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Title: Fear, worry and workplace harassment related to the COVID-19 epidemic among employees in Japan: prevalence and impact on mental and physical health

Short title: Workplace COVID-19 harassment and employees' health

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Abstract

Background: The impact of fear, worry, and workplace harassment related to COVID-19 on employees' mental has not been reported.

Methods: This was a cross-sectional study retrieving the sample from the cohort of full-time employees. Participants (n=1,448) completed an online questionnaire on March 19-22, 2020. We explored the frequency and examined whether fear, worry and workplace harassment related to COVID-19 had effects on employees' psychological distress and physical symptoms.

Results: Among 1,421 respondents, 80% had global fear or worry. One of 50 respondents (2.3%) had experienced workplace harassment related to COVID-19. Most of the fear and worry, and some workplace harassment were weakly but significantly associated with psychological distress and physical symptoms. Significant predictors of high global fear and worry about COVID-19 were being female, having at least one child, and having any chronic physical condition.

Conclusions: This study showed a high prevalence of fear, worry, and workplace harassment related to COVID-19 in Japan.

Word count: 150 words

Keywords: COVID-19, discrimination, occupational health, SARS-CoV-2, stigma.

INTRODUCTION

The Coronavirus (COVID-19) epidemic started in Wuhan, China, in late 2019 (1) and quickly spread to most countries in the world. While many countries took community-based measures to prevent the epidemic, occupational safety and health are also important (2). It has been suggested that the COVID-19 epidemic could increase psychological stress in the community (3-6). This stress could be due to fear of COVID-19 infection (3, 6), and also to harassment and discrimination (7, 8). However, the prevalence of fear, worry and workplace harassment related to COVID-19, as well as their impact on employees' mental and physical health has gone unreported. This cross-sectional study investigated the prevalence of fear and worry and workplace harassment related to COVID-19 at the early stage of the COVID-19 outbreak (March 19-22, 2020) and their association with psychological distress and physical symptoms among employees in Japan. While we already reported the proportion of implemented workplace measures (9) and their association with fear/worry related to COVID-19 and psychological distress and physical symptoms (10) using the same dataset, we first reported the findings focusing fear and worry and workplace harassment related to COVID-19 and their impact on mental and physical health of employees.

METHODS

This was a cross-sectional study of participants of a previous baseline survey conducted in February 2019. Self-reported questionnaire data was collected from 4,120 full-time employees invited from more than 500,000 pre-registered members of an Internet survey company. Following approval by the research ethics committee of the Graduate School of Medicine and the Faculty of Medicine, The University of Tokyo (No. 10856-(2)), we conducted an online survey of the baseline respondents from 19 to 22 March 2020 (9, 10).

Using a self-report questionnaire, we assessed respondents' sociodemographic characteristics and fear/worry about COVID-19. Global fear and worry over COVID-19 were measured by asking "Do you feel anxiety over COVID-19?" Responses were scored along a 6-point Likert-type scale (ranging from 1 "Not at all" to 6 "Feel strongly") that was dichotomized into high (4 or higher) and low (3 or less). An additional 12 items asked about topic-specific fears and worries, with each item rated on a 4-point Likert-type scale (ranging from 1 "Strongly disagree" to 4 "Strongly agree"). For the analysis, we used only nine items: six items on fear or worry about COVID-19 infection and three items on job instability caused by the epidemic. All items were selected based on preliminary factor analysis (Cronbach's alpha coefficients, 0.815 and 0.718, respectively).

Workplace harassment related to COVID-19 (e.g., being the target of sarcastic comments) was measured using five items, with each item rated "Yes" or "No." Any workplace harassment related to COVID-19 was defined if the respondent endorsed any of these items.

Psychological distress (lack of vigor, anger-irritability, fatigue, anxiety, depression) and physical symptoms in the last 30 days were evaluated using corresponding scales of the Brief Job Stress Questionnaire (11), with higher scores indicating greater distress or more symptoms. Psychological distress and physical symptoms were also assessed at baseline in 2019 and used as a control variable.

Announcement of measures taken by the company about the prevention of COVID-19 was asked and dichotomized into “Yes” or “No.” Chronic physical conditions that might affect the severity and mortality (12-14) of COVID-19 were also asked. Information about sociodemographic and occupational characteristics (gender, age, marital status, having at least one child, occupation, company size) was also elicited.

Standardized betas were calculated to evaluate the association of fears and worries and workplace harassment with psychological distress and physical symptoms, adjusting for gender, age, marital status, having at least one child, and occupational type (Model 1), and then for chronic physical conditions and psychological distress or physical symptoms at baseline (Model 2) by using multiple regression analysis. Factors associated with the global fear, worry about COVID-19 and workplace harassment were analyzed using the multiple logistic regression model (forced entry method). Statistical significance was defined as a two-sided $p < 0.05$. SPSS 26.0. Japanese version (IBM Corp., Armonk, NY, USA) was used.

RESULTS

A total of 1,448 respondents (35.1%) completed the survey in 2020. We excluded unemployed respondents ($n = 27$) so the final sample consisted of 1,421 respondents (**TABLE 1**). Scores of physical symptoms significantly but slightly decreased from baseline to the 2020 survey ($p < 0.001$). Approximately 80% of respondents reported strong or some global fear and worry about COVID-19 (**TABLE 2**); 68% to 81% of respondents endorsed items of fear of infection, while 32% to 53% did endorse items pertaining to fear of infection and worry about job instability. The proportion of respondents who reported any COVID-19 related workplace harassment was 2.3 %.

----- Insert **TABLE 1** and **TABLE 2** here-----

Global fear and worry about COVID-19 significantly correlated with psychological distress after adjusting covariates (Model 2: standardized coefficient $[\beta] = 0.103$, $p < 0.001$) and with physical symptoms after adjusting for the baseline score of physical symptoms and chronic disease (Model 2: $\beta = 0.091$, $p < 0.001$). Three of the six items and the sum score of fear and worry about infection significantly and weakly correlated both with psychological distress and physical symptoms (Model 2: $\beta = 0.050 - 0.095$); All three items and the sum score of fear and worry about job instability significantly correlated with psychological distress and physical symptoms (Model 2: $\beta = 0.060 - 0.118$). Two of five items (i.e., being the target of sarcastic comments, being harassed) were significantly but weakly correlated with physical symptoms (Model 2: $\beta = 0.052$, $p = 0.017$; $\beta = 0.083$, $p < 0.001$).

Significant predictors of high global fear and worry about COVID-19 were being female (odds ratio [OR], 2.51; 95% CI, 1.87 – 3.36), having at least one child (OR, 1.47; 95% CI, 1.02 -2.11), and having any chronic physical condition (OR, 1.57; 95% CI 1.05 – 2.34) (**TABLE 3**). Having any chronic condition was significantly associated with the workplace harassment (OR, 2.24; 95% CI 1.02 – 4.91).

----- Insert **TABLE 3** here-----

DISCUSSION

This cross-sectional study of employees of Japan showed that fear and worry related to COVID-19 was extremely high, as reported before in the community samples (3, 6): Four out of five reported global fear or worry, and more than two-third worried about the possibility of getting the infection. In addition, more than 30% of respondents worried about instability of their job due to the epidemic of COVID-19. The global fear and worry was more prevalent among females, those with having children, and those with chronic conditions that may affect the mortality from COVID-19. Also, the study found that a non-negligible proportion (2.3%) of respondents experienced workplace harassment related to the COVID-19. The workplace harassment was more prevalent among those with chronic physical conditions, but less among those with at least one child. Most fears of COVID-19 infection, worries about job instability and workplace harassment were weakly but significantly associated with psychological distress or physical symptoms. Occupational health professionals and primary care physicians need to be aware of the widespread fear and worry, as well as workplace harassment related to COVID-19 that may affect the mental and physical health of employees and patients. Employers should take appropriate action to discourage workplace harassment over COVID-19.

Several limitations warrant discussion. Our study used a cross-sectional design and all responses were self-reported. The sample was drawn from registered members of one survey company, and the follow-up rate was low. Finally, respondents' fear of infection, worry about employment insecurity and workplace harassment may depend on their country, culture, and the severity of the COVID-19 pandemic.

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TABLE 1. Demographic characteristics of Japanese full-time employees and the scores of mental and physical health in 2019 and 2020 (N = 1421).

	N (%)	Mean (SD) [min - max]
Male	716 (50.4)	
Mean age		41.21 (10.5) [21 - 60]
Marital status		
Single	695 (48.9)	
Married	726 (51.1)	
Having at least one child		
None	825 (58.1)	
Yes	596 (41.9)	
Company size		
>500 employees	577 (40.6)	
<500 employees	844 (59.4)	
Occupational type		
Managers	126 (8.9)	
Non-manual	892 (62.8)	
Manual	403 (28.4)	
Measures taken by the company for prevention of COVID-19 (any)	1135 (79.9)	
Chronic physical conditions (any) †	241 (17.0)	
Mental and physical health‡		
Psychological distress in 2019		41.23 (11.4) [18 - 72]
Psychological distress in 2020		41.16 (11.4) [18 - 72]
Physical symptoms in 2019		19.97 (6.5) [11 - 44]
Physical symptoms in 2020		19.22 (6.3) [11 - 44]

† Chronic physical conditions included hypertension, diabetes, heart disease (e.g., angina, heart failure), cerebrovascular disease (e.g., cerebral infarction, cerebral hemorrhage), cancer, malignant neoplasm, respiratory disease, liver disease, kidney disease, and other self-reported chronic disease.

‡ Scale scores of the Brief Job Stress Questionnaire. Higher scores indicates greater distress or more symptoms.

SD: standard deviation.

TABLE 2. Prevalence and associations with psychological distress and physical symptoms and fear, worry and harassment related to COVID-19 among employees in Japan (N = 1421).

Variables (possible range)	Prevalence		Psychological distress						Physical symptoms					
	Average (SD) †	Proportion, % ‡	Crude	Model 1§		Model 2§§		Crude	Model 1§		Model 2§§			
			β	p	β	p	β	p	β	p	β	p	β	p
Fear and worry about COVID-19 infection														
Global fear and worry about COVID-19 (1-6)	4.31 (1.21)	79.8	0.175	<0.001	0.183	<0.001	0.103	<0.001	0.130	<0.001	0.134	<0.001	0.091	<0.001
Fear and worry about infection (1-4)														
Difficulty to obtain medical supplies and hygiene products	3.18 (0.81)	81.4	0.118	<0.001	0.113	<0.001	0.051	0.016	0.081	0.002	0.074	0.005	0.033	0.132
Lack of correct information and knowledge	3.01 (0.80)	76.5	0.168	<0.001	0.160	<0.001	0.089	<0.001	0.123	<0.001	0.113	<0.001	0.072	0.001
Policies and responses of the national and local governments	3.02 (0.83)	75.4	0.179	<0.001	0.175	<0.001	0.095	<0.001	0.088	0.001	0.081	0.002	0.043	0.054
My family may be infected	2.88 (0.82)	71.9	0.117	<0.001	0.117	<0.001	0.070	0.001	0.070	0.008	0.066	0.012	0.027	0.220
Limiting daily activities	2.81 (0.80)	68.1	0.158	<0.001	0.150	<0.001	0.087	<0.001	0.094	<0.001	0.082	<0.001	0.062	0.005
I might be infected	2.77 (0.80)	67.9	0.146	<0.001	0.145	<0.001	0.079	<0.001	0.084	0.002	0.082	0.002	0.050	0.021
Sum of the above (6-24)	17.66 (3.51)	NA	0.205	<0.001	0.201	<0.001	0.112	<0.001	0.125	<0.001	0.117	<0.001	0.067	0.002
Fear and worry about job instability (1-4)														
Future prospects of my company	2.59 (0.94)	52.8	0.081	0.002	0.081	0.002	0.063	0.003	0.107	<0.001	0.108	<0.001	0.082	<0.001
My job not going along as usual	2.45 (0.90)	47.9	0.139	<0.001	0.142	<0.001	0.082	<0.001	0.117	<0.001	0.119	<0.001	0.060	0.006
I am afraid of losing my job	2.17 (0.91)	31.6	0.187	<0.001	0.180	<0.001	0.109	<0.001	0.190	<0.001	0.184	<0.001	0.118	<0.001
Sum of the above (3-12)	7.25 (2.20)	NA	0.168	<0.001	0.166	<0.001	0.105	<0.001	0.172	<0.001	0.170	<0.001	0.108	<0.001
Workplace harassment related to COVID-19 to oneself														
Being the target of sarcastic comments	N/A	1.4	0.073	0.006	0.076	0.004	0.040	0.054	0.074	0.005	0.077	0.003	0.052	0.017
Being harassed	N/A	0.5	0.060	0.024	0.060	0.023	0.043	0.038	0.125	<0.001	0.124	<0.001	0.083	<0.001
Being avoided	N/A	0.6	0.027	0.308	0.029	0.279	0.013	0.538	0.067	0.011	0.067	0.011	0.036	0.097
Being accused of poor preparedness for the prevention	N/A	0.6	0.061	0.021	0.063	0.017	0.041	0.052	0.063	0.017	0.064	0.015	0.022	0.324
Being forced to self-isolate at home	N/A	0.7	-0.012	0.663	-0.005	0.856	-0.003	0.904	-0.002	0.952	0.004	0.871	0.003	0.879
Any kind of workplace harassment	N/A	2.3	0.046	0.084	0.053	0.044	0.025	0.238	0.057	0.033	0.062	0.019	0.037	0.088

Note: Standardized β is calculated by using regression analysis.

† The item was scored with the higher score being indicative of greater anxiety related to COVID-19.

‡ The proportion of high fear and worry related to COVID-19 is shown: “strongly,” “some,” and “a little” (vs “little,” “almost none,” and “not at all”) for the global anxiety; “strongly agree” and “some agree” (vs. “some disagree” and “strongly disagree”) for anxiety about infection and job.

§ Adjusted for sex, age, marital status, child, and occupational type.

§§ Adjusted for sex, age, marital status, child, occupational type, chronic disease, and psychological distress or physical symptoms at baseline (2019).

* p<0.05. ** p<0.01.

SD: standard deviation. N/A: not applicable.

TABLE 3. Factors associated with fear, worry and harassment related to COVID-19 among Japanese workers (N = 1421).

	OR	95% CI	P value
Global fear and worry for COVID-19 (high) †			
Sex (male=0, female=1)	2.51	1.87 – 3.36	<0.001**
Age (for 10 years)	1.03	0.87 – 1.18	0.663
Marital status (single=0, married=1)	1.12	0.79 – 1.60	0.516
Having at least one child (no=0, yes=1)	1.47	1.02 – 2.11	0.038*
Company size (>500 employees=0, <500 employees =1)	0.95	0.72 – 1.27	0.743
Occupational type			
Manager	1.00		
Non-manual	0.72	0.42 – 1.23	0.227
Manual	1.02	0.59 – 1.79	0.936
COVID-19 related announcement from company (no=0, yes=1)	1.35	0.97 – 1.88	0.080
Chronic physical conditions ‡ (1>) (no=0, yes=1)	1.57	1.05 – 2.34	0.027*
Any harassment at workplace to oneself			
Sex (male=0, female=1)	0.91	0.43 – 1.94	0.808
Age (for 10 years)	1.00	0.69 – 1.45	0.998
Marital status (single=0, married=1)	1.92	0.82 – 4.45	0.131
Having at least one child (no=0, yes=1)	0.40	0.16 – 0.98	0.045*
Company size (>500 employees=0, <500 employees =1)	1.33	0.64 – 2.77	0.454
Occupational type			
Manager (reference)	1.00		
Non-manual	0.66	0.22 – 2.00	0.461
Manual	0.25	0.06 – 1.01	0.051
COVID-19 related announcement from company (no=0, yes=1)	1.37	0.51 – 3.69	0.536
Chronic physical conditions ‡ (1>) (no=0, yes=1)	2.24	1.02 – 4.91	0.045*

† High global fear and worry for COVID-19 is defined: “strongly,” “some,” and “a little” (vs “little,” “almost none,” and “not at all”).

‡ Chronic disease included hypertension, diabetes, heart disease (e.g., angina, heart failure), cerebrovascular disease (e.g., cerebral infarction, cerebral hemorrhage), cancer, malignant neoplasm, respiratory disease, liver disease, kidney disease, and other self-reported chronic disease.

OR: odds ratio. CI: confidence interval.