

Article

Changes in Work/Life Situations and Psychological Distress during the Prolonged COVID-19 Pandemic in Japan

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I. Introduction

This paper discusses the relationship between work/life situations and psychological distress as of June 2021, when the COVID-19 pandemic was having a prolonged impact. Specifically, we focus on psychological distress associated with the living situation under the infectious disease epidemic, such as refraining from going out and other activities, as well as household insecurity associated with job loss or income decline due to the COVID-19 crisis, and changes in work styles such as switching to remote work.

In Japan, the first case of COVID-19 infection was confirmed in January 2020, and the first state of emergency was declared in April 2020 following the first wave of infections. Although the first and second rounds of vaccinations progressed through the summer of 2021, daily life and economic activities had not fully recovered, and there was still a strong sense of anxiety about infection. In daily life, citizens continued to be asked to refrain from going out as much as possible or eating in large groups, which was a stress factor for many people. A total of four emergency declarations were issued through 2021, first targeting prefectures with severe infection situations and then expanding nationwide depending on the situation. Business operations were constrained or forced to respond over a long period of time to the government's requests to restaurants and other businesses to temporarily close or shorten their hours of operation, and companies were asked to reduce the number of commuters.

As of June 2021, the time of the fifth wave of the

Japan Institute for Labour Policy and Training (JILPT) panel survey (see Section III for details), more than one year had passed since the beginning of the pandemic. However, the pandemic had not yet been controlled since its outbreak,



which had a long-term impact on workers' work situations and their household budgets. With regard to the labor market, while no significant increase in the unemployment rate has been observed in Japan under COVID-19, the impact on employment was not at all small, with a sharp increase in the number of people taking leave in April 2020. During this period, many furloughs for employer reasons were observed due to employment adjustments.¹ Not only furloughs, but various other employment adjustments at companies have had a major impact on workers' lives, including reductions in overtime and scheduled working hours,² which in turn have reduced wages. In the case of those who lost their jobs under the COVID-19 pandemic as well as those who suffered a reduction in income or a reduction in working hours for employer reasons, it is speculated that the well-being of workers may have deteriorated significantly due to uncertainty about their livelihoods. Conversely, it can be hypothesized that those who were able to maintain secure work environments through switching to remote work as infections spread have retained their well-being.³ This study investigated these research questions.

II. Related literature

Changes in working and living conditions under

the COVID-19 pandemic can be a major determinant of people's psychological distress. Previous studies have discussed the impact of changes in working conditions, such as job loss, and lifestyle changes on people's psychological distress during the pandemic in the Japanese context (Kikuchi et al. 2020, Kimura et al. 2021, Nagasu et al. 2021, Shiota et al. 2022, Yamamoto et al. 2020, and Yasuda et al. 2022). Yamamoto et al. (2020) examined the mental health condition of people under a declared state of emergency and showed that psychological distress was likely to be heightened depending on people's circumstances and psychological characteristics. Kikuchi et al. (2020) discussed the tendency of low-income individuals and those with respiratory disease to have severe psychological distress under the pandemic. Regarding the effect of underlying diseases, they interpreted it as the fear of the possibility of becoming severely ill as a result of infection. Yasuda et al. (2022) found that the more infection control measures were implemented in the workplace, the more psychological distress was alleviated in the workforce. Nagasu et al. (2021) argued that inadequate sleep, nutrition, and other factors were related to psychological distress, and that younger and lower-income groups were more likely to have psychological distress. Shiota et al. (2022) noted that the experience of being laid off and changing jobs and the experience of temporary workplace closure were associated with psychological distress.

Referring to these findings of previous studies in the Japanese context, this study examined psychological distress due to changes in working conditions, such as job loss and reduced income, and the effects of remote work on reducing psychological distress when the pandemic became prolonged. In addition, we examine the impact of psychological distress caused by changes in the living environment during prolonged infectious disease conditions, such as refraining from going outside.

III. Data and variables

The dataset used in this paper is the fifth wave of the "JILPT Panel Survey on the Impact of COVID-19

on Work and Daily Life" (the JILPT survey) conducted by JILPT in June 2021. This panel survey was designed to examine changes in the situation of employed workers. It started on April 1, 2020 (first wave), and subsequently was conducted on an ongoing basis at several points in time, with the June 2021 survey being the fifth (see JILPT 2021). Series of data from the survey are available as panel survey data that track the same individuals, but in this paper, the fifth wave was analyzed as cross-sectional data rather than as panel data.

While the pandemic's major impact on the labor market was seen particularly in April and May 2020, during the early stages of the epidemic, this study used survey data from June 2021, approximately one year later, to examine the impact of changes in working and living conditions on psychological distress during the phase of the pandemic's long-lasting effects. The sample to be analyzed includes not only those who had been continuously employed by the same company from April 2020 to the time of the survey, but also those who had lost their jobs or changed jobs in 2020 or 2021. Based on the JILPT survey, it is possible to identify employment status at the time of the survey, as well as the experience of job loss, reduced income, and reduced working hours associated with COVID-19. Using this information, we mainly discuss the impact on people's psychological distress of their experiences with these changes in working conditions.

The variables for changes in working conditions under COVID-19 are as follows. First, with regard to job loss, reduced income, and decreased working hours, respondents were asked whether they experienced these events in relation to COVID-19. "Job loss" was measured by whether any of the following occurred: layoff, termination of employment contract, or loss of employment due to the closure or bankruptcy of the employer. Decrease in working hours includes reduction in working days and furloughs. The survey also asked whether the employer had implemented remote work measures under COVID-19, which was used as an indicator of remote work experience among workers.

In addition to changes in the working environment,

this study also examined stressors in daily life associated with the prolonged effects of the infectious disease. First, a matter closely related to infection anxiety is the presence of underlying medical conditions that can become severe with COVID-19 infection. The questionnaire asked about the presence or absence of illnesses, injuries, or disabilities requiring regular hospital visits, or underlying medical conditions that put the patient at high risk for severe COVID-19 infection, which was used as an indicator.

The presence of family members or business associates who have been affected by COVID-19 is also related to the risk of infection and infection anxiety. The survey questionnaire asked whether anyone around them had contracted COVID-19 between the outbreak of the pandemic and the time of the survey, and this was used as an indicator. The survey also asked whether that person had ever contracted COVID-19, which was used as a control variable in the regression analysis in Section V (Table 4).

Refraining from eating out, traveling, and other activities in daily life is also a matter of psychological distress under the spread of infection. Respondents were asked whether or not they were refraining from (cancelling, postponing, etc.) any activities due to the infectious disease. Seventeen items were listed as multiple-response options, including eating out, travel/leisure, entertainment, and dinner parties. In the aggregate, a particularly high percentage of respondents refrained from “travel and leisure,” followed by “eating out,” “socializing with friends,” “outing to sports games, concerts, etc.,” “dinner and social gatherings with colleagues,” and “returning to hometowns.”

Furthermore, vaccination status was also examined in relation to psychological distress, since respondents were asked whether they had received one or more doses of vaccine at the time of the survey.

Psychological distress was measured by the K6, a scale that examines psychological distress over the past 30 days (Kessler et al. 2002). The validity of the Japanese version of the K6 has been confirmed

(Furukawa et al. 2008). The K6 is a six-item self-report measure asking respondents how often they have felt nervous, hopeless, restless, so depressed that nothing could cheer them up, that everything was an effort, and worthless in the past 30 days. Each response is scored from 0 (never) to 4 (always), and the total score for 6 items (0 to 24) is considered. The higher the K6 score, the higher the psychological distress, which is usually discussed with a specific cutoff point.

Many previous studies have treated a K6 score of 5 or higher as psychological distress. In addition, a K6 score of 13 or higher is often analyzed as “severe psychological distress.” In light of these previous studies, this study considered a K6 score of 5 or higher as psychological distress, and in basic statistics, referring to the classification in previous studies such as Yamamoto et al. (2020), a score of 4 or lower was treated as “no or low” psychological distress, 5 to 12 as “mild to moderate” psychological distress, and 13 or higher as “severe” psychological distress.

IV. Descriptive statistics

1. Distribution of psychological distress in the target sample

First, basic statistics of psychological distress were examined. Figure 1 shows the relative frequency distribution of K6 scores. More than 30% of the respondents had a K6 score of 0, but there were also a certain number of respondents with high psychological distress, indicated by a high K6 score.

Table 1 shows the status of psychological distress by sex, age group, and marital status. Overall, the percentage of those with psychological distress, as indicated by a K6 score of 5 or higher, was 44.4% (total of “mild to moderate” 29.8% and “severe” 14.6%). There was no significant difference in psychological distress between men and women, but there were indications that psychological distress varied by age and marital status. By age group, the percentage of those with psychological distress was higher for younger age groups, such as those in their 20s and 30s. As for marital status, married respondents were less likely to be distressed.

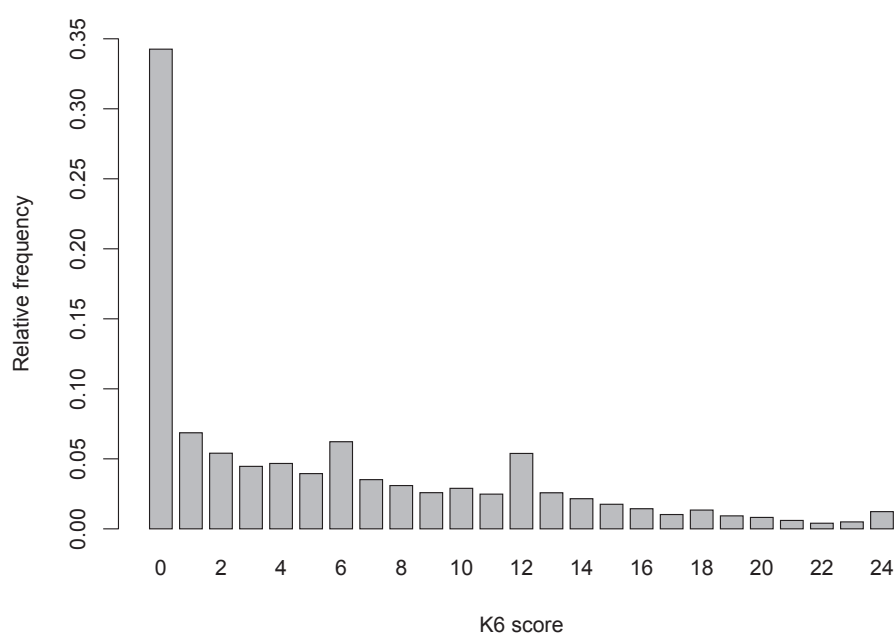


Figure 1. Distribution of K6 scores

Table 1. Psychological distress by sex, age, and marital status (%)

		Psychological Distress			(N)
		No or Low	Mild to Moderate	Severe	
All samples		55.6	29.8	14.6	4,051
Sex	Men	56.8	28.9	14.3	2,164
	Women	54.2	30.8	14.9	1,887
Age group	20s	45.6	32.8	21.6	667
	30s	49.3	31.9	18.9	954
	40s	55.8	29.7	14.6	1,153
	50s	64.3	26.6	9.1	930
	60s	68.3	27.7	4.0	347
Marital status	Not-married	49.2	32.9	17.9	2,004
	Married	61.8	26.8	11.3	2,047

2. Psychological distress by changes in work conditions

Under COVID-19, not only anxiety about infection but also livelihood insecurity were stressors that could not be ignored. The drastic changes in the working environment under the pandemic were closely related to livelihood instability. Table 2 shows the relationship between psychological distress and the following situations: job loss, reduced income, reduced working hours, and implementation of remote work. Psychological distress tended to be higher among those who suffered job loss, decreased

income, and decreased working hours under the pandemic. From these trends, we can infer that those who were severely affected in a fragile labor market under the economic crisis, such as by job loss or reduced income, were more likely to be exposed to household instability. On the other hand, psychological distress was slightly lower among those who experienced remote work. We can infer that the ability or opportunity to work remotely made it likely to maintain decent working conditions even under the COVID-19 labor market.

Table 2. Psychological distress by change in work conditions under COVID-19 (%)

		Psychological Distress			(N)
		No or Low	Mild to Moderate	Severe	
All samples		55.6	29.8	14.6	4,051
Job loss	No	56.3	29.8	13.8	3,951
	Yes	27.0	29.0	44.0	100
Decreased income	No	59.3	28.1	12.6	2,819
	Yes	47.0	33.8	19.2	1,232
Decreased working hours	No	58.1	28.9	13.0	3,057
	Yes	47.8	32.8	19.4	994
Implementation of remote work	No	54.6	30.2	15.1	3,005
	Yes	58.3	28.6	13.1	1,046

3. Psychological distress by daily life changes under COVID-19

Next, we examined the relationship between daily life under COVID-19 and psychological distress, particularly in relation to the risk of infection and refraining from going out. Table 3 shows that people had higher psychological distress when they had underlying medical conditions that could be severely affected by infection or a situation where they were surrounded by affected people. We can speculate that high infection anxiety was related to psychological distress. Refraining from going out in daily life was also a stress factor. In the table, the relationship between psychological distress and the number of outside activities from which respondents refrained among the 17-item list in the questionnaire was examined, with “no” as the case of 0, “some” as the case of 1 to 3, and “a lot” as the case of 4 or more.

The more the respondents refrained from going out, the higher the percentage of psychological distress.

Furthermore, this survey as of June 2021 did not show a clear trend in the relationship between vaccination status and psychological distress. Regarding this point, it is possible that the relationship between vaccination status and psychological distress was not confirmed at the time of the survey because it was a time before vaccination of the general population expanded significantly. At that time, healthcare workers and those at high risk of infection, such as those with underlying medical conditions and the elderly, were vaccinated ahead of the rest of the population. It can be expected that the expansion of vaccination to the general population through the summer of 2021 could have had an impact on distress reduction.

Table 3. Psychological distress by daily life changes under COVID-19 (%)

		Psychological Distress			(N)
		No or Low	Mild to Moderate	Severe	
All samples		55.6	29.8	14.6	4,051
Underlying medical conditions	No	57.3	29.6	13.0	3,437
	Yes	45.8	30.9	23.3	614
COVID-19 infection of surrounding persons	No	57.8	29.3	13.0	3,273
	Yes	46.4	32.1	21.5	778
Refraining from outside activities	No	61.5	26.0	12.4	676
	Some	55.7	29.9	14.4	1,871
	A lot	52.8	31.4	15.8	1,504
Vaccination status	No	55.4	29.6	15.0	3,505
	Yes	56.6	31.3	12.1	546

V. Estimation results

Based on the trends in the basic statistics above, a logistic regression was performed with psychological distress as the explained variable. Although not listed in the next table, the following variables with regard to information as of April 2020 were controlled for and estimated: employment type, industry, occupation, size of enterprise, and region of residence. As a factor affecting psychological distress, income level and COVID-19 infection (past or present) in the respondent has also been controlled for.

Table 4 shows the estimation results. In addition to the estimation results of coefficients, average marginal effects (AME) were also computed, which allows one to read the change in the probability of the explained variable when each explanatory variable changes by one unit. Looking at the results, psychological distress was more likely to be higher if the person had underlying medical conditions that could be made more severe by infection with COVID-19 or if the person had a family member or business associate with the disease. This result could be interpreted as involving infection risk and infection anxiety. In examining the relationship

between COVID-19 infection in close relatives and psychological distress in the respondents themselves, the respondents' own infection could be a factor related to both. However, since the respondents' own infection was controlled for in Table 4, it was assumed that having a close relative with the disease was related to distress regardless of whether the respondents had the disease or not.

In addition, psychological distress was higher among those who refrained from many outings in their daily lives, suggesting that refraining from outside activities was a stress factor for people during the pandemic. In terms of vaccination status as of June 2021, no direct relationship with psychological distress was verified.

Furthermore, it was confirmed that major changes in the work environment during the pandemic also had a significant impact on the psychological distress of workers. First, psychological distress was more likely to be higher when the respondents experienced job loss due to employer reasons or when their income decreased. Job loss and income reduction are events related to livelihood insecurity, and the changes in the labor market during the COVID-19 crisis were thought to have had a significant impact on workers' psychological distress. Conversely, the

Table 4. Estimation results of psychological distress under COVID-19

	B	SE	AME
Age	-.026 ***	(0.003)	-.006
Women	-.163 *	(0.085)	-.037
Married	-.370 ***	(0.072)	-.084
Job loss	1.026 ***	(0.233)	.232
Decreased income	.418 ***	(0.079)	.095
Decreased working hours	.150 *	(0.086)	.034
Implementation of remote work	-.199 *	(0.091)	-.045
Underlying medical conditions	.567 ***	(0.092)	.128
COVID-19 infection of surrounding persons	.326 ***	(0.085)	.074
Refraining from outside activities	.077 ***	(0.015)	.017
Vaccination	-.153	(0.127)	-.035
χ^2		346.644	
-2 Log Likelihood		5218.472	
McFadden pseudo-R2		0.062	
N		4,051	

Robust standard errors in parentheses *** $p < .001$; ** $p < .01$; * $p < .05$; + $p < .10$.

implementation of remote work measures at the company was confirmed to have worked in the direction of lower psychological distress. The implementation of remote working under the spread of infection could be interpreted as having contributed to the stability of working conditions as well as to the suppression of infection anxiety.

VI. Conclusion

Based on survey data in June 2021, this study examined how changes in working and living conditions affected people's psychological distress during the prolonged pandemic. The study method was a cross-sectional data analysis, using psychological distress as the outcome variable.

In terms of changes in living conditions during the pandemic, the presence of underlying medical conditions related to infection risk and the presence of infected people around the respondent were related to psychological distress, as well as the tendency to be distressed associated with refraining from outside activities. Psychological distress caused by refraining from going out was considered to be a situation that was closely related to infection anxiety. Regarding changes in working conditions, the results revealed that job loss and reduced income were associated with high psychological distress, indicating the presence of household insecurity associated with the drastic changes in the labor market during the COVID-19 crisis.

The results of the analysis indicated that as of June 2021 people were exposed to a variety of stressors related to changes in work and life during the prolonged COVID-19 pandemic. It would not be surprising that the living environment, where people were forced to refrain from going out for a long period of time, as well as the fear of infection, played a significant role in psychological distress. In addition to these issues, the results clarified that the worsening of the employment situation during the COVID-19 crisis, such as job losses and income decline, was deeply related to people's psychological distress, and that the implementation of remote work in companies was thought to be a factor in reducing workers' psychological distress.

With the variety of stressors in a pandemic situation, reducing psychological distress is important for individual well-being. For society as a whole, the elimination of infection risk and household insecurity are important policy issues, and both infection control measures and measures to maintain economic activity are strongly required. The diversity of factors involved in individual psychological distress during a pandemic poses a difficult challenge for Japanese society.

* This is a revised article based on Takami 2021 (published on November 2, 2021, in Japanese) with additional updated analysis for *Japan Labor Issues*.

1. According to the Ministry of Internal Affairs and Communications' *Labor Force Survey*, the number of employees not at work rose to 5.97 million in April 2020 from 1.77 million in average in 2019. See also Table 1 in Statistical Indicators in the back of this issue.
2. The Ministry of Health, Labour and Welfare's *Monthly Labour Survey* noted that non-scheduled working hours such as overtime decreased markedly by 30.7% year-on-year in May 2020.
3. Based on JILPT panel survey data, 29.0% experienced remote work during the pandemic in 2020. See Takami (2022).

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