

Table A1. Contd.

No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
72 [94]	Toyama and Mauno (2017)	Cross-sectional	Nursing or welfare facilities	489 eldercare nurses in special nursing homes	Social support (9 items) Realization of creativity (3 items)	Continuous score	Emotional intelligence (Emotional Intelligence Scale, EQS)
73 [95]	Izawa et al. (2017)	Cross-sectional	Hospitals	123 middle-aged workers from hospitals and research institutes in Kanagawa prefecture	Quantitative job overload (3 items) Job control (3 items)	The job strain index was calculated by dividing job demands by job control.	Cortisol level in fingernails (Fingernail sampling)
74 [96]	Watanabe et al. (2017)	Cross-sectional	Existing cohorts	2502 parents (1251 couples) from the Tokyo Work-Family Interface (TWIN) study	Fatigue (3 items)	Continuous score	Job demands (Four items from Furda, 1995) Family demands (Five items from Peeters, 2005)
75 [97]	Yoshimoto et al. (2017)	Cross-sectional	Hospitals	203 workers from a single hospital	Quantitative job overload (3 items) Job control (3 items) Interpersonal conflict (3 items) Supervisor support (3 items) Coworker support (3 items) Support from family and friends (3 items) Job satisfaction (1 item)	Standardized scores were developed with a five-point scale based on a representative sample of Japanese workers. In addition, the participants were dichotomized into “not stressed” and “stressed” groups.	Low back pain (Von Korf’s grading method)
76 [98]	Sakagami (2016)	Cross-sectional	Convenience sample of faculty staff members or alumni of universities	112 male researchers from two academic institutions	Qualitative job overload (3 items)	Continuous score	Ego aptitude (Tokyo University Egoogram Version II, TEG-II)
77 [99]	Yamada et al. (2016)	Cross-sectional	Existing cohorts	1764 workers from a pain-associated cross-sectional epidemiological study	Supervisor support (3 items) Coworker support (3 items) Job satisfaction (1 item)	Social support was used in quartiles of scores. Job satisfaction was classified into four categories: dissatisfied, somewhat dissatisfied, relatively satisfied, or satisfied.	Chronic pain (11-point Numeric Rating Scale, NRS) Health-related quality of life (Euro Quality of Life, EQ-5D)

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
78 [100]	Otsuka et al. (2016)	Cross-sectional	Private companies	42,499 workers from 61 organizations	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Job control (3 items) Interpersonal conflict (3 items) Poor physical environment (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item) Supervisor support (3 items) Coworker support (3 items)	Participants were divided by each mean subscale score.	Suicidal ideation (Single item)
79 [101]	Watanabe et al. (2016)	Cross-sectional	Private companies	4543 employees from a beverage manufacturing company	Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item) Vigor (3 items)	Continuous score	Serum lipids (Blood sampling)
80 [102]	Adachi and Inaba (2016)	Cross-sectional	Private companies	368 workers from a single worksite	Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items)	Continuous score	Depression (K10 scale)
81 [103]	Kawahito (2016)	Cross-sectional	Private companies	34 middle-aged workers from a manufacturing company	Depression (6 items)	Continuous score	Self-complexity (Trait sort test)
82 [104]	Maruya and Tanaka (2016)	Cross-sectional	Nursing or welfare facilities	29 care workers in a facility for persons with intellectual disabilities	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item) Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items) Supervisor support (3 items) Coworker support (3 items) Support from family and friends (3 items) Job and life satisfaction (2 items)	Continuous score	Quality of life (26-item World Health Organization Quality of Life Questionnaire, WHO QOL26)

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
83 [105]	Fujita et al. (2016)	Cross-sectional	Private companies	440 workers from 35 units of a health care corporation	Quantitative job overload (3 items) Job control (3 items) Supervisor and coworker support (6 items)	Continuous score	Work engagement (Utrecht Work Engagement Scale, UWES)
84 [106]	Saijo et al. (2015)	Cross-sectional	Public sectors	2121 employees in the local government of Asahikawa city, Hokkaido	Job demands (3 items) Job control (3 items) Supervisor support (3 items) Coworker support (3 items)	Scores were dichotomized based on the median values.	Depression (Japanese version of Patient Health Questionnaire, PHQ-9) Burnout (Japanese version of Maslach Burnout Inventory-General Survey, MBI-GS) Insomnia (Athens Insomnia Scale, AIS)
85 [107]	Morimoto et al. (2015)	Cross-sectional	Hospitals	189 healthcare professionals from three general hospitals.	Psychological stress response (18 items)	Continuous score	Coping orientation Appraisal of coping acceptability (Coping Scale for Task stressors and Job evaluation stressors, CSTJ); Coping Scale for Interpersonal stressors, CSI)
86 [108]	Kagata et al. (2015)	Cross-sectional	Hospitals	306 female hospital ward nurses in the Kanto region	Psychological stress response except for vigor (15 items) Physical stress response (11 items)	Continuous score	Emotional labor (Emotional Labor Inventory for Nurses, ELIN) Work engagement (Utrecht Work Engagement Scale, UWES)

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
87 [109]	Lee et al. (2015)	Cross-sectional	Private companies	276 workers (126 high-skilled foreign workers and 150 Japanese workers)	Quantitative job overload (3 items) Qualitative job overload (3 items) Interpersonal conflict (3 items) Supervisor support (3 items) Coworker support (3 items) Support from family and friends (3 items) Job satisfaction (1 item) Satisfaction with family life (1 item)	Continuous score	Anxiety Depression Physical complaints (Mutual Intercultural Relations in Plural Societies Questionnaire, MIRIPSQ)
88 [110]	Kato et al. (2015)	Cross-sectional	Hospitals	837 nurses from 5 general hospitals in Hokkaido	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item) Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items) Supervisor support (3 items) Coworker support (3 items) Support from family and friends (3 items) Job and life satisfaction (2 items)	Continuous score	Excessive daytime sleepiness (Japanese version of the Epworth Sleepiness Scale, JESS)

Table A1. Cont.

No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
89 [111]	Inaba and Inoue (2015)	Cross-sectional	Hospitals	195 female nurses working in a general hospital for one or more years	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Job control (3 items) Interpersonal conflict (3 items) Poor physical environment (1 item) Skill utilization (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item) Emotional demands (1 item) Role conflict (1 item) Work–self balance (negative) (1 item) Role clarity (1 item) Career opportunity (1 item) Supervisor support (3 items) Coworker support (3 items) Support from family and friends (3 items) Monetary/status reward (1 item) Esteem reward (1 item) Job security (1 item) Leadership (1 item) Interactional justice (1 item) Workplace where people compliment each other (1 item) Workplace where mistakes are acceptable (1 item) Collective efficacy (1 item) Trust with management (1 item) Preparedness for change (1 item) Respect for individuals (1 item) Fair personnel evaluation (1 item) Diversity (1 item) Career development (1 item) Work–self balance (positive) (1 item) Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items) Job satisfaction (1 item) Satisfaction with family life (1 item) Workplace harassment (1 item) Workplace social capital (1 item) Work engagement (1 item)	Continuous Score	Burnout (Pine's burnout scale)

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
90 [112]	Nakamura and Mizukami (2015)	Cross-sectional	Nursing or welfare facilities	108 healthcare workers at 31 nursing home	Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items)	Continuous score	Sense of coherence (Japanese sense of coherence scale: SOC-13)
91 [113]	Igarashi and Iijima (2015)	Cross-sectional	Private companies	99 female workers at five small–middle-sized companies	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item) Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items) Supervisor support (3 items) Coworker support (3 items) Support from family and friends (3 items) Job and life satisfaction (2 items)	Continuous score	Quality of life (MOS 36-Item Short-Form Health Survey version2: SF-36)
92 [114]	Ohta et al. (2015)	Cross-sectional	Private companies	1558 workers from an information technology company	Quantitative job overload (3 items) Job control (3 items) Supervisor and coworker support (6 items)	Job stress scores were calculated by dividing job demand by job control. Social support was used as continuous scores.	Mental health (28-item General Health Questionnaire, GHQ-28)
93 [115]	Saijo et al. (2014)	Cross-sectional	Convenience sample of faculty staff members or alumni of universities	494 physicians from the entire alumni population of Asahikawa Medical University	Quantitative job overload (3 items) Job control (3 items) Supervisor support (3 items) Coworker support (3 items)	Job demands and job control scores were each dichotomized at a median value, and job strain was categorized. Social support was used in continuous score.	Depressive symptoms (Japanese version of Patient Health Questionnaire, PHQ-9) Burnout (Japanese version of Maslach Burnout Inventory-General Survey, MBI-GS)

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
94 [116]	Horita and Otsuka (2014)	Cross-sectional	Private companies	200 workers from three manufacturing companies	Quantitative job overload (3 items) Qualitative job overload (3 items) Supervisor support (3 items) Coworker support (3 items) Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items)	Continuous score	Interpersonal helping behavior (Japanese version of Organizational Citizenship Behavior scale)
95 [117]	Matsuzaki et al. (2014)	Cross-sectional	Hospitals	1169 female registered nurses from 26 public hospitals and two private hospitals	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Job satisfaction (1 item)	Continuous score	Menopausal symptoms (Greene's Climacteric Scale)
96 [118]	Yoshida et al. (2014)	Cross-sectional	Hospitals	102 male and female nurses from a university hospital	Stress response (29 items)	Standardized scores were developed on a five-point scale based on a representative sample of Japanese workers.	Sense of coherence (Japanese sense of coherence scale: SOC-13)
97 [119]	Yada et al. (2014)	Cross-sectional	Hospitals	244 psychiatric male and female nurses from six psychiatric hospitals	Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items)	Continuous score	Psychiatric nurse job stressor (Psychiatric Nurse Job Stressor Scale, PNJSS)
98 [120]	Kikuchi et al. (2014)	Cross-sectional	Hospitals	386 nurses from a general hospital	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item) Supervisor support (3 items) Coworker support (3 items) Support from family and friends (3 items) Job and life satisfaction (2 items)	Continuous score	Depression (K6 scale) Sense of coherence (Japanese sense of coherence scale: SOC-13)

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
99 [121]	Nakata et al. (2014)	Cross-sectional	Private companies	137 male white-collar workers from a trading company	Quantitative job overload (3 items) Job control (3 items)	The job strain index was calculated by dividing job demands by job control.	Inflammatory markers (Blood sampling) Social support (Japanese version of the Generic Job Stress Questionnaire, GJSQ)
100 [122]	Morimoto and Shimada (2014)	Cross-sectional	Private companies	737 employees from an information technology company	Psychological stress response (18 items)	Continuous score	Coping strategies Appraisal of coping acceptability (Coping Scale for Task Stressors and Job Evaluation Stressors, CSTJ); Coping Scale for Interpersonal Stressors, CSI) Motivation for coping strategy (Reason for Selection of Coping Scale, RSC)
101 [123]	Maruya et al. (2014)	Cross-sectional	Nursing or welfare facilities	33 child-care supporters working at Children and Family Support Centers in four cities in Tokyo	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item) Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items)	Continuous score	Quality of life (26-item World Health Organization Quality of Life Questionnaire, WHO QOL26)

Table A1. Cont.

No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
102 [124]	Ikeshita et al. (2014)	Cross-sectional	Hospitals	98 nurses working in operating rooms	<p>Job control (3 items)</p> <p>Skill utilization (1 item)</p> <p>Suitable jobs (1 item)</p> <p>Meaningfulness of work (1 item)</p> <p>Vigor (3 items)</p> <p>Anger-irritability (3 items)</p> <p>Fatigue (3 items)</p> <p>Anxiety (3 items)</p> <p>Depression (6 items)</p> <p>Physical stress response (11 items)</p> <p>Job and life satisfaction (2 items)</p>	<p>The participants were dichotomized into high and low groups. For the psychological stress response, <math>\geq 14</math> and <math>&gt; 13</math> indicated a high score in men and women, respectively. For the physical stress response, <math>&gt; 5</math> and <math>&gt; 6</math> indicated a high score in men and women, respectively. Standardized scores were developed on a five-point scale based on a representative sample of Japanese workers.</p>	<p>General self-efficacy (General Self-Efficacy Scale, GSES)</p>
103 [125]	Yada et al. (2014)	Cross-sectional	Hospitals	60 psychiatric nurses	<p>Vigor (3 items)</p> <p>Anger-irritability (3 items)</p> <p>Fatigue (3 items)</p> <p>Anxiety (3 items)</p> <p>Depression (6 items)</p> <p>Physical stress response (11 items)</p>	<p>Continuous score</p>	<p>Psychiatric nurse job stressor (Psychiatric Nurse Job Stressor Scale, PNJSS)</p>
104 [126]	Sato (2014)	Cross-sectional	Hospitals	160 ward nurses from two hospitals in a prefecture	<p>Poor physical environment (1 item)</p> <p>Depression (6 items)</p> <p>Physical stress response (11 items)</p>	<p>Continuous score</p>	<p>Work environment perception (Items based on the Home and Community Environment, HACE)</p> <p>Depressive symptoms (Five-item screening from the Self-Rating Depression Scale and the Hospital Anxiety and Depression Scale)</p>
105 [127]	Kikuchi et al. (2014)	Cross-sectional	Hospitals	330 female nurses from a general hospital	<p>Quantitative job overload (3 items)</p> <p>Job control (3 items)</p> <p>Supervisor and coworker support (6 items)</p>	<p>Continuous score</p>	<p>Depressive symptoms (Five-item screening from the Self-Rating Depression Scale and the Hospital Anxiety and Depression Scale)</p>

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
106 [128]	Morimoto et al. (2014)	Cross-sectional	Private companies	738 employees in an information technology company	Psychological stress response (18 items)	Continuous score	Coping methods Appraisal of coping acceptability (Coping Scale for Task stressors and Job evaluation stressors, CSTJ); Coping Scale for Interpersonal stressors, CSI) Appraisal of a stressor's controllability (Cognitive Appraisal Rating Scale, CAIRS)
107 [129]	Sugawara et al. (2013)	Cross-sectional	Private companies	5878 middle-aged workers randomly selected companies in the Aomori prefecture	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Job satisfaction (1 item)	Job demands were calculated by quantitative, qualitative, and physical demands. Job compatibility was calculated by skill utilization and suitable jobs. Each variable was dichotomized based on the number of agreements for the items	Suicidal ideation Depressive symptoms (Center for Epidemiologic Studies for Depression scale, CES-D)
108 [130]	Okuno et al. (2013)	Cross-sectional	Hospitals	284 nurses working from a general hospital	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Job control (3 items) Interpersonal conflict (3 items) Poor physical environment (1 item) Skill utilization (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item) Supervisor support (3 items) Coworker support (3 items) Support from family and friends (3 items) Job satisfaction (1 item) Satisfaction with family life (1 item)	Standardized scores were developed on a 5-point scale based on a representative sample of Japanese workers. For social support and satisfaction, continuous scores were used.	Post-traumatic growth (Japanese version of Posttraumatic Growth Inventory, PTGI-J) Burnout (Copenhagen Burnout Inventory, CBI)

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
109 [131]	Yoshida et al. (2013)	Cross-sectional	Hospitals	517 nurses from a university hospital	Psychological stress response (18 items) Physical stress response (11 items)	Standardized scores were developed on a five-point scale based on a representative sample of Japanese workers.	Sense of coherence(Japanese Sense of Coherence scale: SOC-13)/Coping(Brief Scales for Coping Profile; BSCP)
110 [132]	Shigehisa (2013)	Cross-sectional	Hospitals	357 nurses	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item)	Continuous score	Caring behaviors (41-item caring behavior scale)
111 [133]	Koizumi et al. (2013)	Cross-sectional	Hospitals	225 female nurses from a general hospital	Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items)	Continuous score	Resilience (Sukemune-Hiew Resilience Test, SHR)
112 [134]	Hosoda et al. (2012)	Cross-sectional	Fire defense stations/headquarters	246 male firefighters from a local fire defense headquarters	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item) Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items) Supervisor support (3 items) Coworker support (3 items) Support from family and friends (3 items)	Continuous score	Alcohol dependence (Alcohol Use Disorders Identification Test, AUDIT)

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
113 [135]	Sunami and Yaeda (2012)	Cross-sectional	Hospitals	472 novice nurses from 15 hospitals with 300 or more beds	Psychological stress response (18 items)	Continuous score	Social support (Mentoring scale from Ono, 1998) Self-esteem (Rosenberg's self-esteem scale)
114 [136]	Taniguchi et al. (2012)	Cross-sectional	Nursing or welfare facilities	897 care workers working in 35 nursing facilities	Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items) Psychological stress response (18 items)	Continuous score	Workplace bullying (Negative Acts Questionnaire, NAQ)
115 [137]	Amagasa and Nakayama (2012)	Cross-sectional	Private companies	1160 sales workers	Quantitative job overload (3 items) Qualitative job overload (3 items) Job control (3 items)	Continuous score	Depression (Center for Epidemiologic Studies for Depression scale, CES-D)
116 [138]	Hayashi et al. (2011)	Cross-sectional	Private companies	1804 full-time regular employees from an electronics company	Quantitative job overload (3 items) Job control (3 items) Supervisor and coworker support (6 items)	Continuous score	Organizational justice(Organizational Justice Questionnaire, OJQ)Organizational citizenship behavior(3-item scale based on Williams and Anderson, 1991)Job satisfaction(6-item scale from Tanaka, 1995)
117 [139]	Ugaki et al. (2010)	Cross-sectional	Nursing or welfare facilities	150 nurses who participated in the psychoeducation program in a prefecture	Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Suitable jobs (1 item) Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items)	Continuous score	Coping traits (Brief Stress for Coping Scale, BSCP)

Table A1. Cont.

No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
118 [140]	Katayama (2010)	Cross-sectional	Hospitals	123 nurses from five hospitals with 300 or more beds	Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items)	Continuous score	Emotional labor (Emotional Labor Inventory for Nurses, ELIN)
119 [141]	Shimazu et al. (2010)	Cross-sectional	Private companies	757 workers from a construction machinery company	Psychological stress response except for vigor (15 items) Physical stress response (11 items)	Continuous score	Workaholism (Dutch Workaholism Scale, DUWAS) Active coping (Brief Stress for Coping Scale, BSCP) Job performance (World Health Organization Health and Work Performance Questionnaire, WHO-HPQ)
120 [142]	Shimazu and Schaufeli (2009)	Cross-sectional	Private companies	776 employees from a construction machinery company	Psychological stress response (18 items) Physical stress response (11 items) Job satisfaction (1 item) Satisfaction with family life (1 item)	Continuous score	Work engagement (Utrecht Work Engagement Scale, UWES) Workaholism (Dutch Workaholism Scale, DUWAS) Job performance (World Health Organization Health and Work Performance Questionnaire, WHO-HPQ)
121 [143]	Otsuka et al. (2009)	Cross-sectional	Private companies	808 middle-aged workers from a company in Kanagawa Prefecture	Quantitative job overload (3 items) Qualitative job overload (3 items) Job control (3 items)	The total scores for the two scales were dichotomized at the median, and high job strain was defined as the combination of high job demands and low job control.	Arterial wave reflection (Automated applanation tonometric method)

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
122 [144]	Katsuyama et al. (2009)	Cross-sectional	Private companies	243 employees who worked at a manufacturing company and a local hospital	Depression (6 items)	Continuous score	Polymorphisms of the serotonin transporter (5HTT) Aldehyde dehydrogenase 2 (ALDH2) D2 dopamine receptor (DRD2) Cytochrome P450 2A6 (CYP2A6)
123 [145]	Sato et al. (2009)	Cross-sectional	Private companies	24,685 employees from a computer, software, and network company	Stress responses (29 items)	Continuous score based on a five-point scale	Overtime work (Self-reported)
124 [146]	Tanbo (2008)	Cross-sectional	Healthcare centers	62 workers who took a health examination at a health institute	Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items)	Continuous score	Health Practice Index (Morimoto's Health Practical Index, HPI)
125 [147]	Mitani et al. (2008)	Cross-sectional	Fire defense stations/headquarters	128 firefighters from a fire department	Job stressors (17 items) Social support (9 items)	Continuous score	Symptoms of post-traumatic stress disorder (Japanese version of Impact Event Scale, IES-R-J).
126 [148]	Katsuyama et al. (2008)	Cross-sectional	Private companies	243 employees at a manufacturing company and a local hospital	Depression (6 items)	Continuous score	Serotonin transporter gene polymorphisms (5HTT, Leukocytes in blood sample)
127 [149]	Ikeda et al. (2008)	Cross-sectional	Hospitals	76 doctors and 285 female nurses working at a general hospital	Quantitative job overload (3 items) Job control (3 items) Supervisor support (3 items) Coworker support (3 items)	Continuous score	Mental health (30-item General Health Questionnaire, GHQ-30)
128 [150]	Katsuyama (2008)	Cross-sectional	Private companies	133 manufacturing workers and 113 hospital workers	Quantitative job overload (3 items) Job control (3 items) Supervisor support (3 items) Coworker support (3 items)	Health risk scores were calculated by the four subscales	Polymorphisms of the serotonin transporter (5HTT) Aldehyde dehydrogenase 2 (ALDH2) D2 dopamine receptor (DRD2)

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
129 [151]	Suwazono et al. (2008)	Cross-sectional	Private companies	3481 daytime employees from a steel company	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Job control (3 items) Interpersonal conflict (3 items) Suitable jobs (1 item)	Job demands were defined as high when the level of job demands was scored six points or more. Job control, interpersonal conflicts, and suitable jobs were defined as unfavorable when the level of each subscale was two points or more.	Fatigue symptoms (Cumulative Fatigue Symptom Index, CFSI)
130 [152]	Umehara et al. (2007)	Cross-sectional	Hospitals	590 respondents who worked more than 35 h per week as a pediatrician	Quantitative job overload (3 items) Job control (3 items) Supervisor support (3 items) Coworker support (3 items)	Continuous score	Working hours (Self-reported) Work schedule (Self-reported, number of night duties in the past month, number of weekend duties in the past month, days with on-call duties in the past month, workdays with no overtime in the past month, days off with no work in the past month, days off with some work in the past month)
131 [153]	Mineyama et al. (2007)	Cross-sectional	Private companies	203 workers at a brewing company in the Kansai (west) region	Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Psychological stress response (18 items)	Continuous score	Active listening attitude of supervisors (Active Listening Attitude Scale, ALAS)

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No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
132 [154]	Tanihara and Taguchi (2007)	Cross-sectional	Private companies	49 workers from a small-sized worksite	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Meaningfulness of work (1 item) Vigor (3 items) Anger-irritability (3 items) Fatigue (3 items) Anxiety (3 items) Depression (6 items) Physical stress response (11 items)	Continuous score	Burnout (Maslach Burnout Inventory, MBI)
133 [155]	Washizuka and Ikeo (2007)	Cross-sectional	Hospitals	175 female nurses working in shift time at a hospital	Quantitative job overload (3 items) Interpersonal conflict (3 items) Job control (3 items) Suitable jobs (1 item) Psychological stress response (18 items) Physical stress response (11 items) Supervisor and coworker support (6 items)	Simple scoring method	Breslow health-related behaviors (Seven-item Breslow's health behaviors)
134 [156]	Ikeda et al. (2007)	Cross-sectional	Hospitals	405 female nurses working at a general hospital	Quantitative job overload (3 items) Job control (3 items) Supervisor support (3 items) Coworker support (3 items)	Continuous score	Mental health (30-item General Health Questionnaire, GHQ-30)
135 [157]	Toh et al. (2006)	Cross-sectional	Hospitals	144 novice nurses at a university hospital	Psychological stress response (18 items)	Continuous score	Ego state (Egogram) Burnout (Maslach Burnout Inventory, MBI) Symptoms of post-traumatic stress disorder (Japanese version of Impact Event Scale, IES-R-J).
136 [158]	Mitani et al. (2006)	Cross-sectional	Fire defense stations/headquarters	231 participants belonging to two fire departments	Job stressors (17 items) Social support (9 items)	Continuous score	Depression (Goldberg's anxiety-depression scale)
137 [159]	Ushiki et al. (2006)	Cross-sectional	Hospitals	316 female nurses from a hospital	Quantitative job overload (3 items) Job control (3 items) Supervisor support (3 items) Coworker support (6 items)	Continuous score	Depression (Goldberg's anxiety-depression scale)

Table A1. Contd.

No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
138 [160]	Mitani and Shirakawa (2005)	Cross-sectional	Fire defense stations/headquarters	37 firefighters working at a fire department in Kyoto city	Job stressors (17 items)	Participants were dichotomized into high and low groups based on the mean score.	Autonomic nervous activity (Electrocardiogram) Serum cortisol Norepinephrine (Blood sampling)
139 [161]	Harada et al. (2005)	Cross-sectional	Private companies	4962 male workers from a steel company	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Job control (3 items) Interpersonal conflict (3 items) Suitable jobs (1 item)	Job demands were defined as unfavorable when six or more questions on job demands were ticked by a participant. Job control, interpersonal conflict, and suitable jobs were defined as unfavorable when two or more items were ticked for each item.	Shift work (Self-reported)
140 [162]	Shimazu et al. (2005)	Cross-sectional	Private companies	726 male non-managers at a large electrical company	Quantitative job overload (3 items) Job control (3 items) Supervisor support (3 items) Coworker support (3 items)	Continuous score	Active coping (Job Stress Scale, JSS)
141 [163]	Katsuyama et al. (2005)	Cross-sectional	Private companies	133 workers from a manufacturing company	Quantitative job overload (3 items) Job control (3 items) Supervisor support (3 items) Coworker support (3 items)	Health risk scores were calculated by the four subscales	Polymorphisms of the serotonin transporter (5HTT) Aldehyde dehydrogenase 2 (ALDH2)
142 [164]	Shimazu et al. (2004)	Cross-sectional	Private companies	867 employees from a large electrical company	Quantitative job overload (3 items) Job control (3 items) Supervisor support (3 items) Coworker support (3 items)	Continuous score	Job satisfaction (10-item scale from McLean, 1979)
143 [165]	Miki et al. (2004)	Cross-sectional	Hospitals	695 full-time nurses from a university hospital	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Interpersonal conflict (3 items) Poor physical environment (1 item) Job control (3 items) Skill utilization (1 item) Suitable jobs (1 item) Supervisor support (3 items) Coworker support (3 items) Job satisfaction (1 item)	Continuous score	Depression (Center for Epidemiologic Studies for Depression scale, CES-D)

Table A1. Cont.

No.	Author	Study Design	Recruitment	Sample	Subscale Used	Scoring	Other Measurements
144 [166]	Tsukamoto et al. (2004)	Cross-sectional	Private companies	808 male workers from an informational technology company	Quantitative job overload (3 items) Job control (3 items) Supervisor support (3 items) Coworker support (3 items)	Continuous score	Depression (Zung Self-rating Depression Scale, SDS)
145 [167]	Kotake et al. (2003)	Cross-sectional	Hospitals	113 novice nurses at a university hospital	Quantitative job overload (3 items) Qualitative job overload (3 items) Physical demands (1 item) Job control (3 items) Suitable jobs (1 item)	Continuous score	Mental health (12-item General Health Questionnaire, GHQ-12)

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## OPINION

# A proposed definition of participatory organizational interventions

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**Funding information**

AMED, Grant/Award Number: JP21de0107006

**Abstract**

Participatory organizational interventions offer an effective way to promote occupational safety and health. Despite an increasing number of studies, a common definition of participatory organizational interventions has yet to be established. Therefore, we aimed to form a definition using the following process. First, we developed a tentative draft definition of organizational interventions and participatory elements, based on the relevant literature. The tentative definition was revised in several rounds of an extensive discussion by the authors. This resulted in the draft definition. We asked 15 selected international experts in occupational

Norito Kawakami and Akizumi Tsutsumi share equal last author contribution.

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safety and health to review and comment on the draft definition. We carefully reviewed their comments, and formulated our final proposed definition. To summarize the key points of the final version of the definition, organizational interventions are planned actions that primarily directly target working conditions with the aim of promoting and maintaining of the highest degree of physical, mental, and social well-being of workers in all occupations. In addition, as participatory elements of organizational interventions in the final definition, ideally, all workers participate in every step of the intervention, while participating in part of the steps of the intervention in some cases. Furthermore, in principle, all workers participate in each step of intervention, while it is also acceptable that only elected representatives among workers participate in the intervention.

#### KEYWORDS

employee participation, occupational health, participatory organizational interventions

## 1 | INTRODUCTION

According to the International Labour Organization (ILO) and World Health Organization (WHO), occupational health is defined as “the promotion and maintenance of the highest degree of physical, mental, and social well-being of workers in all occupations by preventing departures from health, controlling risks and the adaptation of work to people, and the people to their jobs”.<sup>1</sup> Its main objectives are as follows: “(i) the maintenance and promotion of workers’ health and working capacity; (ii) the improvement of working environment and work to become conducive to safety and health, and (iii) development of work organizations and working cultures in a direction which supports health and safety at work and in doing so also promotes a positive social climate and smooth operation and may enhance productivity of the undertakings.”<sup>2</sup>

To achieve the goal of occupational safety and health activity, a safe and healthy working environment should be ensured for all workers, as provided in ILO Conventions No. 155 and No. 161.<sup>3–5</sup> In this framework, occupational safety and health, a discipline dealing with the prevention of work-related injuries and diseases as well as the protection and promotion of the health of workers, aims at the improvement of working conditions and environment.<sup>3,6</sup> Thus, organizational interventions should be encouraged for promoting occupational safety and health.

Organizational interventions are group-, team-, or workplace-based approaches to improve working conditions and environment.<sup>7–11</sup> In conducting organizational interventions, the participation of workers has been strongly recommended by many researchers.<sup>9,11–14</sup> For example, the recently published International Organization for Standardization (ISO) 45003 guideline states that the participation of workers is an essential component for the

development, planning, implementation, maintenance, evaluation, and continual improvement of healthy and safe workplaces as well as the success of the process to manage psychosocial risk.<sup>13</sup> The participation of workers is important because it increases worker control, sense of fairness, justice, and support; in addition, it helps to optimize the fit of the intervention to the organizational culture and context.<sup>9</sup> However, participatory organizational interventions are characterized or defined in a various way.<sup>9,11,12,14</sup> For example, Nielsen et al. (2010) and Abildgaard et al. (2018) suggested that definitions of this type of intervention fail to agree on who participates in the intervention (e.g., all the workers or elected representatives), or the steps of the intervention in which workers participate.<sup>9,12</sup>

Despite an increasing number of participatory organizational intervention studies,<sup>15–17</sup> a comprehensive picture of this type of intervention and evidence for its overall effectiveness have not been well integrated. This is partly because there have been a limited number of systematic reviews and meta-analyses specifically targeting this type of intervention. Lack of a common definition of participatory organizational interventions may make it difficult to conduct such an integration effort.

In this opinion paper, we aimed to propose a definition of participatory organizational interventions. Here, we formulated participatory organizational interventions as organizational interventions that include participatory elements. Having a commonly accepted definition would enable researchers and practitioners to conduct a variety of participatory organizational interventions under the same range of definitions and more easily integrate evidence of effectiveness or other program characteristics of participatory organizational interventions to develop a standard guideline for this type of approach.

## 2 | METHODS

First, we developed a tentative draft definition of organizational interventions and participatory elements, based on relevant literature.<sup>7-14,18</sup> Because there was not a common definition, we referred to six reviews related to participatory organizational intervention<sup>7-12</sup> and three important guidelines of occupational safety and health<sup>13,14,18</sup>. The tentative definition was revised in several rounds of an extensive discussion by the authors. This resulted in the draft definition. We asked selected international experts in this field to review and comment on the draft definition. We carefully studied their comments, and formulated our final proposed definition.

More specifically, from our social network, we invited 15 experts in this field who were active in research of organizational interventions or were involved in activities of international organizations related to occupational safety and health, such as ILO. These included academic researchers [e.g., professor or associate professor of university, and researchers at research institutes ( $n = 11$ ), international organization staff ( $n = 3$ ), and an occupational health consultant ( $n = 1$ )]. We sent the descriptions of the draft definition listed in the Results section to them and asked them to review and comment back to us. In the final step, we studied and integrated comments from the experts and formulated a comprehensive definition of participatory organizational interventions.

## 3 | RESULTS

### 3.1 | The draft definitions

#### 1. Organizational interventions

We developed a draft definition of organizational interventions as follows. This was sent for review by 15 international experts,

*Organizational interventions are planned actions that directly target working conditions with the aim of preventing deterioration in mental health, physical health, quality of life, and work-related outcomes of workers, and of promoting these outcomes. Organizational interventions are often primary and secondary prevention-focused, but may also include tertiary prevention, for example, interventions to help return-to-work of workers with mental health problems.*

#### Note

- *Interventional actions may target single or multiple known risk factors at work (e.g., job content, workload and work pace, work schedule, job control, work environment and equipment, organizational culture and*

*function, interpersonal relationships at work, role in organization, career development, home-work interface).*

- *Interventions, approaches applied to teams.*
- *Interventions may be multimodal, including any combination of individual, manager, and organizational approaches such as workplace mental health promotion with an organizational component.*
- *NOT: National, regional or global-level policies, regulations; interventions which only address individual-level interventions, or which only address knowledge, awareness, attitudes, stigma reduction of managers, or which only address knowledge, awareness, attitudes, stigma reduction of workers.*

#### 2. Participatory elements of organizational interventions

To become a participatory organizational intervention, an organizational intervention is required to have the following participatory elements of interventions. This was also sent to the experts.

1. *Employees should participate in each step of intervention: they should be involved in action planning, implementing, evaluating, and reviewing the intervention itself.*
2. *In principle, all the employees in the workplace should participate directly in each step of intervention. However, indirect participation through elected representatives among employees could also be acceptable.*

### 3.2 | Comments from experts and our accommodations and amendments

Representative comments on our draft definition and our responses to them were shown as follows.

#### 1. Organizational interventions

Two experts pointed out that our outcomes were restricted. For example, they advised it would be better to include additional health outcomes or safety. In addition, they suggested “deterioration” was too strong. Furthermore, they commented that organizational interventions may also include actions that indirectly—as well as directly—target working conditions. Finally, in the Notes section, there was a comment that the phrase “Interventions, approaches applied to teams” was incomprehensible.

First, according to their advice, we decided to revise the description of outcomes to be more inclusive. Specifically, we changed “*mental health, physical health, quality of life, and work-related outcomes of workers*” into “*the highest degree of physical, mental, and social well-being of workers in all occupations,*” which was based on the definition of occupational health suggested proposed by ILO and WHO.<sup>1</sup> Second, in light of the point that

organizational interventions may include approaches that indirectly target working conditions, we modified the description of organizational interventions, by changing the phrase “planned actions that directly target working conditions” into “planned actions that *primarily* directly target working conditions.” Third, we also revised the phrase “Interventions, approaches applied to teams” into “Interventions may include team-based approaches” in the Notes section.

## 2. Participatory elements of organizational interventions

Table 1 presents the summary of the experts' comments. Primarily, the experts gave us the following three suggestions. First, they gave feedback on criterion (1): it seems unrealistic that employees should participate in each step of intervention. For example, the case where employees could join in action planning and implementing, but not in the evaluation process could be excluded from the participatory organizational interventions based on the draft definition we proposed. Second, they offered a comment on criterion (2): it is also incompatible with reality that all the employees in the workplace should participate in the intervention. For example, guided focus groups with selected employees and representatives of management and professionals was a common approach; thus, a more

flexible participatory style should be acceptable. Third, they suggested that it may be more suitable to use the term “workers” rather than “employees” because all workers, regardless of the employment relationship, such as day laborers or interns, could participate in an intervention.

Based on these comments, we decided to change “employees” into “workers.” In addition, in light of the point that it would be unrealistic that all the workers in the workplace should participate directly in each step of intervention, we thought the case where workers participated in only part of the intervention, or only elected representatives among workers participated in the intervention should also be included in participatory organizational interventions. However, for improving the work environment, providing opportunities for all the workers to participate in organizational interventions is essential.<sup>13</sup> Also, consultation between the organization and workers should take place at all stages of the intervention.<sup>13</sup> Then, we thought it would also be necessary that all the workers could have opportunities to participate in every step of the intervention in some form, regardless of direct participation or indirect participation through elected representatives. Accordingly, we revised the draft definition as follows (Table 2).

## 3.3 | The final proposed definition of participatory organizational interventions

The final proposed definition of organizational interventions and the participatory elements of organizational interventions are as follows.

### 1. Organizational interventions

*Organizational interventions are planned actions that primarily directly target working conditions with the aim of promoting and maintaining of the highest degree of physical, mental, and social well-being of workers in all occupations. In addition, organizational interventions are often primary and secondary prevention-focused, but may also include tertiary prevention.*

### Notes

- *Interventional actions may target single or multiple known risk factors at work.*
- *Interventions may include team-based approaches.*
- *Interventions may be multimodal, including any combination of individual, manager, and organizational approaches such as workplace mental health promotion with an organizational component.*
- *Interventions may include tertiary prevention such as helping workers with mental health problems return to work.*
- *NOT: National, regional or global-level policies, regulations; interventions which only address individual-level*

TABLE 1 Summary of experts' comments on a draft definition of participatory organizational interventions.<sup>a</sup>

Comment 1: It seems rather unrealistic to expect participation of employees in each step, including evaluation.
Comment 2: While participation of employees is important, there may be a different intensity of this participation. For example, the use of guided focus groups consisting of selected employees and representatives of management and professionals has been a common approach.
Comment 3: From experience, employee participation in the action planning and implementing process could produce positive effects.
Comment 4: Involving employees in evaluation seems problematic in terms of independent assessment and related quality standards of intervention research.
Comment 5: Flexibility in which parts of the interventions and employees' participation should be accepted.
Comment 6: It also may be essential whether employees participate in the intervention voluntarily or compulsorily, even though it would be difficult to distinguish.
Comment 7: The contents of participatory interventions vary among practitioners. Thus, when comparing studies of participatory intervention, we need caution regarding what was done in each intervention.
Comment 8: It may be more appropriate to use “workers” than “employees” because all workers, regardless of the employment relationship, such as day laborer, family, intern, or volunteer, should be intervened.

<sup>a</sup>The authors edited the sentences from experts for clarity.

**TABLE 2** The final proposed definition of participatory organizational interventions.**1. Organizational interventions**

*Organizational interventions are planned actions that primarily directly target working conditions with the aim of promoting and maintaining of the highest degree of physical, mental, and social well-being of workers in all occupations. In addition, organizational interventions are often primary and secondary prevention-focused, but may also include tertiary prevention.*

**Notes**

*Interventional actions may target single or multiple known risk factors at work.*

*Interventions may include team-based approaches.*

*Interventions may be multimodal, including any combination of individual, manager, and organizational approaches such as workplace mental health promotion with an organizational component.*

*Interventions may include tertiary prevention such as helping workers with mental health problems return to work.*

**NOT:** *National, regional or global-level policies, regulations; interventions which only address individual-level interventions, or which only address knowledge, awareness, attitudes, stigma reduction for managers, or which only address knowledge, awareness, attitudes, stigma reduction of workers.*

**2. Participatory elements of organizational interventions**

1. *Workers participate on steps of an intervention, such as action planning, implementing, evaluating, and reviewing the intervention. Ideally, all workers participate in every step of the intervention, while some workers participate in part of the steps of the intervention in some cases.*
2. *In principle, all workers participate in each step of intervention, while it is also acceptable that only elected representatives among workers to participate in the intervention.*

*interventions, or which only address knowledge, awareness, attitudes, stigma reduction of managers, or which only address knowledge, awareness, attitudes, stigma reduction of workers.*

**2. Participatory elements of organizational interventions**

1. *Workers participate on steps of an intervention, such as action planning, implementing, evaluating, and reviewing the intervention. Ideally, all workers participate in every step of the intervention, while participating in part of the steps of the intervention in some cases.*
2. *In principle, all workers participate in each step of intervention, while it is also acceptable that only elected representatives among workers participate in the intervention.*

**4 | DISCUSSION**

In this paper, we proposed a definition of participatory organizational interventions based on previous studies and

experts' opinions. We believe the definition could be useful for improving safe and healthy working environments. The final proposed definition may facilitate researchers and practitioners conducting participatory organizational interventions in a similar manner while maintaining diversity regarding who is involved and how. Furthermore, it may also be important for workers themselves to practice the interventions on their own initiative based on the definition. The proposed definition may also be useful in conducting systematic reviews and meta-analyses of participatory organizational interventions in a more comprehensive and integrated way. Such systematic reviews and meta-analyses would contribute to accumulating evidence for the effectiveness of the intervention.

The proposed definition could be acceptably comprehensive and thus agreeably reflect common views and opinions on organizational interventions and participatory organizational interventions from experts in this field. However, it was interesting that some of these experts expressed views on the heterogeneity of participatory organizational interventions. For example, some argued that workers in principle should participate in every step of the intervention, while others believed that workers may not necessarily participate in all the steps of intervention (Table 1, Comments 1–5). One even suggested that workers should not be involved in the step of reviewing, to ensure independent assessment of the outcomes. Different opinions were also obtained on whether all workers in a target group should be involved in an intervention or whether participation of only part of the workers may be allowed. Additionally, some pointed out that it was important to distinguish between voluntary or forced participation of workers in an intervention, as forced participation may be problematic (Table 1, Comment 6). These comments certainly reflect different views on participatory organizational interventions. While we propose a single common definition, these opinions may provide insight into important dimensions of participatory organizational interventions that can be used to further classify the interventions into subtypes. We encourage researchers to be aware of these characteristics of participatory organizational interventions and describe these in their reports of intervention trials. Comparing implementations and outcomes of participatory organizational interventions with different characteristics may make it possible to identify essential components that may affect the outcome of interventions.

**4.1 | Limitations**

This opinion paper has several limitations. First, we collected opinions from the experts only once; in addition, we asked for input from only a limited number of experts.

Accordingly, the consensus-building process should be based on the opinions of a larger number of experts. Second, although we conducted a comprehensive review of relevant literature, the available literature may have been inadequate for developing a draft definition. As a result of publishing this opinion paper, we anticipate further comments and suggestions from various researchers and practitioners for improving our definition.

### AUTHOR CONTRIBUTIONS

Asuka Sakuraya led the drafting of the manuscript. Norito Kawakami, Akizumi Tsutsumi, Kotaro Imamura, and Mako Iida provided critical revision of the manuscript. All authors read and approved the final manuscript.

### ACKNOWLEDGMENTS

The authors appreciate the help of Professor. Tage Søndergaard Kristensen (Task-Consult), Professor. Johannes Siegrist (Heinrich-Heine University Duesseldorf), Dr. Irene Houtman (Research Group Work, Health, Technology), Professor. Jian Li (University of California Los Angeles), Professor. Emeritus Wilmar B. Schaufeli (Utrecht University), Professor. Anthony D. LaMontagne (Deakin University), Dr. Toru Yoshikawa (National Institute of Occupational Safety and Health, Japan), Dr. Kazutaka Kogi (The Ohara Memorial Institute for Science of Labour), Dr. Tsuyoshi Kawakami (International Labour Organization), Dr. Yuka Ujita (International Labour Organization), Professor. Noriko Nishikido (Tokai University), and Associate Professor. Etsuko Yoshikawa (Japanese Red Cross College of Nursing).

### DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

### DISCLOSURE

*Approval of the research protocol:* N/A; *Informed consent:* N/A; *Registry and the registration no. of the study/trial:* N/A; *Animal studies:* N/A; *Conflict of interest:* The authors ASa, KI, and NK are employed at the Department of Digital Mental Health, an endowment department supported with an unrestricted grant from 15 enterprises (<https://dmh.m.u-tokyo.ac.jp/c>), outside the submitted work.

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**How to cite this article:** Sakuraya A, Iida M, Imamura K, et al. A proposed definition of participatory organizational interventions. *J Occup Health*. 2023;65:e12386. doi:[10.1002/1348-9585.12386](https://doi.org/10.1002/1348-9585.12386)

【教育講演】

## 小規模事業場へのメンタルヘルス支援

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**抄録：**小規模事業場は、労働災害が多くメンタルヘルス活動も遅れている。現行の労働安全衛生法においては、小規模事業場に対する強制力がないため、事業場外からの支援を入れることが重要である。

地域・職域連携推進事業は、各自治体において生活習慣病対策を目的として開始された。しかし、将来的にはメンタルヘルス対策にも拡大適用できる可能性がある。効率的なメンタルヘルス支援を行うためには、産業保健分野の支援機関の連携ネットワークへの参画、行政の保健担当者において産業保健や職場のメンタルヘルス関連の知識を増やすことが必要である。

**Key words:** Collaboration of Public Health and Occupational Health Field (地域・職域連携), Small Enterprises (小規模事業場), Support for Mental Health Measures (メンタルヘルス対策支援)

### 1. はじめに

中小企業基本法では、従業員20人以下の製造業等、従業員5人以下の商業・サービス等の企業を小規模企業と定義している(表1)。2016年調査によれば、

全国の事業所数の84.9%が小規模企業であり、全労働者の22.3%がこれらの企業で働いている<sup>1)</sup>。一方、労働安全衛生法では、事業場の業種と規模別に必要な安全衛生管理体制を規定しており、有期雇用や派遣者を含めた雇用者が50人未満の事業場を小規模事業場と定

表1. 中小企業基本法による定義

業種	中小企業者 (下記のいずれかを満たすこと)		小規模企業者
	資本金の額又は 出資の総額	常時使用する 従業員の数	常時使用する 従業員の数
① 製造業、建設業、運輸業、 その他の業種(②~④を除く)	3億円以下	300人以下	20人以下
② 卸売業	1億円以下	100人以下	5人以下
③ サービス業	5,000万円以下	100人以下	5人以下
④ 小売業	5,000万円以下	50人以下	5人以下

※有期雇用者や派遣者の人数は含めない

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義している(図1)。企業体全体ではなく、事業場単位で規定している点も中小企業基本法の定義と異なる。小規模事業場への支援について関係機関間で議論するとき、産業保健に関わる医療専門職や労務管理者は労働安全衛生法に基づき従業員50人未満の町工場やオフィスなど、ある程度企業としての体裁があるものを“小規模事業場”として、経営者や保険者は家族経営の商店などを“小規模企業”としてイメージするため齟齬が生じやすく、注意が必要である。

本稿では、労働安全衛生法の定義に従い、50人未満の雇用者を有する小規模事業場を念頭にメンタルヘルス対策の現状と推進方法について概観し、その中でも厚生労働省健康局が推進している「地域・職域連携」事業を活用した自治体から小規模事業場への支援の取組みについて取り上げ、その有効性・可能性について考察する。

## 2. 小規模事業場における健康課題とメンタルヘルス

労働災害統計によれば、本邦における令和3年度の労働災害件数(連続4日以上以上の休業者数)は149,918人、死亡者は867名である。そのうち小規模事業場での発生率は、それぞれ57.3%、78.2%と高率を占める。また、メンタルヘルス対策に取り組んでいる事業所の割合は、平成23年度の43.6%から令和2年度の61.4%に増加している<sup>2)</sup>が、事業所規模別に見ると小規模事業場は10~29人規模の事業所で53.5%、30~49人規模で69.1%と、50人以上の事業所と比較して著しく低い(図2)。小規模事業場の支援を目的とする地域産業保健センターの活用率も10~29人規模の事業所で4.1%、30~49人規模で3.2%にとどまっている<sup>3)</sup>。これらから小規模事業場では、人的・資金的・時間的な制約から産業保健サービスが充分に行き届いておらず、メンタルヘルス対策にまで手が回らないことがうかがえる。

小規模事業場がメンタルヘルス対策に取り組むため

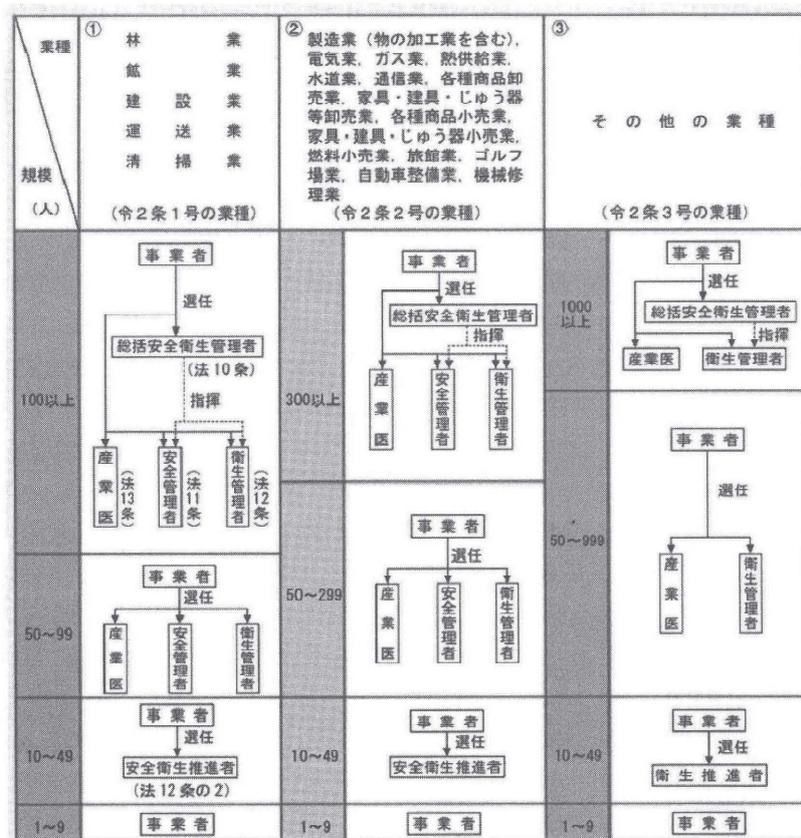


図1. 労働安全衛生法による業種・規模別安全衛生管理体制の基準

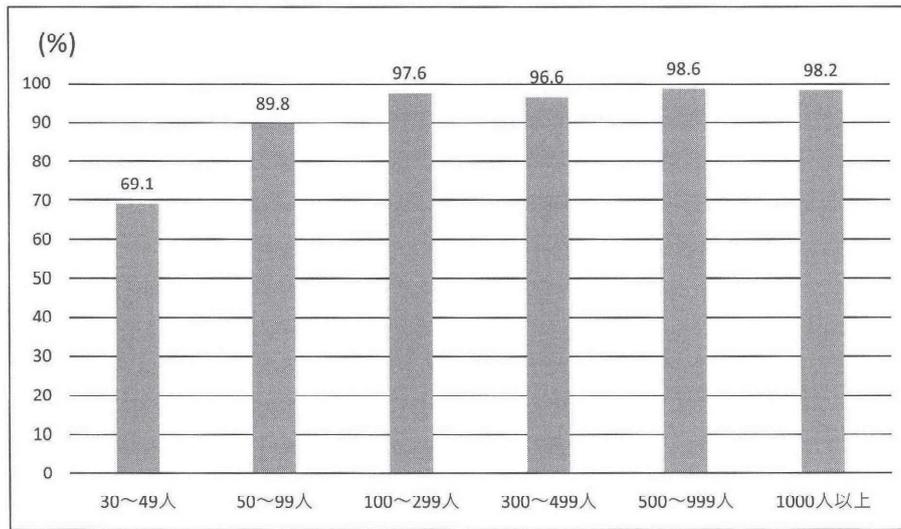


図2. 事業所規模別メンタルヘルス対策への取組み状況  
(令和3年版過労死等防止対策白書より)

には、より費用負担が少なく、かつ事業場外の専門家に繋がりやすいネットワークに組み入れる工夫が必要である。日本公衆衛生学会のメンタルヘルス・自殺対策委員会では、地域の小規模事業場を対象としたメンタルヘルス対策を推進する方法として、①産業保健総合支援センターを核とした地域の精神専門医療機関との連携、②職域と地域の連携ギャップ削減のための医師会と嘱託産業医の取組み、③中小事業場を対象とした地域・職域連携推進連絡会による連携、の事例を紹介している<sup>4)</sup>。令和2～4年度、本学会の堤明純理事長を代表者とする「小規模零細事業場の構成員に必要な支援を効率的に提供するツールと仕組みを通してメンタルヘルス対策を浸透させることを目指す実装研究」では、さらなる推進ツールの開発や支援モデルのあり方について検討中である。筆者は公衆衛生看護領域の研究者という立場でこの研究に参加している。ここでは、担当する「地域・職域推進モデルを活用した小規模事業場への支援」から、地域・職域連携推進の考え方と小規模事業場への活用可能性について紹介したい。

### 3. 地域・職域連携

#### 3-1 地域・職域連携推進事業の基本的理念と取組みの流れ

地域・職域連携は、平成11～13年度に厚生労働省「生活習慣病予防を目的とした地域保健と職域保健の連携

の在り方について」の委員会で検討が開始された。我が国の高齢化進展に伴い、生活習慣病の重症化を起因とする医療費増加が見込まれる中で、地域保健においても働く世代の健康づくり支援を強化することが目的であった。基本的な考え方は、①地域保健と職域保健が提供するサービスの共通性を見極め、②それぞれの機関が有する健康教育、健康相談、健康情報等を共有化することで、より効果的、効率的な保健事業（地域・職域連携推進事業）を展開する。③そのために情報交換と協議する場（地域・職域連携推進協議会）を持ち、情報共有と地域の健康課題を明確化してPDCAサイクルを展開する、の3つに集約される。協議会は、都道府県および2次医療圏単位に設置され、地域・職域連携推進事業の企画、実施、評価等の中核的な役割を担うこととなった。事務局は、都道府県では本庁、2次医療圏では管轄保健所の健康増進課等に設置され、担当課の保健師や管理栄養士などが担当者として配備されている。平成16年には「地域・職域連携推進ガイドライン」が策定され、全国の自治体ではガイドラインを参考に地域・職域連携を展開することとなった。地域・職域連携推進のこれまでの流れを図3に示す。

#### 3-2 地域・職域連携推進ガイドラインの改訂

各自治体で地域・職域連携事業を進める過程で、平成20年に特定健診・特定保健指導が始まり、生活習慣病予防の責任主体が保険者とされた。また、平成27年

には自治体が保有する国民保険加入者および保険者が保有する働く世代の健診データを統合して、地域の健康課題を抽出し、地域の健康づくり活動の施策に反映させる「データヘルス計画」が開始となった。さらに、平成27年には労働安全衛生法の改正による「ストレスチェック制度」が始まり、企業にはメンタルヘルス活動への取組み責任が新たに生じた。平成28年には、経済産業省による「健康経営」推進が打ち出され、経営面から健康づくり強化を目指す企業が増加するとともに、それを後押しする施策を講じる自治体も出現した。

これらの社会変化を反映させた「地域・職域連携推進ガイドライン（改訂版）」<sup>5)</sup>が令和元年9月に発表された。改訂のポイントは、以下のとおりである（下線は筆者が追加）。

- 1) 地域・職域連携の基本的理念の再整理  
 在住・在勤の違いによらず、地域保健と職域保健が連携した幅広い取組、多様な関係者がメリットを感じられるような健康に関する取組を推進する。また、従来のシステムでは支援が不十分な層（退職者、被扶養者、小規模事業場等）への対応を促進する。
- 2) 地域・職域連携推進協議会の効果的運営  
 事務局機能の強化による協議会の効果的運営を促進し、各関係者の役割期待を明確化して積極的参画を促進する。さらに、他の健康関係の協議会等との連携の在り方を明確化して、更なる効果的な連携を促進する。

3) 具体的な取組み実施のために必要な工夫  
 「実行」を重視した柔軟なPDCA サイクルに基づいた事業展開、および地域・職域連携推進に向けた共通理解と現場レベルでの連携を促進する。また、地域特性に合わせた効果的な事業展開に向けたデータ活用を進め、これらのリソースの相互共有・活用等を図ることで効率的・効果的な取組を実施する。

初版ガイドラインでは協議会の設置など体制整備を目的としていたが、改訂版では関係機関が連携した具体的な取組み実施にまで繋げていくことが強調されている。また、小規模事業場への支援に対する行政（地域保健）の参画の必要性が追加されている。

### 3-3 地域・職域連携推進における参加機関と役割

ガイドラインには、地域・職域連携推進に参加が期待されている機関が示されている（図4）。職域からは、労働局、労働基準監督署、産業保健総合支援センター、地域産業保健センター、保険者（健保）、事業所、商工会議所等の地方経営者団体、共同組合があげられている。また、支援の対象者は「働く地域住民」であり、事業所は保険者や自治体と連携して地域住民に対する健康づくり活動や検診を提供する機関として描かれている。職域保健の構成機関のメインは企業と保険者で、企業を支援する保険者への役割期待が大きいことも特徴的である。これは、地域・職域連携推進が生生活習慣病の予防を目的としており、特定健診・特定保

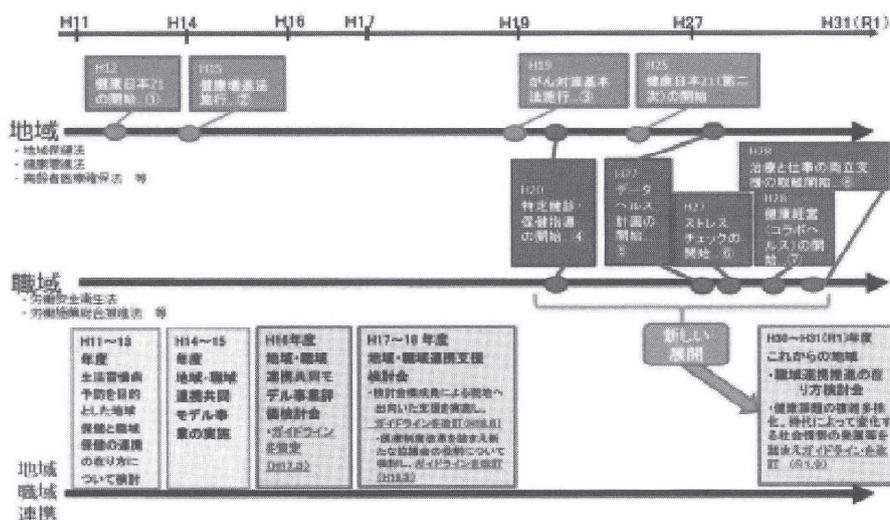


図3. 地域・職域連携のこれまでの流れ  
 (出典：厚生労働省 改訂版 地域・職域連携推進ガイドライン, 令和元年9月)



表2. 自治体が企業に提供しているメンタルヘルス関連の教育介入・サービス

テーマ	レベル	企画担当	講師担当
アルコール依存症の 予防・適正飲酒	実施済み	保健所・健康増進課 (保健師)	保健所・精神保健課/精神 保健福祉センター (PSWまたは精神科医師)
自殺予防 (ゲートキーパー養成)	実施済み	保健師	医師・臨床心理士
リラクゼーション	実施済み	保健師	民間の講師(ヨガなど)に 委託
コミュニケーションの 改善	実施済み	保健師	臨床心理士
うつ病の社員・休職者 への対応	事例対応	地域の精神科専門医療機関への繋ぎ	
統合失調症疑いの社員 への対応	事例対応	地域の精神科専門医療機関への繋ぎ	
社内のストレス対策	未実施(ニーズは認識)		
ストレスチェック制度の 事後措置	未実施(ニーズは認識)		

談対応があった。このような相談を受けた自治体の地域・職域連携担当者は、地域の精神科専門医療機関への繋ぎを行っていた。一方で、企業からのニーズは認識しているものの実施には至らなかったテーマとして、「社内のストレス対策の構築」、「ストレスチェック制度の事後措置」があげられた。これらのニーズに応えるためには産業保健や職場のメンタルヘルスに関する知識が必要であり、自治体の地域・職域連携担当部署(主に生活習慣病予防担当部署)にとっては難しい状況が明らかとなった。

#### 4. おわりに

地域・職域連携推進事業は、国により計画的段階的に実施されており、全国どこでも活用可能な地域資源である。小規模事業場へのメンタルヘルス支援対策にも拡大できる可能性は高いと考える。一方で、自治体の担当者には基本的な産業保健や職場のメンタルヘルスに関する知識が充分とは言えず、活用するためには産業精神保健専門家による自治体の保健師等へのトレーニングが必要である。また、大多数の小規模事業場が加入している全国保険協会(協会けんぽ)や商工会議所等の経営団体は、重要な役割を担っている。これらの団体と産業保健総合支援センター、地域産業保健センターに地域・職域連携推進協議会に参画して頂き、

メンタルヘルス支援を包含した地域・職域連携推進事業を提案していくが必要になると思われた。

【本稿は、第29回日本産業ストレス学会での教育講演を再構成したものである。】

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(受付 2022年8月30日, 受理 2022年10月2日)

## Support for Mental Health Measures in Small Enterprises

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**Abstract** Small enterprises are falling behind due to a high number of workplace accidents and a delay in implementing critical mental health precautions for employees. Because the present Industrial Safety and Health Act does not provide a driving force for small enterprises to develop mental health programs, it is important that they seek outside assistance.

A collaboration of public and occupational health fields was initiated to prevent the worsening of lifestyle-related disorders in each municipality. However, future expansion of mental health support services may be feasible. The number of occupational support organizations participating in the collaboration network, as well as knowledge about occupational health and workplace stress should be enhanced to enable the administrative health professional to provide the appropriate mental health support.

Job Stress Res., 29(4), 357-364 (2022)