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研究課題名（和文）グローバル企業における日本人労働者と海外現地労働者の健康状態の比較

研究課題名（英文）Comparison of health status of Japanese and overseas local workers in Japanese global companies

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研究成果の概要（和文）：研究成果として論文を2本執筆した1)多国籍企業における労働者のメンタルヘルス：日本とベトナムの国別比較」及び2)多国籍企業における労働者のプレゼンティズム：多国籍企業における労働者のメンタルヘルス：日本とベトナムの国別比較。 の論文はJournal of EOH-Practiceに投稿し現在査読中で、の論文は推敲し上記ジャーナルに投稿予定である。 の総括報告書をリコージャパン及びベトナムに提出後、従業員のメンタルヘルス及びウェルビーイングの改善を検討する上で大いに役立ったと報告を受けた。本研究成果を令和5年6月開催「第30回日中韓産業保健会議」において発表した。

研究成果の学術的意義や社会的意義

本研究は、従業員の幸福とパフォーマンスに影響を与える要因に関する科学的知見の拡大に寄与するものである。また、仕事上のストレス、仕事への満足度、従業員エンゲージメント、組織行動に関する理論やモデルの開発に貢献するものである。

本研究の結果は、従業員の幸福度と生産性の両方を高めようとする企業にとって、貴重な洞察を提供するものです。ストレス要因を特定することで、企業は柔軟な勤務形態、時間管理トレーニング、従業員支援プログラムなど、ワークライフバランスを促進する戦略を実施することを計画しました。

研究成果の概要（英文）：The research has been successfully completed, resulting in the creation of two manuscripts: 1) Workers' mental health in a multinational corporation: Cross-country comparison between Japan and Vietnam; and 2) Workers' presenteeism in a multinational corporation: Cross-country comparison between Japan and Vietnam. First paper is under review of Journal of Environmental and Occupational Health Practice. Second paper has been submitted to RICOH Japan and Vietnam for their feedback. Once we receive their feedback, we plan to submit the second paper to the same journal. Additionally, a comprehensive report was written and sent to RICOH Japan and Vietnam. They acknowledged that study report has significantly contributed to thinking on improvement of their workers' mental health and well-being. Furthermore, the findings of the study were presented at the 30th Japan-China-Korea Conference on Occupational Health, held on 23 June, 2022, in Kitakyushu, Japan.

研究分野：Occupational health

キーワード：Occupational health Job stress Presenteeism Japan Vietnam

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## 1 . 研究開始当初の背景

ILO Convention (No.161 of 1985)<sup>1</sup> and WHO Global Strategy of 1995<sup>2</sup> (ILO 1985a, WHO Global Strategy 1995) have objectives to develop healthy work environment and practice through the principle “for all with equity”. However, a great inequity is present among working people within and between the countries.<sup>3</sup> (Rantanen et al. 2013, Benach et al. 2007, WHO Global strategy on occupational health for all 1995). The Global Plan of Action on Workers' Health ) and the United Nations Meeting on Non-Communicable Diseases emphasize the importance of an integrated approach to enhance workers' productivity. While many companies have well-developed evaluation systems for occupational injury and exposure to hazards, few have systems in place to assess workers' overall health.

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## 2 . 研究の目的

This study aimed to identify the subjective matters of occupational health, including the occupational stress level, job stressors and presenteeism in workers in a multinational company, given that these problems have become an increasingly serious worldwide problems in recent years.

## 3 . 研究の方法

The data were collected at RICOH Japan and RICOH Vietnam subsidiaries of a multinational company headquartered in Japan. The Japanese data were anonymously collected via an online pre-administered questionnaire with the support of a professional company and, Vietnamese data were collected with support of RICOH Vietnam, between November 2021 and February 2022. The questionnaire consists of a total of 103 questions including i) 9 questions on general socio-demographic information; ii) 8 questions on self-rated health, iii) 7 questions on health and work performance, iv) 7 questions on work functioning, v) 57-items questionnaire on job stress; and vi) 15 questions on perception of organizational politics.

The following assessment tools were used: SF-8 Health Survey (SF-8), an 8-item short form designed to provide a health-related quality of life profile<sup>1</sup>; a work functioning impairment scale (WFun)<sup>4</sup> to measure presenteeism of workers, Brief Job Stress Questionnaire (BJSQ)<sup>5</sup> to measure occupational stress in both countries. The BJSQ uses 57 items to assess job stressors (17 items: e.g., psychological job demands, job control), stress responses (29 items: e.g., psychological and physical stress reactions), and buffering factors (11 items: e.g., social support at work). The study was approved by the Epidemiological Research Ethics Review Committee of Hiroshima University, Japan (E-2602) on 17 September 2021.

## 4 . 研究成果

### The demographic backgrounds of study participants:

- The RICOH Vietnam's workers were predominately female (76.0%) while the RICOH Japan's workers were predominantly male (85.9%).
- The RICOH Vietnam's workers were considerably younger than the RICOH Japan's workers; the average age was 36.5 and 45.5 years, respectively, and the proportion of over-50 workers was 4.2% and 40.9%, respectively.
- Proportion of university graduates were 37.4% and 14.8% in RICOH Japan and RICOH Vietnam, respectively.
- Almost half of RICOH Japan's workers (48.8%) has annual income between 4.0-7.9 million JPY; majority of RICOH Vietnam's workers (78.4%) has annual income less than 1.5 million JPY.
- Desk workers made up the majority of Japanese participants (68.5%), while labor workers made up the majority of Vietnamese participants (69.1%). The average number of working years was 22.7 and 12 years in the Japanese and Vietnamese companies, respectively.

## The work functioning impairment scale in workers of both companies:

**Table 1. Work-functioning impairment in RICOH Japan and RICOH Vietnam (WFun score)**

	RICOH Japan		RICOH Vietnam		Diff	p value
	Mean	SD	Mean	SD		
<b>Average WFun score</b>	15.93	6.96	10.00	4.48	5.93	<.0001
<b>Gender</b>						
Male	16.09	7.15	10.12	4.84	5.96	<.0001
Female	14.98	5.59	9.96	4.37	5.02	<.0001
<b>Age group</b>						
<30	15.68	7.28	9.94	5.45	5.74	0.0028
30-39	16.79	6.24	11.15	5.06	5.64	0.0001
40-49	14.73	6.60	9.95	4.64	4.78	<.0001
50-59	17.23	6.96	9.38	3.50	7.85	<.0001
>60	15.68	7.28	9.94	5.45	5.74	0.0028
<b>Education level</b>						
High School	15.72	7.12	9.92	4.59	5.79	<.0001
College	17.38	5.61	10.07	4.08	7.31	<.0001
University	16.02	6.96	10.75	4.24	5.27	<.0001
Others	15.50	4.95	8.50	5.18	7.00	0.0826
<b>Marital status</b>						
Single	15.34	6.51	10.87	5.64	4.47	0.0002
Married	16.00	7.08	9.90	4.32	6.10	<.0001
Others	16.88	7.00	9.33	3.56	7.55	0.0004
<b>Work type</b>						
Desk work	15.71	6.94	11.02	4.39	4.70	<.0001
Service work	17.25	9.46	None		NA	
Laborous work	16.37	6.95	9.54	4.46	6.83	<.0001
<b>Working years</b>						
0-4	15.39	6.18	10.66	4.92	4.73	0.0003
5-9	17.62	7.53	8.05	1.78	9.57	<.0001
10-19	15.23	6.71	9.78	4.56	5.46	<.0001
20-29	16.89	7.21	9.91	3.94	6.98	<.0001
>30	15.71	6.98	None		NA	

Diff (Difference) of WFun score = Mean (Japan) - Mean (Vietnam)  
 Diff >0 shows presenteeism scale in RICOH Japan is worse than RICOH Vietnam; yellow bar is proportional to size of difference.  
 NA - Not applicable

**Table 2. Factors affecting to work-functioning impairment of workers**

Factors affecting work-functioning impairment (WFun score)	OR	p value
<b>RICOH Japan</b>		
Sex (Ref: Female)	0.34	0.0193
Stress (Ref: No Stress)	5.29	<.0001
Job satisfaction (Ref: Job dissatisfaction)	0.37	0.0006
<b>RICOH Vietnam</b>		
Stress (Ref: No Stress)	4.95	0.0249
Colleague support (Ref: Job dissatisfaction)	0.50	0.0117

- The WFun score of RICOH Japan employees (Mean=15.93; SD=6.96) is significantly higher than that of RICOH Vietnam employees (Mean=10.00; SD=4.48), indicating a much greater presenteeism scale in RICOH Japan than in RICOH Vietnam.
- Regardless of sex, age, education level, marital status, work type and working years, RICOH Japan's workers had significantly higher presenteeism than RICOH Japan workers (Table 1).
- In RICOH Japan workers, 25% of them had WFun score that are between 7.00- 10.24 (25% percentile) and 25% have PCSs that are greater than 21 (75% percentile). In RICOH Vietnam workers, 25% of them had WFun score that are between 7.00- 8.00 (25% percentile) and 25% have PCSs that are greater than 12 (75% percentile).

- For RICOH Japan's workers, being male (OR= 0.34) and being satisfied with job (OR=0.37) had preventive effect for severe work functioning impairment.
- For RICOH Vietnam workers, colleague support (OR=0.50) shows preventive factor for severe work functioning impairment.
- Stress was the risk factor for severe work functioning impairment in both RICOH Japan' (OR=5.29) and RICOH Vietnam's workers (OR=4.95) (Table 2).

## The workers' job-stress

In general, RICOH Japan's workers had lower perceptions for all job stressors except quality workload, physical burden and supervisor support.

**Table 3. Job stress level, job stressors and their differences between two companies**

Job stressor and Job stressors	RICOH Japan		RICOH Vietnam		Diff	P value
	Mean or %	SD	Mean or %	SD		
<b>% of workers with stress</b>	<b>28.24%</b>	NA	<b>4.22%</b>	NA		<b>&lt;.0001</b>
<b>Causes of stress</b>						
Quantity workload	2.86	(1.04)	2.95	(1.08)	-0.09	0.296
Quality workload	2.98	(0.87)	2.22	(0.93)	0.76	<.0001
Physical burden	3.06	(0.83)	2.36	(1.02)	0.70	<.0001
Degree of control	2.91	(0.82)	3.98	(1.05)	-1.08	<.0001
Skill utilization	2.99	(0.80)	2.88	(1.13)	0.11	0.112
Interpersonal stress	3.47	(0.95)	3.99	(0.97)	-0.52	<.0001
Physical work environment	2.76	(0.70)	2.87	(0.97)	-0.11	0.1068
Job fitness	2.99	(0.97)	4.20	(1.15)	-1.21	<.0001
Sense of reward	2.98	(1.01)	4.03	(1.17)	-1.05	<.0001
<b>Mental and physical reactions caused by stress</b>						
Vigor	2.99	(1.10)	3.86	(0.97)	-0.87	<.0001
Irritation	3.25	(1.09)	3.97	(0.92)	-0.72	<.0001
Fatigue	3.12	(1.05)	3.96	(0.99)	-0.83	<.0001
Anxiety	3.19	(1.06)	4.01	(0.90)	-0.82	<.0001
Depression	3.33	(1.18)	4.20	(0.93)	-0.87	<.0001
Physical complaints	2.96	(1.06)	3.49	(0.89)	-0.53	<.0001
<b>Other factors that affect stress response</b>						
Supervisor's support	2.61	(1.14)	2.08	(1.34)	0.53	0.0024
Colleagues' support	3.07	(1.12)	4.43	(0.78)	-1.35	<.0001
Families' support	3.36	(1.33)	4.73	(0.61)	-1.37	<.0001
<b>Satisfaction</b>						
Job satisfaction						
Satisfied	70.29%	NA	95.51%	NA		<.0001
Dissatisfied	29.71%	NA	4.49%	NA		
Family life satisfaction						
Satisfied	79.12%	NA	98.94%	NA		<.0001
Dissatisfied	20.88%	NA	1.06%	NA		

Higher score indicates lower stress.

Numbers in red shows higher stress level compared to another company.

Diff = Mean (Japan) - Mean (Vietnam)

**Table 4. Adjusted differences in job stressors between RICOH Japan's and Vietnam's workers**

Job stressors	Coefficient/ Odds Ratio <sup>†</sup>	95%LI	95%UI	P value
<b>Job stress (% of workers with stress)<sup>†</sup></b>	<b>16.94</b>	6.28	45.70	<.0001
<b>Causes of stress</b>				
Quantity workload	0.38	-0.01	0.77	0.057
Qualitative workload	0.99	0.65	1.32	<.0001
Physical burden	0.38	0.02	0.64	0.036
Degree of control	-0.90	-1.25	-0.55	<.0001
Skill utilization	-0.65	-0.30	0.40	0.783
Interpersonal stress	-0.68	-1.03	-0.33	<.0001
Workplace stress	-0.65	-0.37	0.26	0.752
Job fitness	-1.25	-1.55	-0.76	<.0001
Sense of reward	-1.27	-1.68	-0.87	<.0001
<b>Mental and physical reactions caused by stress</b>				
Vigor	-1.21	-1.61	-0.82	<.0001
Irritation	-1.00	-1.39	-0.61	<.0001
Fatigue	-1.21	-1.60	-0.82	<.0001
Anxiety	-0.93	-1.31	-0.56	<.0001
Depression	-1.15	-1.55	-0.74	<.0001
Physical complaints	-0.78	-1.15	-0.41	<.0001
<b>Other factors that affect stress response</b>				
Supervisor's support	0.46	0.00	0.92	0.052
Colleagues' support	-1.76	-2.11	-1.41	<.0001
Families' support	-1.59	-1.98	-1.21	<.0001
<b>Satisfaction</b>				
Job dissatisfaction <sup>†</sup>	<b>11.17</b>	4.14	30.13	<.0001
Family dissatisfaction <sup>†</sup>	<b>21.91</b>	5.83	82.41	<.0001

<sup>†</sup> OR is calculated from the logistic regression

Coefficient is calculated from linear regression analysis and all regression coefficients indicate the adjusted differences of items between two countries unless indicated as <sup>†</sup>

Vietnam is taken as a reference in both linear regression and logistic regression

Regression models were adjusted with age, sex, marital status, work type and working years.

- Japanese employees (28.24%) were much more likely than Vietnamese workers (4.22%) to report feeling stressed at work.

- In Japan, supervisor support (M=2.61, SD=1.14), quantity workload (M=2.86 SD=1.04), and physical work environment stress (M=2.76, SD=0.70) had the lowest perception, while in Vietnam the supervisor support (M=2.08, SD=1.34), workload quality (M=2.22, SD=0.93) and physical burden (Mean=2.36, SD=1.02) had the lowest perception.

- Job dissatisfaction was higher among Japanese workers (29.71%) than Vietnamese workers (4.49%).

- Japanese employees (20.88%) expressed more dissatisfaction with family life than Vietnamese workers (1.06%) (Table 3).

- The quantity workload (p=0.057), skill utilization (p=0.783), and working environment (p=0.752) did not significantly differ between the two countries.

- The perception of quality workload (p<0.0001) and physical burden (p=0.036) was significantly higher for RICOH Vietnam's workers compared to RICOH Japan's workers.

- The largest score differences between RICOH Japan's and RICOH Vietnam's workers were observed for family support (Diff=-1.59, p<0.0001), colleague support (Diff=-1.76, p<0.0001), and sense of reward (Diff=-1.27, p<0.0001).

Table 5. Factors affecting to job stress

Factors affecting job stress	OR	p value
<b>RICOH Japan</b>		
Physical health	0.93	0.0006
Colleague support	0.57	<.0001
Job satisfaction (Ref: Job dissatisfaction)	0.38	0.0007
Family satisfaction (Ref: Job dissatisfaction)	0.46	0.0153
<b>RICOH Vietnam</b>		
Working year	0.90	0.0116
Supervisor support	1.77	0.0117
Family support	0.49	0.0138
Job satisfaction (Ref: Job dissatisfaction)	0.19	0.0165

Ref - reference variable

OR (odds ratio) was calculated from logistic regression.

Dependent variable is dummy variable: Stress and No stress

Probability modeled is "Being stressed" with reference to "No stress".

- Compared to Vietnamese workers, Japanese workers had greater odds of having job stress (OR=16.94, p=0.002), job dissatisfaction (OR=11.17, p<0001), and family dissatisfaction (OR=21.91, p<0.0001)
- Among RICOH Japan's workers, better physical health, high perception of colleague support, job satisfaction and family satisfaction had preventive effect for job stress.
- Among RICOH Vietnam's workers, increase of working years, higher perception of family support and job satisfaction had preventive effect for job stress.

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5. 主な発表論文等

〔雑誌論文〕 計0件

〔学会発表〕 計1件（うち招待講演 0件 / うち国際学会 0件）

1. 発表者名 Odgerel Chimed-Ochir
2. 発表標題 JOB STRESS IN A MULTINATIONAL CORPORATION: CROSS-COUNTRY COMPARISON BETWEEN JAPAN AND VIETNAM
3. 学会等名 30th Japan-China-Korea Conference on Occupational health
4. 発表年 2022年

〔図書〕 計0件

〔産業財産権〕

〔その他〕

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7. 科研費を使用して開催した国際研究集会

〔国際研究集会〕 計0件

8 . 本研究に関連して実施した国際共同研究の実施状況

共同研究相手国	相手方研究機関
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