of age, was tested statistically by a generalized linear model analysis. These analyses were conducted using an SAS program package (SAS Institute Inc.). Statistical significance was defined as $p<0.05$.

Results

The average age of the permanent male employees was 43.3 yr, and the standard deviation (SD) was 4.5 yr. It was lower than that of the permanent female employees (44.5±4.2 yr), managers (45.6±4.4 yr) and temporary female employees (47.3±6.5 yr).

The mean scores in each scale of JCQ and SD are shown in Table, according to gender and job status. Confidence coefficients were 0.55 in JD, and 0.79 in DL and SS.

The means of DL score decreased in order of job status, i.e. managers, permanent male employees, permanent female employees and temporary employees. The difference in the means was more marked in the SD score, which was a subscale of the DL.

The results of a generalized linear model analysis showed that the means of the SD score decreased significantly with decreasing job status, and that the score was higher in men than in women. Similar findings were observed in the means of DA, which was another subscale of the DL.

There was no difference in the means of the JD score between sexes and the job status.

Permanent female employees showed the lowest score of SS among the four groups of status. A weak association was found between the scores of SS, sexes and status. The scores of $SS'$, but not for those of CS, both of which were subscales of SS, showed a weak association with status.

Discussion

No difference was shown between the sexes and job status in the JD score of middle-aged employees in this computer manufacturer's. However, there
was a significant difference in the DL score, i.e. the scores were lower among women than men, and decreased significantly with decreasing job status. The DL scores in permanent male employees were lower than those in male managers, and scores in temporary female employees were lower than those in permanent female employees. These results meant that workers in lower job status had a higher incidence of job-related stress as estimated by the Karasek model.

A marked difference between the sexes and job status was found not only in the score of DA, which was a subscale of DL and reflected the authority in decision making, but also in the other subscale of SD, suggesting that women rather than men, and workers with less status, were required to engage in more monotonous and repetitious tasks.

Furthermore, the score of SS was lower in women than in men, and in the permanent male employees than in male managers. These results suggested that workers with increased work-related stress, according to differences in job status and gender, also received less social support. In the present study, therefore, work-related stress was found to be increased with decreasing job status, possibly suggesting that workers in lower job positions are at a higher risk of ischemic heart disease.

A high incidence of ischemic heart disease was once reported amongst high socio-economic groups⁴, however, recently in England, Wales and Australia, lower socio-economic groups have shown a higher incidence of ischemic heart disease⁵ ⁶. However, this discrepancy between previous reports from Western countries is thought mainly to reflect changes in lifestyle among different social classes over the past four decades⁵, i.e. increasing awareness of nutrition and physical activity among higher social classes, and increased energy intake and decreasing physical labor among lower social classes.

Since a large number of confounding factors may be involved in the association between occupations or occupational categories and the incidence of ischemic heart disease, it is difficult to draw a conclusion from the present limited scale study. However, attention should be paid to the relation between increased work-related stress and the incidence of ischemic heart disease in workers with lower job status.

References
THE RELATIONSHIP BETWEEN JOB STATUS, GENDER AND WORK-RELATED STRESS AMONGST MIDDLE-AGED EMPLOYEES IN A COMPUTER MANUFACTURING COMPANY

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あるコンピューター製造企業中年労働者での性従業上の地位と職業性ストレスとの関係

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職業性ストレスが心血管疾患発生の危険因子の一つとして注目されている。Karasek らは仕事の意志決定度（Decision latitude：DL）と仕事の要求度（Job demand：JD）の 2 つの尺度を提案し、JD が高く DL が低い集団に虚血性心疾患の発症が多いことを報告した。また Johnson らは、これに社会的支援（Social support：SS）を加えたモデルにより、SS が低いほど心血管疾患死亡率、有病率が高いことを示した。近年、川上らにより Karasek の考案した Job Content Questionnaire（JCQ）の日本語版が紹介されたので、これを用いて、あるコンピューター製造企業の 35–61 歳の労働者の性および従業上の地位と Karasek のモデルに
より評価される職業性ストレスとの関連性を検討した。
該当する労働者308人を対象としてJCQ質問票を用い
た自己記入式のアンケート調査を実施した。最終的に
286人から有効回答を得た（有効回答率93%）。その結
果、特にDL、SSにおいて、男性より女性で、また従
業上の地位が低くなるほど得点が低くなり、したがって
Karasekのモデルによる職業性ストレスが大であると
いう結果であった。対象者数も限られた今回の調査結果
から断定的な結論は下せないが、従業上の地位の低い労
働者の健康管理等にあたり、職業性ストレスが大きくな
りがちであることと、それによる虚血性心疾患の発生に
も、今後注意を払う必要のあることが示唆される。
(J Occup Health 1995; 37: 167-168)

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