Workplace vaccination opportunity against COVID-19 contributed to high perceived organizational support of employees in Japan: A prospective cohort study

Koji Mori1 | Takahiro Mori1 | Tomohisa Nagata1 | Hajime Ando2 | Ayako Hino3 | Seiichiro Tateishi4 | Mayumi Tsuji5 | Keiji Muramatsu6 | Yoshihisa Fujino7 | for the CORoNaWork Project

1Department of Occupational Health Practice and Management, Institute of Industrial Ecological Sciences, University of Occupational and Environmental Health, Kitakyushu, Japan
2Department of Work Systems and Health, Institute of Industrial Ecological Sciences, University of Occupational and Environmental Health, Kitakyushu, Japan
3Department of Mental Health, Institute of Industrial Ecological Sciences, University of Occupational and Environmental Health, Kitakyushu, Japan
4Department of Disaster Occupational Health Center, Institute of Industrial Ecological Sciences, University of Occupational and Environmental Health, Kitakyushu, Japan
5Department of Environmental Health, School of Medicine, University of Occupational and Environmental Health, Kitakyushu, Japan
6Department of Preventive Medicine and Community Health, School of Medicine, University of Occupational and Environmental Health, Kitakyushu, Japan
7Department of Environmental Epidemiology, Institute of Industrial Ecological Sciences, University of Occupational and Environmental Health, Kitakyushu, Japan

Correspondence
Koji Mori, Department of Occupational Health Practice and Management, Institute of Industrial Ecological Sciences, University of Occupational and Environmental Health, Japan, 1-1 Iseigaoka, Yahatanishi-ku, Kitakyushu 807-8555, Japan.
Email: kmori@med.uoeh-u.ac.jp

Funding information
Anshin Zaidan; Chugai Pharmaceutical Co., Ltd.; Hitachi Systems, Ltd.; The Collabo-Health Study Group; the Japanese Ministry of Health, Labour and Welfare, Grant/Award Number: H30-josei-ippan-002, H30-roudou-ippan-007 and 19JA100; The University of Occupational and Environmental Health, Japan

Abstract

Objectives: Perceived organizational support is a broad perception by employees about the extent to which their employer values their contributions and cares about their well-being. We examined the relationship between workplace vaccination opportunities for COVID-19 provided by companies and increases and decreases in perceived organizational support, using a prospective cohort study.

Methods: This study was conducted between December 2020 and December 2021 using a self-administered questionnaire survey in Japan. In total, 18,560 people responded to the follow-up, and were included in this study. The odds ratios (ORs) for the association between company-arranged vaccination opportunities for COVID-19 provided by companies and increases and decreases in perceived organizational support, using a prospective cohort study.

Results: The OR of high perceived organizational support at the follow-up after low baseline levels was significantly higher in participants given a vaccination.
INTRODUCTION

Perceived organizational support (POS) is defined as “a generalized perception developed by employees concerning the extent to which the organization values their contributions and cares about their well-being” [1,2]. POS increases employees’ positive orientation toward the organization, their subjective well-being and their positive work-related behavior, and decreases withdrawal activities through social exchange processes and self-enhancement processes. [2-4] Initiatives that enhance POS therefore have value for both the well-being of employees and the organization.

The main antecedents of POS are fair treatment, supervisor support, organizational rewards, and human resources and job conditions. [2-4] Human resources and job conditions include job security, flexible work practices, family supportive work practices, development opportunities and health promotion opportunities. However, few intervention studies or observational studies have examined the effect on POS of specific initiatives, including health promotion initiatives.

In response to COVID-19, which was declared a pandemic in 2020, public vaccination programs have been implemented in most countries, including Japan. However, Japan is unique in that it introduced a workplace vaccination program in addition to public vaccinations administered by the municipality. [5,6] Japan was behind other industrialized countries in initiating vaccination, and the workplace vaccination program was part of the government’s response to make up for the delay. The program has been effective in promoting vaccination, especially among people working for the large companies that were the primary targets. [7] In the public vaccination program using local medical resources, vaccinations were given in a defined priority order, starting with older people. It was anticipated that the workplace vaccination program would provide opportunities for early vaccination for the working-age population and help create a safe working environment.

METHODS

2.1 Study design and participants

This prospective cohort study was conducted from December 2020 to December 2021 by a research group, the Collaborative Online Research on Novel-coronavirus and Work (CORoNaWork) project of the University of Occupational and Environmental Health, Japan. Data were collected using a self-administered online questionnaire survey delivered via Internet survey company Cross...
Marketing Inc. The participants were workers aged 20–65 years at baseline; The sampling plan was designed to collect an equal number of respondents from across 20 collection units, each consisting of a combination of five regions, with comparable sex, and office and non-office worker status. Details of the study protocol for the baseline survey have been previously reported. Overall, we recruited 33,087 participants of whom 6,051 were excluded because they provided invalid responses. This left 27,036 participants at the baseline. We adopted the following criteria for invalidity: participants who completed the survey in an extremely short time; those who said they were shorter than 140 cm or weighed less than 30 kg; and those who gave inconsistent answers to multiple identical questions.

The participants received a follow-up survey in December 2021, one year after the baseline survey. A total of 18,560 participants responded to the follow-up survey (68.6% follow-up rate). The exclusion criteria for this study were as follows: participants who retired or changed jobs after the baseline survey self-employed workers; workers in small or home offices; and agriculture, forestry, and fishery workers. We also excluded participants who failed to respond to a question about POS at follow-up. This gave data for analysis from 4,971 participants whose baseline POS was high and 6,912 participants whose baseline POS was low. The flow is shown in Figure 1.

This study was approved by the Ethics Committee of the University of Occupational and Environmental Health, Japan (Approval numbers: R2-079 and R3-006). Informed consent was obtained from all participants on the website form.

2.2 | Assessment of POS

We evaluated POS at baseline and follow-up with a single question, drawing on a previous study: My company supports employees to be active in their work and lead healthy lives. Participants answered using a four-point scale (strongly agree, agree, disagree, and strongly disagree). We classified those who chose either to strongly agree or agree as having high POS, and the others as low POS.

2.3 | Company-arranged vaccination opportunities

In the follow-up survey, we asked participants, “Has your company arranged an opportunity for employees to receive...
the COVID-19 vaccine at the workplace, whether or not you took advantage of the opportunity?”. Participants could choose from three response options: yes, no, or unknown. We took “yes” to indicate that vaccination opportunities had been arranged, and the other answers to indicate that this was not the case.

### 2.4 Workplace infection control measures at baseline

A previous study reported that workplace infection control measures could improve POS during the COVID-19 pandemic. As a possible confounder, we asked participants at the baseline to choose whether each of the following nine workplace infection control measures had been implemented: prohibition or restriction of business trips; prohibition or restriction of visitors; prohibition on holding social gatherings and meals, or limiting the number of people participating; restriction on face-to-face meetings; requirement to always wear masks during working hours; installation of partitions and change in workplace layout; recommendation of daily temperature checks; recommendation to telecommute; and asking employees not to attend the workplace when sick. We classified the number of workplace infection control measures implemented into four categories: 0–2, 3–4, 5–6, and 7–9.

### 2.5 Assessment of covariates

The outcome variable of this study, POS, could be affected by a variety of factors because it represents the relationship between the worker and the belonging organization. In addition, the main explanatory variable, company-arranged vaccination opportunities, is affected by some workplace factors, such as company size and industry. Therefore, among the variables collected in the CORoNaWork project, various factors considered as possible confounders were used as covariates. The covariates included demographic information, occupation, job type, and company size. Age was categorized into five groups: 20–29, 30–39, 40–49, 50–59, and 60–65 years. Annual equivalent income was categorized into four groups: <2.50 million, 2.50–3.74 million, 3.75–4.99 million, and ≥5.00 million yen (in 2021, US$1 was equivalent to 109.75 yen). Education was classified into three categories: up to junior high or high school, vocational school or college, and university or graduate school. We categorized occupation into 10 categories: general employee; manager; executive manager; public sector employee, faculty member or non-profit organization employee; temporary or contract employee; self-employed; small office/home office; agriculture, forestry, and fishing; professional occupation (e.g., lawyer, tax accountant, medical-related); and other occupation. In line with this study’s selection criteria, we excluded self-employed, small office/home office, and agriculture, forestry, and fishing. This left seven categories of occupation. We categorized job type into three groups: mainly desk work; jobs mainly involving interpersonal communication; and mainly physical work. We categorized companies into three sizes by the number of employees: 1–49, 50–1000, and ≥1000 employees.

### 2.6 Statistical analyses

We examined changes in POS between baseline and follow-up in both directions. The subjects participated the survey from all over Japan. The situation of infection as well as various factors such as culture and natural environment differ from region to region. In COVID-19, decision-making and other responses to infection control measures, such as behavioral restrictions, have been made by each prefecture. Therefore, the odds ratios (ORs) for the association between company-arranged vaccination opportunities, and high POS at follow-up for participants with low POS at baseline, and with high POS at baseline were separately estimated using a multilevel logistic model nested in the prefecture of residence to account for regional variability. The multivariate model was adjusted for gender and age (Model 1) and additionally adjusted for annual equivalent income, educational background, occupation, job type, and size of company (Model 2). Finally, the model was adjusted for the number of workplace infection control measures (Model 3). A p-value of less than .05 was considered statistically significant. All analyses used Stata (Stata Statistical Software: Release 16; StataCorp LLC).

### 3 RESULTS

Table 1 shows the characteristics of participants by whether their employer had arranged for vaccination opportunities and POS at the baseline. Among participants with low baseline POS, the group with vaccination opportunities arranged by companies had higher income and higher education and were employed by larger companies that took more workplace infection control measures. The proportion of high POS at follow-up was higher in the group with vaccination opportunities than without. Similar tendencies were observed among participants with high baseline POS. In this group, 26.1% moved to low POS, and 28.7% with low baseline POS had high POS at follow-up.
TABLE 1  Characteristics of participants at baseline, grouped by whether workplace vaccination opportunity was provided by their employers

| Vaccination opportunity | Low POS at the baseline | High POS at the baseline |
|-------------------------|-------------------------|-------------------------|
|                         | No          | Yes         | No          | Yes         |
| Total                   | 3244        | 1727        | 3887        | 3025        |
| Gender                  |             |             |             |             |
| Men                     | 1842 (56.8%)| 923 (53.4%) | 2191 (56.4%)| 1716 (56.7%)|
| Women                   | 1402 (43.2%)| 804 (46.6%) | 1696 (43.6%)| 1309 (43.3%)|
| Age                     |             |             |             |             |
| 20–29                   | 127 (3.9%)  | 95 (5.5%)   | 205 (5.3%)  | 169 (5.6%)  |
| 30–39                   | 512 (15.8%) | 325 (18.8%) | 590 (15.2%) | 492 (16.3%) |
| 40–49                   | 1161 (35.8%)| 574 (33.2%) | 1182 (30.4%)| 888 (29.4%) |
| 50–59                   | 1169 (36.0%)| 618 (35.8%) | 1438 (37.0%)| 1175 (38.8%)|
| 60–65                   | 275 (8.5%)  | 115 (6.7%)  | 472 (12.1%) | 301 (10.0%) |
| Annual equivalent income (million yen) |             |             |             |             |
| <2.50                   | 739 (22.8%) | 258 (14.9%) | 698 (18.0%) | 319 (10.5%) |
| 2.50–3.74               | 945 (29.3%) | 440 (25.5%) | 879 (22.6%) | 625 (20.7%) |
| 3.75–4.99               | 854 (26.3%) | 536 (31.0%) | 1106 (28.5%)| 885 (29.3%) |
| ≥5.00                   | 706 (21.8%) | 493 (28.6%) | 1204 (31.0%)| 1196 (39.5%)|
| Education               |             |             |             |             |
| Junior high or high school | 1043 (32.2%)| 386 (22.4%) | 1073 (27.6%)| 629 (20.8%) |
| Vocational school or college | 747 (23.0%) | 420 (24.3%) | 793 (20.4%) | 618 (20.4%) |
| University or graduate school | 1454 (44.8%)| 921 (53.3%) | 2021 (52.0%)| 1178 (58.8%)|
| Occupation              |             |             |             |             |
| General employee        | 1888 (52.2%)| 894 (51.7%) | 1807 (46.5%)| 1417 (46.8%)|
| Manager                 | 335 (10.3%) | 166 (9.6%)  | 476 (12.2%) | 492 (16.3%) |
| Executive manager       | 79 (2.4%)   | 18 (1.0%)   | 303 (7.8%)  | 73 (2.4%)   |
| Public employee, faculty member, or nonprofit organization employee | 330 (10.2%) | 267 (15.5%) | 515 (13.2%) | 445 (14.7%) |
| Temporary or contract employee | 332 (10.2%) | 169 (9.8%)  | 388 (10.0%) | 301 (10.0%) |
| Professional occupation (e.g., lawyer, tax accountant, medical-related) | 160 (4.9%) | 196 (11.4%) | 227 (5.8%)  | 273 (9.0%)  |
| Other                   | 120 (3.7%)  | 17 (1.0%)   | 172 (4.4%)  | 24 (0.8%)   |
| Job type                |             |             |             |             |
| Mainly desk work        | 1691 (52.1%)| 840 (48.6%) | 2135 (54.9%)| 1768 (58.4%)|
| Mainly involving interpersonal communication | 677 (20.9%) | 415 (24.0%) | 948 (24.4%) | 677 (22.4%) |
| Mainly physical work    | 876 (27.0%) | 472 (27.3%) | 804 (20.7%) | 580 (19.2%) |
| Size of companies       |             |             |             |             |
| 1–49                    | 1369 (42.2%)| 309 (17.9%) | 1587 (40.8%)| 473 (15.6%) |
| 50–999                  | 1291 (39.8%)| 746 (43.2%) | 1390 (35.8%)| 1122 (37.1%)|
| ≥1000                   | 574 (18.0%) | 672 (38.9%) | 910 (23.4%) | 1430 (47.3%)|
| Workplace infection control measures |         |             |             |             |
| 0–2                     | 1062 (32.7%)| 203 (11.8%) | 706 (18.2%) | 164 (5.4%)  |
| 3–4                     | 648 (20.2%) | 236 (13.7%) | 649 (16.7%) | 249 (8.2%)  |

(Continues)
Table 2 shows the association between company-arranged vaccination opportunities and high POS at the follow-up by POS in the baseline.

Table 2 Association between company-arranged vaccination opportunities and high POS at the follow-up by POS in the baseline

| Vaccination by arranged by companies | Low POS at the baseline | High POS at the baseline |
|--------------------------------------|-------------------------|--------------------------|
|                                      | No          | Yes          | No          | Yes          |
| 5–6                                  |             |             |             |              |
|                                      | 650 (20.0%) | 420 (24.3%) | 805 (20.7%) | 530 (17.5%)  |
| 7–9                                  | 884 (27.3%) | 868 (50.3%) | 1727 (44.4%)| 2082 (68.8%)|

POS at follow-up

|          | Low POS at the baseline | High POS at the baseline |
|----------|-------------------------|--------------------------|
|          | No          | Yes          | No          | Yes          |
| Low      | 2409 (74.3%) | 1137 (65.8%) | 1117 (28.7%)| 688 (22.7%)  |
| High     | 835 (25.7%)  | 590 (34.2%)  | 2770 (71.3%)| 2337 (77.3%)|

Note: Model 1: adjusted for age and gender. Model 2: Model 1 + adjusted for annual equivalent income, education, occupation, job type, and size of company. Model 3: Model 2 + adjusted for workplace infection control measures.

POS: High (strongly agree and agree), low (disagree and strongly disagree). Abbreviations: CI, confidence interval; OR, odds ratio; POS, perceived organizational support.

Table 2 shows the association between company-arranged vaccination opportunities and high POS at the follow-up among participants with low baseline POS. In the age- and gender-adjusted model (Model 1), the group with vaccination opportunities had significantly higher OR than those without these opportunities (OR 1.49; 95% CI 1.32–1.67; p < .001). The results were similar in the model adjusted for the main socioeconomic factors (Model 2) (OR 1.39; 95% CI 1.21–1.59; p < .001). After adjusting for workplace infection control measures (Model 3), there was still a significant association between company-arranged vaccination opportunities and high POS (OR 1.31, 95% CI 1.14–1.50, p < .001).

4 DISCUSSION

When workplace vaccination opportunities were offered, we found that POS increased more among participants with low baseline POS, and decreased less among those with high baseline POS, than when these opportunities were not offered. These changes remained significant when we adjusted for workplace infection prevention measures, suggesting that the effect is independent of the increase in POS resulting from workplace infection prevention measures that was reported in a previous study.8

Previous studies have suggested that POS is higher when organizations voluntarily undertake initiatives to improve employee well-being in a manner that meets the needs of employees, rather than because of external pressures such as laws or labor union demands.2 The workplace vaccination program was initiated on June 21, 2021, and a significant number of eligible employees completed...
their second dose of vaccination in August–September. The public vaccination program was being preferentially offered to older adults at high risk of severe disease during this period. If no workplace vaccination opportunities were offered, employees had to wait their turn, and might be quite anxious about possible infection. Workplace vaccination opportunities were therefore not merely convenient, but met the needs of employees who wanted to be vaccinated earlier than would have been possible otherwise. The government provided the vaccine free of charge and subsidized the cost of COVID-19 vaccination in the workplace in Japan. However, employers in each organization decided whether to provide vaccination opportunities because it required an investment of company resources, including setting up facilities and securing medical personnel. Overall, 9,654,000 people received their second vaccine dose through the workplace vaccination program. The findings of this study suggest that employees perceived that their organization voluntarily provided vaccination opportunities to protect them from infection, rather than because it was seen as a business need.

It is possible that organizations that provided vaccination opportunities are also more proactive in their workplace infection control measures. In this study, we found that implementing more infection control measures in the workplace was associated with more vaccination opportunities. It has already been reported that proactivity in workplace infection control measures leads to improved POS. The level of infection control measures in the workplace could therefore have been a confounding factor in the relationship between vaccination opportunities and POS. However, in this study, adjusting for the number of infection control measures slightly reduced the OR, but the association remained significant. This suggests that the provision of workplace vaccination opportunities enhances POS independently of the effect of workplace infection control measures. In a situation such as a pandemic, where employees are feeling anxious about their health, health preventive measures such as infection control and vaccination are considered to be additively effective in improving POS.

A previous study reported that higher POS was associated with higher willingness to be vaccinated in the phase before the start of COVID-19 vaccination in Japan. It has also been pointed out that differences in vaccination coverage by company size were partially explained by opportunities for workplace vaccination. These findings suggest that the workplace vaccination program may have increased POS or have maintained POS in high, which in turn may have positively affected vaccination coverage. The 3C model (Confidence, Convenience, and Complacency) and the 5C model (Confidence, Constraints, Convenience, Calculation, Collective Responsibility) have been proposed as factors that influence individual decision-making processes about vaccination. The 5C model’s “Confidence” includes the factor of trust in the vaccine provider. In addition to the “Convenience” of being able to receive the vaccination in the workplace or at an easily accessible location, it is possible that the “Confidence” component of trust in the organization through POS improved or maintained in high may have contributed to higher vaccination coverage by workplace vaccination programs.

The high POS linked to vaccination opportunities in the workplace may have both direct and indirect benefits. The direct benefits include lower risk of infection and reduced severity of illness. The indirect benefits include improved psychological health for employees, such as lower stress reactions and higher work engagement. This can be viewed as both a business management value gain for employers through the positive psychological state and behavior of employees, and a business benefit of preventing employee infection. The fact that programs, such as infection control measures and vaccination opportunities, improved or maintained employee POS during the COVID-19 pandemic suggests that even outside of circumstances such as a pandemic, voluntary health promotion programs that address employee needs may be able to improve POS, and help to create a favorable organizational climate based on employee trust in the organization. However, few studies have examined how health promotion programs at the workplace affect POS, and more research is needed.

This study had some limitations. First, the survey was conducted via the internet, so generalizations should be made with caution. For example, online panelists may have obtained information about COVID-19 mainly through the internet, and the main information source of participants may affect the needs of a workplace vaccination program. However, we attempted to reduce any bias by using cluster sampling with stratification by gender, region and job type. Second, we evaluated POS using a single question, and the measurement validity was untested. The same indicators were used in a previous study, but further research is needed to validate the measures for POS. Third, this study examined the impact of vaccination opportunities provided by the organization, rather than whether employees actually received a vaccination at the workplace, or had the opportunity to do so. It is possible that employees of larger organizations who work in smaller workplaces outside the company headquarters did not have the opportunity to be vaccinated. In this case, inequity among employees may have occurred and the provision of workplace vaccination opportunities may actually have led to a decline in POS. However, this effect would not affect the significance of this study because it
would weaken the observed relationship between workplace vaccination opportunities and POS improved or maintained in high. Fifth, POS can be altered by a wide variety of factors. The relationship between workplace vaccination and POS may therefore be affected by confounding factors that were not included in this study. Sixth, we used a multilevel analysis nested by address location. It is possible that some of the participants have different address location between home and workplace. However, the impact of this difference is expected to be small by nesting by prefecture rather than municipality.

In conclusion, our results show that employee health support provided by an organization through a workplace vaccination program can contribute to high POS. High POS can lead to positive outcomes for both employees and organizations. Workplace vaccination programs during the pandemic may therefore have had benefits beyond infection control.

**AUTHOR CONTRIBUTIONS**

K Mori designed the analysis, analyzed the data, and wrote the manuscript. TM designed the analysis and reviewed the manuscript. TN created the questionnaire, advised on the study design and data interpretation, and reviewed the manuscript. HA, AH, ST, MT, and K Muramatsu reviewed the manuscript and advised on the data interpretation. YF was chairperson of the study group, created the questionnaire, advised on the data interpretation, and reviewed the manuscript.

**ACKNOWLEDGMENTS**

The current members of the CORoNaWork Project, in alphabetical order, are as follows: Dr. Akira Ogami, Dr. Ayako Hino, Dr. Hajime Ando, Dr. Hisashi Eguchi, Dr. Keiji Muramatsu, Dr. Koji Mori, Dr. Kosuke Mafune, Dr. Makoto Okawara, Dr. Mami Kuwamura, Dr. Mayumi Tsuji, Dr. Ryutaro Matsugaki, Dr. Seiichiro Tateishi, Dr. Shinya Matsuda, Dr. Tomohiro Ishimaru, and Dr. Tomohisa Nagata, Dr. Yoshihisa Fujino (present chairperson of the study group), and Dr. Yu Igarashi. All members are affiliated with the University of Occupational and Environmental Health, Japan. We thank Melissa Leffler, MBA, from Edanz (https://jp.edanz.com/ac) for editing a draft of this manuscript.

**FUNDING INFORMATION**

The university of Occupational and Environmental Health, Japan; the Japanese Ministry of Health, Labour and Welfare, Grant/Award Number: H30-josei-ippan-002, H30-roudou-ippan-007, 19JA1004, 20JA1006, 210301–1, and 20HB1004; Anshin Zaidan; The Collabo-Health Study Group; Hitachi Systems, Ltd.; Chugai Pharmaceutical Co., Ltd. The funder was not involved in the study design, collection, analysis, interpretation of data, the writing of this article or the decision to submit it for publication.

**DISCLOSURE**

Approval of the research protocol: the study was approved by the ethics committee of the University of Occupational and Environmental Health, Japan (reference No. R2-079 and R3-006). Informed Consent: Informed consent was obtained in the form of the website. Registry and the Registration: No. of the study/trial: N/A, Animal Studies: N/A, Conflict of Interest: The authors declare no conflicts of interest associated with this manuscript.

**DATA AVAILABILITY STATEMENT**

The data that support the findings of this study are available from the corresponding author upon reasonable request.

**ORCID**

Koji Mori https://orcid.org/0000-0002-8821-4438
Takahiro Mori https://orcid.org/0000-0003-4636-2253
Tomohisa Nagata https://orcid.org/0000-0001-9173-420X
Hajime Ando https://orcid.org/0000-0001-7717-0030
Ayako Hino https://orcid.org/0000-0002-4051-5311
Seiichiro Tateishi https://orcid.org/0000-0002-9774-6479
Mayumi Tsuji https://orcid.org/0000-0002-9579-4418
Keiji Muramatsu https://orcid.org/0000-0002-9445-6345
Yoshihisa Fujino https://orcid.org/0000-0002-9126-206X

**REFERENCES**

1. Eisenberger R, Huntington R, Hutchison S, Sowa D. Perceived organizational support. *J Appl Psychol*. 1986;71(3):500-507.
2. Kurtessis JN, Eisenberger R, Ford MT, Buffardi LC, Stewart K, Adis CS. Perceived organizational support: a meta-analytic evaluation of organizational support theory. *J Manag*. 2017;43(6):1854-1884.
3. Linda R, Eisenberger R. Perceived organizational support: a review of the literature. *J Appl Psychol*. 2002;87(4):698-714.
4. Sun L. Perceived organizational support: a literature review. *Int J Human Resour Studies*. 2019;9(3):155-175.
5. Ministry of Health, Labour and Welfare. About inoculation to medical staff etc. [In Japanese] Accessed 30 April, 2022. https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/vaccine_ryoujusha.html
6. Ministry of Health, Labour and Welfare. Notice of inoculation at the workplace [In Japanese]. Accessed 30 April, 2022. https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/vaccine_shokuuki.html
7. Mori K, Mori T, Nagata T, Ando H, Hino A, Tateishi S, Tsuji M, Muramatsu K, Fujino Y for the CORoNa work project. COVID-19 vaccination coverage by company size and the effects of workplace vaccination program in Japan: a cohort study. *Environ health Prev Med* 2022;27:29. doi:10.1265/ehpm.22-0091
8. Mori T, Nagata T, Ikegami K, et al. Workplace infection control measures increase perceived organizational support in Japan: a cohort study. *J Occup Environ Med* 2022. (in press).
9. Fujino Y, Ishimaru T, Eguchi H, et al. Protocol for a nationwide internet-based health survey of workers during the COVID-19 pandemic in 2020. *J UOEH*. 2021;43:217-225.

10. Kobayashi Y, Nagata T, Fujino Y, et al. Mori K for the CORoNaWork project. Association between perceived organizational support and COVID-19 vaccination intention: a cross-sectional study. *J Occup Health*. 2021;63:1-9.

11. OECD. Exchange rates (indicator). Accessed May 23, 2022. 10.1787/037ed317-en

12. Dorman C, Perera A, Condon C, et al. Factors associated with willingness to be vaccinated against COVID-19 in a large convenience sample. *J Community Health*. 2021;46(5):1013-1019. doi:10.1007/s10900-021-00987-0

13. Betsch C, Schmid P, Heinemeier D, Korn L, Holtmann C, Böhm R. Beyond confidence: development of a measure assessing the 5C psychological antecedents of vaccination. *PLos One*. 2018;13(12):e0208601. doi:10.1371/journal.pone.0208601

14. Hiraoka K, Nagata T, Mori T, et al. Fujino Y for the CORoNa work project. Association between willingness to receive the COVID-19 vaccine and sources of health information among Japanese workers: a cohort study. *Environmental Health and Prev*. 2020;27:94. doi:10.1265/ehpm.21-00284

**How to cite this article:** Mori K, Mori T, Nagata T, et al. Workplace vaccination opportunity against COVID-19 contributed to high perceived organizational support of employees in Japan: A prospective cohort study. *J Occup Health*. 2022;64:e12365. doi:10.1002/1348-9585.12365