

Original

Occupational and Household Stress Factors Correlate with Workers' Mental Health

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Abstract

In Japan, workers' mental health is a major occupational health concern. Several government guidelines concerning workers' mental health have been published, in order to promote occupational health in the workplace. However, while it is known that workers' mental health is affected by not only occupational but also household factors, few studies have sought to examine the multiple relationships among these factors in terms of how they affect an individual's mental health. Thus far, the discussion of this topic has been insufficient, and this may act as an obstacle for improving the mental health of workers.

The current study involved the execution of a questionnaire survey which the results helped determine the relationship between the above factors and workers' mental health. The survey questionnaire was distributed among 1,106 general workers employed in the electronic manufacturing industry in the central region of Japan between January and March 2008. The questionnaire was drafted with reference to Breslow's lifestyle index and the National Survey for Workers' Health by Japan's Ministry of Health, Labour and Welfare. In addition, the subjects were required to complete the General Health Questionnaire-12 (GHQ-12), to allow for an evaluation of their mental health. All questionnaires were self-assessed, without compulsion or obligation. Questionnaires were received from 1,105 subjects (response rate: 99.9%), and the average GHQ-12 score was 5.1 ± 3.4 . A multiple regression analysis was performed by using the stepwise method to evaluate multiple-factor relationships that contribute to the GHQ score. Seven factors, namely, human relations in the workplace, physical workload, home-related stress, physical exercise, age, family communication, and hobby, were adopted for the regression model ($R = 0.498$, $P < 0.001$). In addition, home-related stress significantly correlated with workers' mental health, and this correlation was as strong as that for occupational factors. Overall, the results suggested that workers' household factors should be considered while implementing precautionary measures with regard to workers' mental health.

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—Key words—

occupational health, mental health, General Health Questionnaire

Introduction

In Japan, workers' mental health has emerged as a serious occupational health issue in recent decades¹⁾. The results of the National Survey 2007 for Workers' Health by Japan's Ministry of Health, Labour and Welfare show that approximately 60% of workers have been estimated to have severe mental health challenges²⁾. In addition, as an annual average, over 30,000 people, including approximately 9,000 workers, committed suicide during recent decade³⁾, and there is no reason to believe that these statistics have changed greatly since then. These numbers suggest that workers' mental health is a severe occupational-health issue in Japan today.

Several government guidelines concerning workers' mental health have been published since the late 1980s, in an effort to promote better occupational health. In the most recent set of guidelines, the principal of a company is required to design and implement precautionary measures that include the so-called 4-cares: care

of workers' mental health by oneself, company line workers, occupational health staff, and special psychiatric staff⁹. This guideline outlines the responsibilities of both the principal and company workers in promoting health administration, especially in the workplace.

In spite of these guidelines, it is known that certain workplace factors adversely affect workers' mental health. Previous studies have shown that household factors, including those that relate to individual lifestyle, definitely influence workers' mental health⁵⁻⁹. However, since occupational and household factors have been previously deemed to be independent of each other, it is still unclear whether these two sets of factors affect workers' mental health concurrently. Evidence supporting either side of the debate remains insufficient, leaving the issue at a standstill; thus, workers' mental health challenges remain unresolved.

For all of these reasons, it is essential to evaluate the multiple factors affecting workers' mental health, including occupational and household factors. The current study investigated workers' mental health at an electronics manufacturing firm by using a cross-sectional questionnaire survey and sought to determine the relationship between these two sets of factors and workers' mental health.

Methods

The current study was performed at an electronics manufacturing firm located in the central region of Japan. A questionnaire survey was distributed among full-time, general workers (N = 1,106) between January and March 2008. Administrative workers ranking as a manager or higher (N = 70) were excluded from the study subject group.

The questionnaire was drafted while referencing both Breslow's lifestyle index (e.g. sleeping, smoking, drinking or exercise) and the National Survey for Worker's Health by Japan's Ministry of Health, Labour and Welfare. Questions addressed both household and individual factors, including age; gender; sleeping, drinking, smoking, and exercise habits; whether or not the individual pursued a hobby; medical treatment; family communication; and home-related stress. Other questions were related to occupational factors, including whether the individual worked only during the day or in shifts, the number of overtime hours worked, physical workload involved, communication among workers, work breaks, assistance from others, and human relations in the workplace. Descriptive answers were required for questions pertaining to age and overtime working hours, while preselected answers were provided for the other questions. In addition, subjects were asked to complete the General Health Questionnaire-12 (GHQ-12), which allowed for an evaluation of their overall mental health. Because the questionnaire was self-assessed, its results were anonymous, and the subjects were under no compulsion or obligation to complete it, it is believed to have no invasive effect; therefore, no written informed consent was obtained from the subjects. The study protocol was approved by the Occupational Health and Safety Committee of the manufacturing firm.

The GHQ-12 results were evaluated as per the methodology of Goldberg¹⁰. The four response options were given scores of 0-0-1-1; the total score, where higher scores indicated greater psychological distress, was used in the analysis. Selected answers were converted into dummy variables and were used in the analysis as well; continuous variables were adapted for analysis, following the confirmation of normal distribution. A multiple regression analysis was conducted to determine the several factors affecting the GHQ-12 score, and variables were evaluated with the β coefficient. All statistical tests were performed with PASW 18 software (SPSS Inc., Chicago, IL, USA).

Results

Questionnaires were received from 1,105 subjects (response rate: 99.9%), virtually all of whom were male (males: 1,051; females: 51; unknown: 3). The respondents' average age was 41.6 ± 6.5 , and the median was 42 (range: 21-59).

Table 1 shows the results of the household and individual questionnaire. Regular drinking and smoking was reported by 742 (67.2%) and 613 (55.5%) subjects respectively, while 191 subjects (17.3%) reported exercising on a regular basis. In the household questions, fewer than 10% of the respondents had answered that they experienced "poor communication within the family" or "high home-related stress."

Table 1 Questionnaire answers pertaining to household factors

Factor	Variables	Number (n = 1,105)	(%)
Gender	Male	1,051	95.1
	Female	52	4.7
Sleep	Sufficient	176	15.9
	Insufficient	919	83.2
Drinking	Never	159	14.4
	Occasionally	200	18.1
	Sometimes	286	25.9
	Everyday	456	41.3
Smoking	No smoking	489	44.3
	Current	613	55.5
Exercise	Never	477	43.2
	Occasionally	430	38.9
	Sometimes	170	15.4
	Everyday	21	1.9
Hobby	Yes	601	54.4
	No	480	43.4
Medical treatment	Yes	233	21.1
	No	870	78.7
Family communication	Good	554	50.1
	Varies	455	41.2
	Poor	89	8.1
Home-related stress	High	69	6.2
	Varies	682	61.7
	Low	346	31.3

(Incomplete answers not shown)

Table 2 Questionnaire answers pertaining to occupational factors

Factor	Variables	Number (n = 1,105)	(%)
Work style	Day work	434	39.3
	Shift work	668	60.5
Physical workload	Large	102	9.2
	Varies	718	65.0
	Small	282	25.5
Work breaks	Frequent	140	12.7
	Varies	899	81.4
	Infrequent	65	5.9
Communication among workers	Good	108	9.8
	Varies	908	82.2
	Poor	85	7.7
Assistance from others	Good	34	3.1
	Varies	942	85.2
	Poor	127	11.5
Human relations in the workplace	Good	69	6.2
	Varies	890	80.5
	Poor	141	12.8

(Incomplete answers not shown)

Table 3 Multiple-regression analysis of household and occupational factors for GHQ score

Variables	β	<i>P</i> value
Human relations in the workplace	0.265	<0.001
Physical workload	-0.208	<0.001
Home-related stress	-0.181	<0.001
Exercise	-0.119	<0.001
Age	-0.104	0.001
Family communication	0.098	0.001
Hobby	0.089	0.004

Table 2 shows the results of the occupational questionnaire. A total of 668 subjects (60.5%) reported that they worked in shifts; this is typical in the manufacturing industry. For most questions in the occupational factor questionnaire, most of the subjects answered "Varies"; no remarkable bias trend was seen for any set of answers. Among these, more than 10% of the respondents stated that they had experienced "Poor assistance from others" or "Poor human relations in the workplace." The average number of overtime work hours was 0.9 ± 1.0 per day, and the median was 0.5. The average GHQ-12 score was 5.1 ± 3.4 , and the median was 5.

Table 3 shows the results of the multiple regression analysis for GHQ-12 scoring. The multicollinearity of factors was calculated with a preliminary test, and the relationship between each factor was estimated. The stepwise method was applied, and seven factors were adopted for the multiple regression model ($R = 0.498$, $P < 0.001$). The following factors were found to be significant: human relations in the workplace ($\beta = 0.265$, $P < 0.001$), physical workload ($\beta = -0.208$, $P < 0.001$), home-related stress ($\beta = -0.181$, $P < 0.001$), exercise ($\beta = -0.119$, $P < 0.001$), age ($\beta = -0.104$, $P = 0.001$), family communication ($\beta = 0.098$, $P = 0.001$), and hobby ($\beta = 0.089$, $P = 0.004$). These factors were then used to generate a regression model for the GHQ-12 score of workers.

Discussion

For the current study, a cross-sectional, self-assessed questionnaire survey was conducted at an electronics manufacturing firm, to help determine the various household and occupational factors affecting workers' mental health. Human relations in the workplace was the factor that most strongly related to the GHQ-12 score. It is known from the results of the aforementioned National Survey in Japan that human relations in the workplace is the most important contributing factor to workers' mental health²⁾; several reports support this assertion¹⁾¹²⁾. Furthermore, the current study found that "home-related stress" significantly related to workers' mental health and that this correlation was as strong as that seen with occupational factors. According to the United States' National Institute for Occupational Safety and Health (NIOSH) stress model, the household is considered an important stressor or supporting factor with regard to workers' health. Workers should therefore pay attention to household factors for improving their health. However, in Japan, household factors do not seem to be strongly correlated with occupational health, despite the fact that recent guidelines in Japan refer to the NIOSH model. Indeed, additional comprehensive measures that involve both household and occupational factors are needed to successfully promote workers' mental health in Japan.

This study has several limitations. First, it was conducted for a certain subset of employees of only one electronics manufacturing firm in Japan. Therefore, this study's results may not apply to other kinds of workers or to the same kinds of workers in another country. Second, because this study was cross-sectional, a causal relationship could not be clarified; longitudinal study will be necessary to elucidate any detailed relationship. Third, the regression model consisted of many dummy variables, and therefore, the result might have been overestimated. In future research, continuous variables should be used in conjunction with questionnaire results.

Conclusion

The current study found that workers' mental health has a significant relationship not only with occupational factors but also with household factors and that these relationships occur simultaneously. One advantage of this study is that its results are based on survey data. A high response rate was obtained within a relatively large company. In the future, it is expected that the government will implement occupational mental health measures that also consider other household factors.

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労働者のメンタルヘルスには職場と家庭のストレス因子が複合的に影響している

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産業保健, メンタルヘルス, GHQ

わが国において労働者のメンタルヘルスの改善が課題となっている。この問題に対し、厚生労働省は労働者のメンタルヘルス対策のガイドラインを示し、事業場において対策を講じるよう求めている。しかし、一般的に労働者のメンタルヘルスには職場環境以外に家庭因子なども影響することが知られている一方で、職場と家庭のストレス因子の影響を複合的に評価した報告は多くない。よってこれらの情報不足は、労働者のメンタルヘルスの改善が進まない原因となっている可能性がある。この問題に対し、このたび製造業の労働者のメンタルヘルスと、職場因子と家庭因子の複合的な関係とを調査した。

対象は中部地方にある電子部品製造業の正規の一般労働者 1,106 名とし、調査は 2008 年に実施された。調査方法は無記名自己記入式アンケートとした。質問はブレスローの健康習慣と厚生労働省の労働者健康状況調査に基づいて作成した。また精神的健康度を測定するため、GHQ-12 の質問を加えた。調査の結果、1,105 名から回答があり(回答率 99.9%)、GHQ の得点は、平均 5.1 ± 3.4 点だった。GHQ の得点に対する職場因子と家庭因子の関係を調べるため、ステップワイズ法により変数を選択し、重回帰分析を実施した。その結果、職場の人間関係、労働の身体負荷、家庭のストレス、運動習慣、年齢、家族とのコミュニケーション、趣味、の 7 つの因子が採用され、有意な回帰式が得られた ($R=0.498$, $P<0.001$)。また、家庭のストレスは職場因子と同等の強さで GHQ の得点と相関していた。本結果から、労働者のメンタルヘルス対策を検討する際は、職場因子だけでなく家庭因子を同程度に含めた策を講じる必要があると考えられた。

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