

Work-sharing and male employees' mental health during an economic recession

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Background	One approach to reducing occupational stress during an economic recession is to share work amongst employees. This may include reducing employees' working hours to avoid redundancies.
Aims	To examine whether work-sharing influenced the psychosocial work environment and depressive symptoms encountered by Japanese employees, and to determine which psychosocial factors predict employees' mental health during an economic recession.
Methods	A survey was performed in a Japanese manufacturing company at the beginning (T1) and end (T2) of a 6-month period during the 2008 economic recession using the validated Job Content Questionnaire (JCQ) and Self-Rating Depression Scale (SDS).
Results	Three hundred and thirty-six male employees completed the questionnaire. Twenty-four per cent of participants showed depressive symptoms at T1. Despite reductions in employees' working hours and job strain ($P < 0.001$), SDS scores showed no change after 6 months. Logistic regression analyses showed that low social support between the two surveys was associated with depressive symptoms at T2 after adjusting for demographic, lifestyle, workplace factors, scheduled working hours and depressive symptoms at T1.
Conclusions	Reductions in job strain did not affect employees' depressive symptoms. Employees with low social support during the study had a significantly higher risk of having depressive symptoms. These findings indicate that social and emotional support within the workplace is important during the work-sharing period.
Key words	Depressive symptoms; economic crisis, job stress, job demands-control model, psychosocial job characteristics.

Introduction

Workers' perceptions of the psychosocial work environment are closely related to global economic patterns. It has been reported that job loss or adverse changes in work environment contribute to employees' work-related stress and poor mental health during economic recessions [1,2]. One way to reduce the negative effects of economic recession is to implement a work-sharing system to reduce redundancies [3]. In such circumstances when companies reduce production, the remaining work is shared equally among all workers, and working hours are reduced. One year after the global economic recession of 2008, the Japanese government, management and trade unions reached a general agreement on work-sharing plans. Some manufacturing companies reduced employees' working hours to maintain existing levels of

employment [4]. Little is known, however, about how effective the work-sharing system has been. This study examined whether work-sharing improved the psychosocial work environment and depressive symptoms of Japanese employees in these circumstances.

Methods

Data were gathered using a two-wave survey in September 2009 (Time 1: T1) and March 2010 (Time 2: T2) at a Japanese car manufacturing company, when the company had reduced production due to the economic recession caused by the global financial crisis of 2008. All participants were given written questionnaires. Participants completed all items of the validated Job Content Questionnaire (JCQ) [5] and the Self-rating Depression Scale (SDS) [6] at T1 and T2. A clinical cut-off of 50

was used for caseness in the SDS. Female employees were excluded. Employees who had been clinically diagnosed with depression at T1 were included in the analyses in order to make the study sample representative of the normal Japanese male population [7]. Participants' personal information including physical and mental illnesses or diseases (having any or none), body mass index (BMI), demographics (age, sex and marital status), work conditions (average working hours per week, night-shift duty, total income per year), behavioural factors (smoking, alcohol consumption and exercise) and occupational status were also collected at baseline. The study was approved by the Faculty of Medicine, Saga University Sciences Committee on Ethics and all participants provided written informed consent.

McNemar's tests or Wilcoxon signed-rank tests were used to compare responses between timepoints. The association between overall job strain and change in components of job strain (job demands control) was analysed using logistic regression ($P \leq 0.05$) and adjusted for change in working hours between T1 and T2 surveys. The average of T1 and T2 depressive variable responses ($[(T1+T2)/2]$) was used to assess changes in depressive symptoms over the 6-month period [8]. Finally, job strain, social support and the risk of depressive symptoms at T2 were evaluated using a hierarchical logistic regression analysis at T2 and between the two surveys ($[(T1+T2)/2]$). The statistical level of significance was set at 0.05. The analyses were performed using SPSS 22.0J for Windows (SPSS, Chicago, IL).

Results

Three hundred and thirty-six workers completed both questionnaires. There was no significant age difference

between participants ($n = 336$) and those who were excluded ($n = 273$; male employees who had not completed all items of JCQ and/or SDS at T1 and/or T2, and female employees who were only 7% of the respondents) (mean aged 31.74 versus 31.99 years; NS).

As Table 1 shows, the job demand score was significantly decreased ($P < 0.001$), while job control score was significantly increased ($P < 0.05$) between T1 and T2. Job strain was significantly decreased at T2 as compared to T1 ($P < 0.001$). The employees' working hours were also significantly decreased at T2 as compared to T1 ($P < 0.01$). On the other hand, support from both supervisors or co-workers did not change over time. Lifestyle factors also did not differ between T1 and T2. SDS scores showed no significant change. Changes in job demand and control were significant predictors for changes in job strain, independently from any change in working hours.

In the hierarchical logistic regression analysis (see Table 2, Model 3), high job strain at T2, medium and low social support at T2, and the low social support across the 6-month period ($[(T1+T2)/2]$) were significant predictors for depressive symptoms at T2 after adjusting for demographic, lifestyle, workplace factors, working hours at $(T1+T2)/2$ and SDS ≥ 50 at T1.

Discussion

This study showed that depressive symptoms did not have a significant relationship with job strain but did with low social support. There are several explanations for these results. A longitudinal study conducted during the same period (2008–2011) in Canada [9] suggested that a certain level of job strain actually might be protective of workers from depressive symptoms. Second,

Table 1. Change of the participants' psychosocial environment and lifestyle at T1 and T2 surveys

	T1		T2		<i>P</i> *
	Median	(25–75%)	Median	(25–75%)	
Job demand	36.0	(33.0–40.0)	34.0	(31.0–38.0)	<0.001
Job control	60.0	(50.0–68.0)	62.0	(52.0–68.0)	<0.05
Supervisor support	12.0	(10.0–13.0)	12.0	(11.0–13.0)	NS
Coworker support	12.0	(11.0–13.0)	12.0	(11.0–12.0)	NS
Job strain	0.60	(0.51–0.77)	0.56	(0.48–0.68)	<0.001
Working hours (h)	45.0	(40.0–45.0)	41.0	(40.0–45.0)	<0.01
Sleeping hours (h)	6.0	(6.0–7.0)	6.0	(6.0–7.0)	NS
BMI	21.2	(19.5–23.5)	21.2	(19.7–23.3)	NS
Smoking (yes, %)	67		66		NS
Alcohol intake (%)	59		57		NS
No habitual exercise (%)	72		75		NS
SDS score ^a	44.0 (40.0–49.0)		44.0 (38.0–49.0)		NS

^aTwenty-four per cent of participants showed depressive symptoms (SDS score ≥ 50) at T1.

**P* values of McNemar's tests or Wilcoxon signed ranks tests.

Table 2. OR(95% CI) of depressive symptoms at T2 according to job strain and social support at T2 and (T1+T2)/2

Job characteristic	Depressive symptoms at T2								
	Model 1			Model 2			Model 3		
	(n)	OR	(95% CI)	(n)	OR	(95% CI)	(n)	OR	(95% CI)
Job strain									
Time 2									
Low	(109)	1.00		(96)	1.00		(96)	1.00	
Medium	(153)	2.49	(1.22–5.08)	(125)	2.23	(0.98–5.12)	(125)	2.18	(0.90–5.28)
High	(54)	4.41	(1.87–10.38)	(42)	6.53	(2.41–17.71)	(42)	5.35	(1.82–15.73)
(T1+T2)/2									
Low	(75)	1.00		(64)	1.00		(64)	1.00	
Medium	(177)	2.27	(5.12)	(147)	2.58	(0.96–6.97)	(147)	2.10	(0.75–5.92)
High	(64)	2.97	(1.15–7.64)	(52)	4.69	(1.51–14.50)	(52)	2.88	(0.86–9.63)
Social support									
Time 2									
High	(94)	1.00		(80)	1.00		(80)	1.00	
Medium	(150)	2.12	(0.98–4.60)	(128)	3.13	(1.22–8.03)	(128)	3.22	(1.17–8.84)
Low	(72)	5.95	(2.56–13.82)	(55)	7.82	(2.81–21.77)	(55)	7.75	(2.53–23.74)
(T1+T2)/2									
High	(103)	1.00		(85)	1.00		(85)	1.00	
Medium	(145)	1.99	(0.93–4.25)	(127)	2.52	(1.02–6.20)	(127)	2.46	(0.96–6.34)
Low	(68)	7.04	(3.05–16.28)	(51)	9.56	(3.44–26.54)	(51)	6.72	(2.27–19.89)

OR (95% CI) of depressive symptoms were calculated with the clinical cut-off score of SDS: 50. Model 1: adjusted for age, work status, job type, shift, education, marital status, income, sleeping hours, BMI, smoking, alcohol intake, exercise, having diseases: $n = 336$. Model 2: additionally adjusted for working hours at (T1+T2)/2: $n = 263$. Model 3: additionally adjusted for SDS ≥ 50 at T1: $n = 263$. CI, confidence interval; OR, odds ratio.

Japanese employees often develop a family-like bond with their co-workers and supervisors [10]. Employees who did not have family-like bonds might have been isolated which might lead to depressive symptoms during the work-sharing period.

The present study had several weaknesses and limitations. First, data collection relied on self-reporting; therefore, outcomes might be biased. Second, all participants in this study were male employees in one manufacturing company; therefore, it is difficult to generalize the results. Third, not only depression, but also anxiety should be assessed to evaluate the workers' mental health. Lastly, work-sharing in the present study was more an imposed reduction rather than a volunteer reduction in working hours. Future studies should explore as to whether or not there are any differences between the independent, voluntary work-hour cut and the imposed work-hour cut on workers' mental health.

Regardless of the limitations, our study suggests a role for mental health check-ups and interventions to improve social support for employees, especially during the work-sharing period.

Key points

- Employees with low social support during the study period had a significantly higher risk of having depressive symptoms even during periods of work-sharing in which job strain was reduced.
- During an economic recession, an imposed reduction of working hours reduced job pressure but did not improve depressive symptoms.
- Social and emotional support within the workplace seems to play an essential role in this setting, particularly during work-sharing.

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Conflicts of interest

None declared.

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