

The Effects of a Workplace Mental Health Screening Program: Evidence from Japan

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This research is highly preliminary

Introduction of the commentator

- ▶ Dr. Hiroyuki Motegi
- ▶ Researcher, National Institute of Population and Social Security Research
- ▶ Ph.D. in Economics, the University of Tokyo, 2021
- ▶ Research interests:
 - Labor economics, Economics of education, Applied microeconometrics, Empirical analysis, Program evaluation and Economics

Today's plan

- ▶ Chapter 1: The Effects of a Workplace Mental Health Screening Program: Evidence from Japan
- ▶ Chapter 2: Who Benefits from Health Signals? (with Toshiaki Iizuka, and Hitoshi Shigeoka)
- ▶ Due to time constraints, I will only talk about Chapter 1

Introduction

- ▶ WHO estimated one in eight people in the world live with a mental disorder ¹
- ▶ Are the issues of mental illness important in economics?
 - Not only the cost of individual health and medical expenses.
 - These also affect presenteeism, absenteeism, and turnover at the workplace
- ▶ **Preventive care for mental illness** is the solution
 - Early detection and early treatment of mental illness
 - Screening for mental illness in the workplace is a valuable approach²

¹WHO (2022a)

²WHO (2022b)

Introduction

- ▶ Effectiveness of screening for mental illness in the workplace remains unclear
 - Small sample sizes (Ketelaar et al. (2013))
 - Do not establish a causal relationship (Imamura et al. (2018))
- ▶ In physical health, the effects of screening are not observed on average, but they are effective for high-risk individuals (Jones et al. (2019), Iizuka et al. (2021))
- ▶ The effects of information provision on firms should also be considered
 - Information asymmetry where firms cannot observe worker's health (Pichler and Ziebarth (2017), Barone (2023))
 - Firms want to reduce costs due to mental health but lack information

Research Questions

- 1 Does screening for mental illness improve workers' mental health and labor outcomes?
 - 2 What are the important channels to improve mental illness in screening
 - Informational interventions for individuals? (individual channels)
 - Improving workplace environment using screening information of employees? (Workplace channels)
- ▶ Use the mandatory MH screening program in Japan as an exogenous variation

Related Literature

- ▶ The effects of Workplace Wellness Programs (Jones et. al (2019))
 - The effects of wellness programs on physical health have not been observed
 - There is a selection bias where healthier individuals tend to participate in wellness programs
- ▶ Delayed mental health treatment (Prudon (2024))
 - Longer delays in mental health treatment lead to worsened labor outcomes
- ▶ Effect of mental health screening (Ketelaar et al. (2013), Imamura et al. (2018))
 - Workplace improvements are more important than individual channels

Institutional Background ①

- ▶ Stress Check Program in Japan (2016-)
 - Mandatory for establishments with **50 or more employees every year**
 - Failure to report the results may result in a fine of up to 500,000 yen
- ▶ The part with obligations
 - Plan for the implementation of stress checks
 - Assessment of stress by questionnaire
 - **Notification of results to workers**

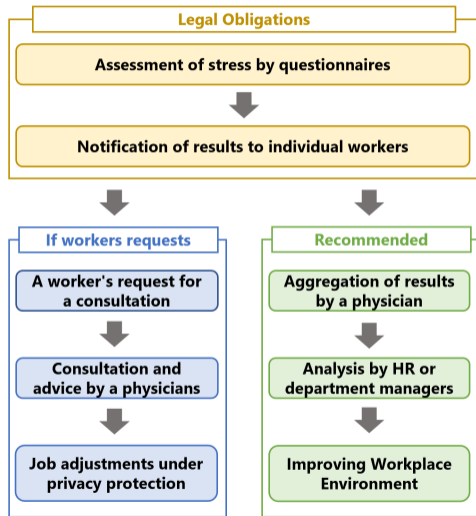


Figure 1: Overview of Stress Check Program

Institutional Background ②

- ▶ If workers request a consultation
 - The establishment must accept it
 - If the worker agrees, work with the manager to adjust working conditions
- ▶ Aggregation and analysis of results
 - Aggregate overall or by department
 - Typically, share aggregate results with HR
 - Shared with department managers if implemented by the department

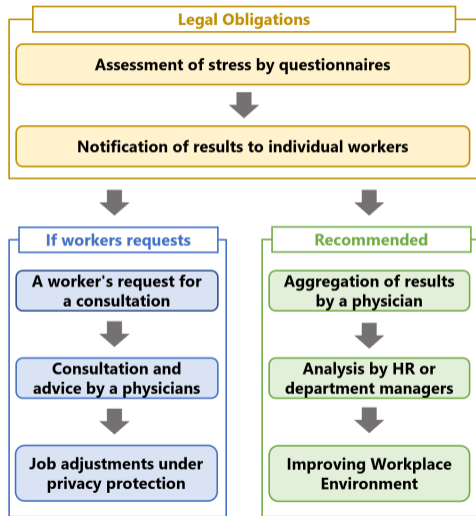


Figure 1: Overview of Stress Check Program

Stress Check Contents: Questionnaire

Workplace stress self-check in 5 minutes

5分でできる職場の ストレスセルフチェック

Measure your stress level in
your workplace with four simple questions in steps.
There are 57 questions in total. (Time required: about 5 minutes)
First, select your gender.



man

woman

This content was produced based on the Ministry of Health, Labour and Welfare's "Occupational Stress Questionnaire Feedback Program".

* If the results are not displayed well, click here.

Workplace stress self-check
in 5 minutes STEP1 About work



You have to do a lot of work

I got it

Oh yes

Somewhat different

Wrong

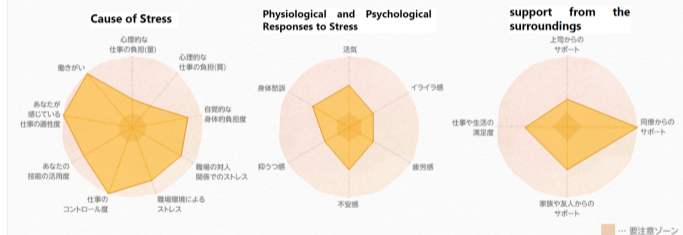
◀ Return to the title screen

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Stress Check Contents: Result Part

You don't seem to have a lot of stress, and you don't seem to have a lot of stress-causing factors.

However, stress can also suddenly weigh on you when you suddenly become busy at work or when stress-causing factors (work-related or family problems) overlap.



- ▶ Bosses cannot view individual results without the employee's consent
- ▶ According to the MHWL survey, 80% of respondents reported that they answered honestly.

Data ①

- ▶ **Survey on industrial safety and health (SISH)** in 2013, 2015-2018, 2020-2022
 - Repeated cross-section administrative data from Japan
- ▶ Establishment-level survey
 - Establishments are asked about the implementation of stress checks, # of turnovers due to mental illness, and workplace improvement policies
- ▶ Individual-level survey
 - Surveys of randomly selected individuals in the above establishments
 - Information about presence or absence of stress by reason, visit to a physician

Data ②

- ▶ **Basic Survey on Wage Structure (BSWS)** in 2012-2023
 - Repeated cross-section administrative data
 - Conducted annually in June
 - Measure labor market outcomes at the individual level

- ▶ **Economic Census** in 2014, 2016, and 2021
 - Match the above datasets at the establishment level
 - To obtain # of employees and covariates of the establishment before the start of the stress check

Data (Sample Construction)

- ▶ Sample used for analysis
 - Construct the SISH sample and BSWS sample separately
 - Exclude the branch offices of the company
 - Restrict the sample to firms with fewer than 100 employees
 - Exclude certain retail businesses, as they are affected by the long working hours regulation of 2019
- ▶ SISH sample: 19,970 establishments, 14,779 individuals
- ▶ BSWS sample: 3,475,514 individuals

Identification Strategy

- ▶ Other policies since 1970s (mandatory with more than 50 employees)
 - Assignment of industrial physician, sanitation committee, sanitation manager

- ▶ Difference-in-Difference
 - Parallel Trend Assumption
 - No-anticipation assumption

Empirical Specification

- ▶ Event study (individual level and establishment level)

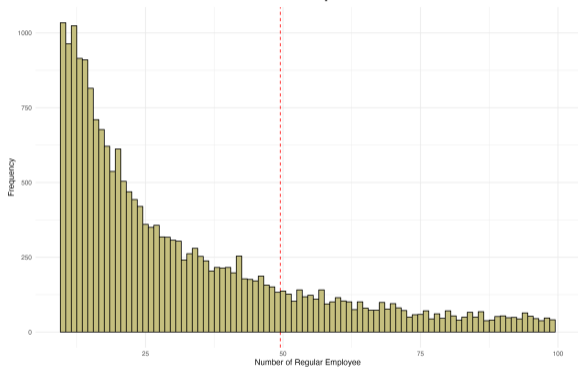
$$Y_{ijt} = \alpha + \lambda_t + \delta D_{j2014} + \sum_{k \neq 2015} \beta_k \mathbb{1}[t = k] \cdot D_{j2014} + X_{ijt} \theta + Z_{j2014} \gamma + \varepsilon_{ijt} \quad (1)$$

$$Y_{jt} = \alpha + \lambda_t + \delta D_{j2014} + \sum_{k \neq 2015} \beta_k \mathbb{1}[t = k] \cdot D_{j2014} + Z_{j2014} \gamma + \varepsilon_{jt} \quad (2)$$

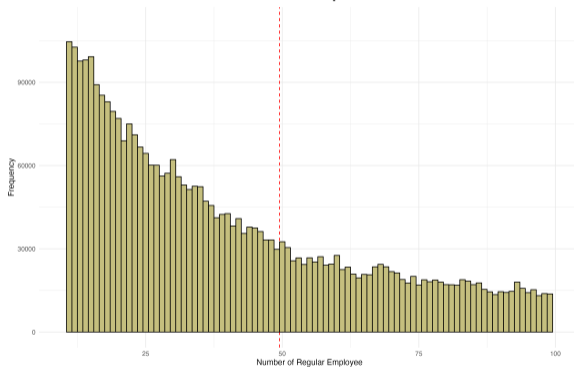
- Y_{ijt} : The outcome of interest for individual i at establishment j in year t
- D_{j2014} : takes 1 if the # of employee exceeds 50 for j in 2014
- X_{ijt} : a vector of individual characteristics (gender, age)
- Z_{j2014} : a vector of establishment characteristics (# of employee, industry FE, industry \times year FE etc.)

Distribution of Number of Employees in 2014

SISH sample

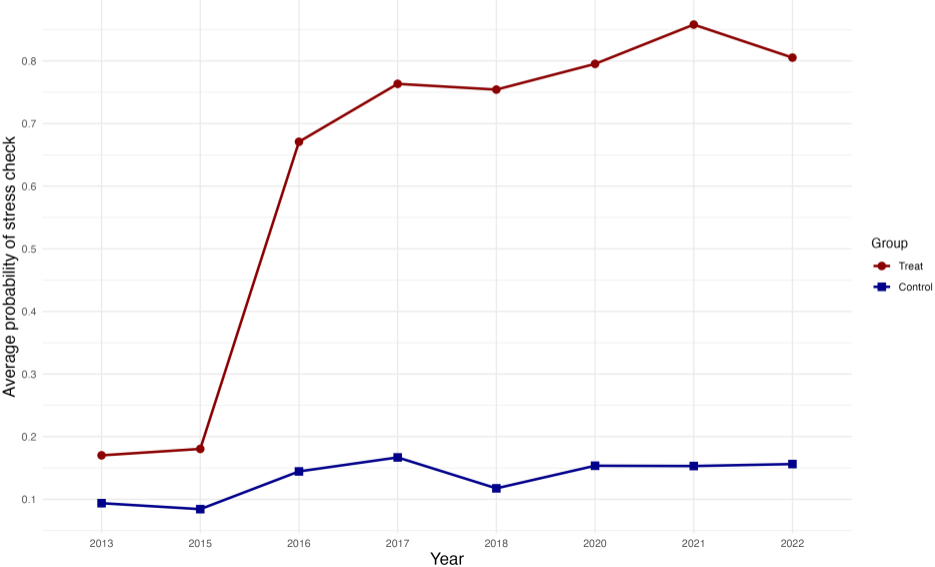


BSWS Sample

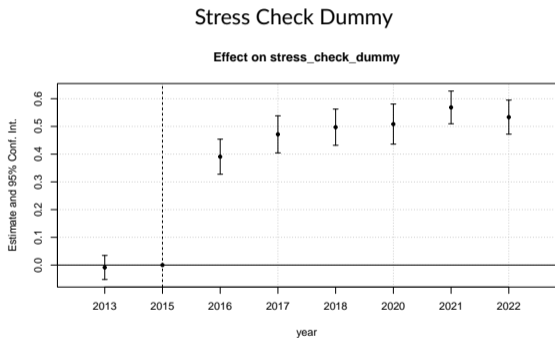


Stress check Implementation rate

Implementation rate of stress checks by each group



Result: Effect on Stress Check Implementation (1st Stage)

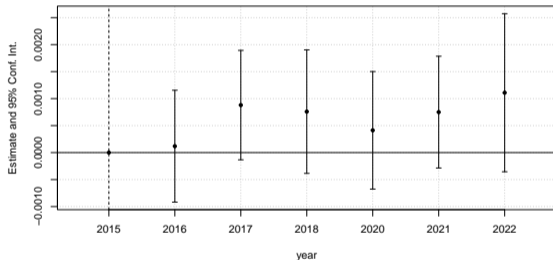


	(1)
2013 \times <i>Treat</i>	-0.009 (0.022)
2016 \times <i>Treat</i>	0.391*** (0.032)
2017 \times <i>Treat</i>	0.472*** (0.034)
2018 \times <i>Treat</i>	0.497*** (0.033)
2020 \times <i>Treat</i>	0.508*** (0.036)
2021 \times <i>Treat</i>	0.569*** (0.030)
2022 \times <i>Treat</i>	0.533*** (0.031)
Observations	19,867
Controls	✓
year fixed effects	✓
prefecture fixed effects	✓
industry fixed effects	✓
industry-year fixed effects	✓

Result: Effect on Mental health-related outcomes

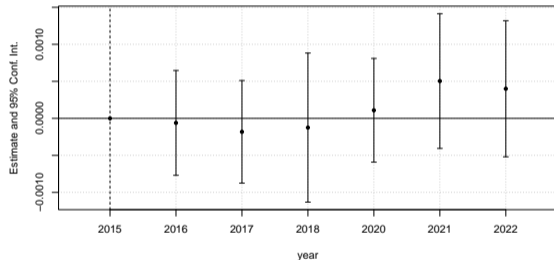
Proportion of Leave of Absence due to mental illness

Effect on on_leave_share



Proportion of Turnover due to mental illness

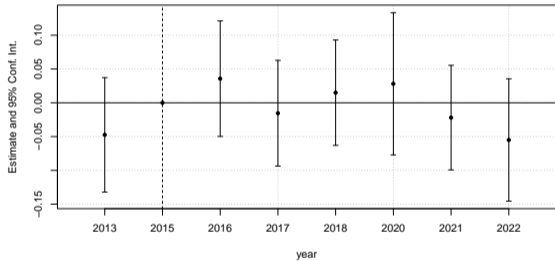
Effect on turnover_share



Result: Effect on Presence or Absence of Stress

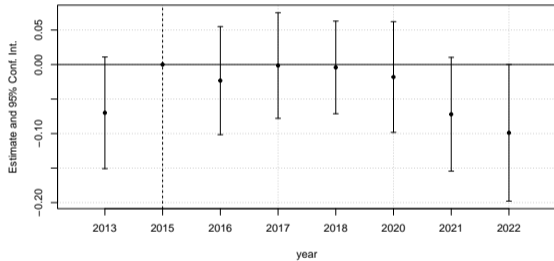
Stress Presence Dummy

Effect on stress_presence_dummy



Stress Due to the Quantity and Quality of Job Dummy

Effect on stress_job_dummy



Labor Market Outcomes (BSWS Sample)

▶ Overtime hours

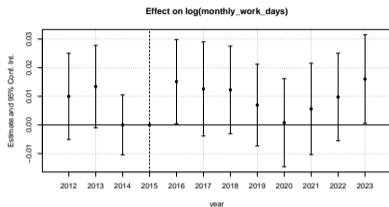
May decrease as workplace improvement policy(Cygan-Rehm and Wunder (2018))

▶ Total working hours, working days

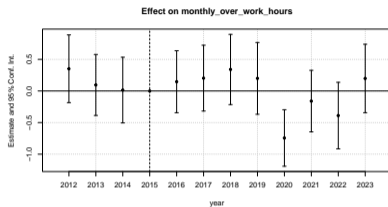
- Possibility of increase due to improved absenteeism.
- The direction of effects is ambiguous

Effect on Labor Market Outcomes (BSWS Sample)

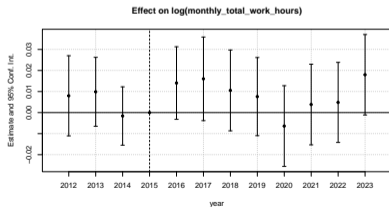
log(Monthly Working Days)



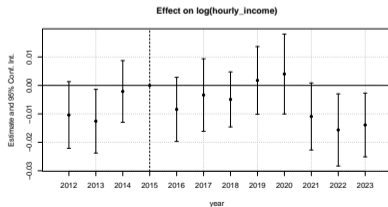
Monthly Over Working Hours



log(Monthly Total Working Hours)



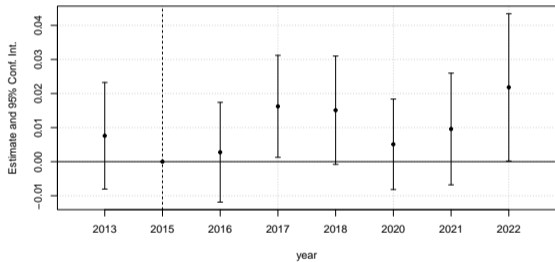
log(Hourly Income)



Mechanism: Effect on Visit to a Physician (Individual Channels)

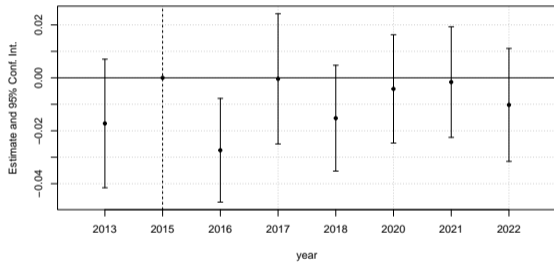
Visit to an Industrial Physician

Effect on `consult_ind_physician_dummy`



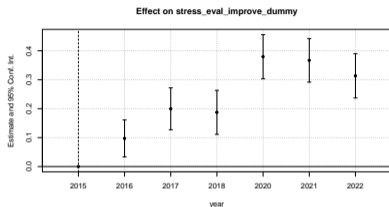
Visit to a Private Physician

Effect on `consult_private_physician_dummy`

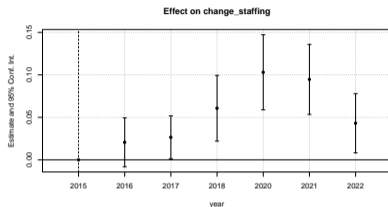


Mechanism: Effect on Workplace MH Policies (Workplace Channels)

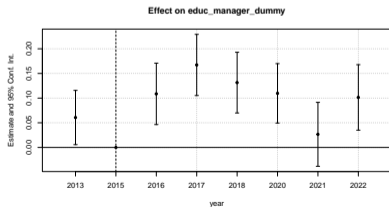
Utilization of workers stress check result (Dummy)



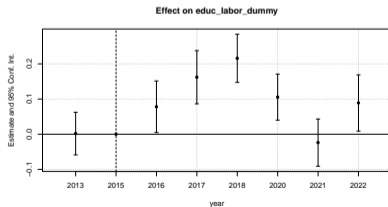
Improvement of Job Allocation for Employees (Dummy)



Implementation of MH education for Managers (Dummy)



Implementation of MH education for Employees (Dummy)



Conclusion

- ▶ A mandatory stress check has increased the screening for mental health
- ▶ Visits to industry physicians have increased (but small), and workplaces are utilizing screening data to implement policies
- ▶ However, there is no observable effect on objective and subjective outcomes related to mental health
- ▶ Consistent with the results of Jones et al. (2019)

Conclusion ② (Tentative)

- ▶ Workplace improvement policies incur costs, but since benefits are not observable, there is a risk that they may be ineffective or wasteful policies
- ▶ The effect of visits to industrial physicians is small
 - Because it is only mandatory when requested by the worker
 - Health-conscious, low-risk individuals may be responding
- ▶ It may be crucial to connect people with mental health problems from visits to industrial physicians to private physicians for further care

Future Works

- ▶ Heterogeneity Analysis
 - Stress checks may serve as a "warning" for high-risk individuals, potentially encouraging greater access to industrial physicians
 - Identifying industries with severe mental health issues and analyzing high-risk versus low-risk industries

- ▶ Mental health-related absences and turnovers are rare events
 - It is necessary to use variables that represent a broader definition of turnovers
 - Use *Employment Trends Survey*

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Data: Outcomes

- ▶ Establishment-level variable (related to outcomes)
 - # of the leave of absence due to mental illness
 - Change in number of employees (difference between t and $t-1$)
 - # of turnover due to mental illness
 - # of workers with long working hours (over 45, 80, 100)
- ▶ Individual-level variable
 - Individual characteristics
 - Hospital visits (private physician, psychologist, industrial physician, etc.)
 - Stress presence dummy (with identifiable causes)
 - Smoking dummy

Data: Establishment policy variables

- ▶ Establishment policy variables
 - Stress check implementation dummy
 - # of interviews with physicians
 - Dummy for improving work allocation using results
 - Dummy for improved staffing structure using results

Summary Stats (SISH establishment)

Statistic	N	Mean	St. Dev.	Min	Max
num_of_regular	20,435	41.766	66.605	10	1,679
tot_num_of_emp	17,726	41.640	68.746	10	1,682
num_of_overtime_45_80	12,141	2.145	7.268	0	186
num_of_overtime_80_100	10,814	0.199	1.160	0	22
num_of_on_leave	17,887	0.132	0.613	0	22
num_of_turnover	17,674	0.069	0.329	0	5
stress_check_dummy	19,970	0.212	0.409	0	1
sanitation_manager	10,931	0.242	0.428	0	1
is_ind_physician	15,359	0.259	0.438	0	1
is_sanit_comitee	12,756	0.101	0.302	0	1
overtime_45_80_share	11,655	0.041	0.101	0.000	0.673
overtime_80_100_share	10,448	0.002	0.013	0.000	0.131
on_leave_share	17,369	0.002	0.008	0.000	0.062
turnover_share	17,078	0.001	0.005	0.000	0.053

Summary Stats (SISH individual)

Statistic	N	Mean	St. Dev.	Min	Max
stress_presence_dummy	14,726	0.574	0.495	0	1
stress_job_dummy	14,779	0.321	0.467	0	1
stress_relation_dummy	14,779	0.182	0.386	0	1
stress_position_dummy	14,779	0.111	0.314	0	1
stress_other_dummy	14,779	0.072	0.259	0	1
consult_colleague_dummy	14,005	0.497	0.500	0	1
consult_ind_phycian_dummy	13,986	0.011	0.104	0	1
consult_private_phycian_dummy	13,986	0.011	0.104	0	1
consult_counselor_dummy	13,986	0.005	0.072	0	1
smoking_dummy	14,748	0.286	0.452	0	1

Summary Stats (BSWS)

Statistic	N	Mean	St. Dev.	Min	Max
monthly_work_days	3,459,707	20.607	4.506	0	27
monthly_scheduled_work_hours	3,402,207	150.649	40.233	5	206
monthly_over_work_hours	3,441,099	7.047	13.318	0	70
monthly_income	3,439,126	246,068.600	122,964.900	8,600	778,000
monthly_over_income	3,458,339	13,372.810	25,667.980	0	158,700
monthly_scheduled_income	3,463,230	229,926.900	117,196.400	0	756,400
monthly_bonus	3,466,998	478,681.200	598,238.800	0	4,014,000