Received: 1 July 2022 Revised: 27 November 2022 Accepted: 2 December 2022

Check for updates

y INASP/HINARI

INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms

and Condition

(http:

REVIEW ARTICLE

DOI: 10 1002/1348-9585 12379

Journal of Occupational Health WILEY

Workplace wellness programs for working mothers: A systematic review

Ernawati Ernawati^{1,2} | Fitriana Mawardi² | Roswiyani Roswiyani³ | Melissa Melissa³ | Guswan Wiwaha⁴ | Sri Tiatri³ | Dany Hilmanto⁵

¹Public Health Department, Faculty of Medicine, Universitas Tarumanagara, Jakarta Barat, Indonesia

²Medicine Study Program, Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia

³Faculty of Psychology, Universitas Tarumanagara, Jakarta Barat, Indonesia ⁴Public Health Department, Faculty of Medicine, Universitas Padjadjaran,

⁵Pediatry Department Faculty of

Medicine, Universitas Padjadjaran, Bandung, Indonesia

Correspondence

Ernawati Ernawati, Public Health Department, Faculty of Medicine, Universitas Tarumanagara, West Jakarta, Indonesia. Email: dr.ernawati@gmail.com, ernawati@fk.untar.ac.id

Abstract

Background: This systematic review aimed to uncover the evidence and benefits of employers' commitment to delivering workplace wellness programs for working mothers.

Methods: The articles published in PubMed, Embase, Scopus, and AgeLine-Medline databases between 2012 and 2021 were searched to evaluate the workplace wellness programs for working mothers with at least one resultant wellness or wellbeing (e.g., physical health, less stress, mental health, burnout, depression, smoking, bullying, alcohol consumption, overweight), work-life balance outcome, or job satisfaction.

Results: Eight studies that met the criteria were retrieved from databases. They showed some effective workplace wellness programs that can reduce depression, stress, and burnout, improve mental health, healthy behaviors, work-family balance and work-life balance. Working mothers participating in a workplace wellness program generally gain some benefits; one of which is reduced stress typically related to childcare, economic, and personal health issues.

Conclusions: The implementation of workplace wellness programs for working mothers showed positive effects on their health problems and health costs. These eight studies revealed that workplace wellness programs specifically designed for working mothers can lead to time efficiency by holding the programs in or near the workplace and implementing them during the workdays. This greatly suits the conditions of many working mothers whose limited time and energy to balance the household, family and work tasks.

K E Y W O R D S

wellness programs, working mothers, workplace

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made. © 2022 The Authors. Journal of Occupational Health published by John Wiley & Sons Australia, Ltd on behalf of The Japan Society for Occupational Health.

J Occup Health. 2022;64:e12379. https://doi.org/10.1002/1348-9585.12379 wileyonlinelibrary.com/journal/joh2 1 of 11

1 | INTRODUCTION

Recently, there has been an increase in chronic diseases in the working population with increasing medical expenses.^{1,2} This has an impact on the life quality of employees and their families, as well as harming the sustainability of their company's economic interests.¹ It is important to carry out health promotion and health protection intervention in the workplace,¹ including disease prevention programs, for all of the employees. Workplace wellness programs supported by policies can have some advantages, such as mitigating health risks and optimizing the employees' quality of life.^{3,4}

A comprehensive setting and proper synchronization between programs, environmental supports, policies, advantages, and relations to the community are highly required to obtain maximum safety and health needs of all workers.³ According to Berry et al (2011), a workplace wellness program is a program designed systematically and sponsored by the employer to develop healthy behaviors to minimize health risks, improve life quality, gain efficiency and effectiveness, and bring positive impacts on the organization's bottom line.5 Workplace wellness programs consist of several activities: screening actions to monitor health risks (e.g., measurement of body weight, biometric measures), preventive interventions to minimize health risks (e.g., vaccination, smoking cessation, physical activities, weight management counseling, access to fitness facilities, stress management, supportive social and physical environments, wearing personal protective equipment), health promotion to improve a healthy lifestyle (e.g., healthy food options, health education, company policies, workplace bullying), and disease management (e.g., health insurance, on-site medical health centre such as a clinic for workers with or without their families).^{2–4,6} Emmons et al. evaluated a workplace health education initiative targeting smoking, diet, and physical activity.⁷ Workers in the intervention condition developed an improved healthy diet and exercise behaviors; however, these did not affect their levels of smoking.⁷ Sorensen et al. found that a comprehensive workplace malignancy prevention intervention conducted at 15 manufacturing plants reduced the number of smoking stages.⁸ As a result, smoking levels dropped significantly over the 2 years, but a healthy diet did not improve. Golaszewski et al. found that there was an improvement in the workplace environment of a U.S. government's department for over 3 years.9 There was a decline found in the hours taken by workers for sick leaves, progress in the worksite environment, and stable employees' risk statuses although some of them were getting older.9 Short et al. reported the results to Prudential Financial in which physically active workers had a good level of high-density lipoproteins (HDL).8 The ERNAWATI ET AL.

2022

1002/1348-9585.12379 by INASP/HINARI

INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms

use; OA article

applicable Crea

workers joining a disease controlling program were also found to have a declined level of low-density lipoproteins (LDL) and cholesterol in 1 year matched to a group of nonparticipants.¹⁰ Byrne et al. presented the findings of their seven-year research (2003-2009) at Vanderbilt University, in which the application of health promotion programs had improved the physical activities of employees from 73% to 83%.¹¹ Jackson et al. reported that there was a decline in blood pressure and an increased level of awareness among the workers after the interventions through health education for 6 months (86%).¹² Merrill et al. compared the employees of Lincoln Industries with those outside Lincoln Industries in terms of four wellness indicators, namely emotional health, physical health, access to health-related services, and engagement in healthy behaviors.¹³ It was found that the employees of the Lincoln Industries were better than those outside in three of the four indicators, namely emotional health, physical health, and engagement in healthy behaviors. Neville et al. carried out an 8-year study and revealed that there was an improvement in the health condition of workers with chronic diseases.¹⁴ Long-standing involvement was linked to Body Mass Index (BMI), adjusted blood pressure, cholesterol, and with the highest advantages discovered in the highestrisk group. Berry et al. reported that a U.S. software provider, SAS Institute (The Statistical Analysis System), ran its own worksite full-service health clinics for workers and their families.¹⁵ The services included consultation with a dietician, allergy shots, blood tests, consultation with a psychotherapist, and physical therapy. Workers generated a connection with a primary care physician (a medical home) which guaranteed the continuity of care.15

Not all worksites provide workplace wellness programs aimed specifically at working mothers with special conditions with their triple burdens of taking care of their nuclear family, parents, parents-in-law, and the demands of the worksite.^{1-4,16,17} Not all workplace wellness programs showed positive results on the workers' wellness in the short time as reported from the RAND Employer Survey by one employer that did not succeed significantly in lowering cholesterol levels,² and Burke says on Hochart and Lang's research at Blue Cross Blue Shield in weight loss.⁶ The success of workplace wellness programs requires consistency and a long period of time to assess their success.^{2.6} Thus, a systematic review is needed to understand better the evidence associated with the implementation of wellness programs in the workplace.

Working mothers as part of the workers' community are more vulnerable to various health problems compared men or other working women. Health risks emerge from both workplace factors and family factors, which sometimes are correlated to each other. Working mothers often have to carry out multiple responsibilities at the same time,

namely as a housewife, mother raising children,⁵ working woman.¹⁷ The amount of work they have at home and at work often makes them lack time, energy, physical capacity, psychological acceptance, and endurance.^{17,18} There are also many working mothers who do not receive full support from their spouses or families in terms of burdensharing due to cultural influences. Furthermore, there is a lack of support from the workplace for them. Not many companies run workplace wellness programs specifically designed for working mothers.^{17,18} Many working mothers complain of frequent fatigues,¹⁸ headaches, back pain, circulatory disorders, poor nutritional status. They also suffer from gynecological problems, miscarriages, premature deliveries, urinary tract infections and other diseases, sexual harassment, emotional and mental disorders. A number of health and psychological problems^{18,19} are faced by working mothers which affect their children. Babies with low birth weight or birth defects as well as adolescent children of working mothers are more delinquent.^{3,18}

Some working mothers speak of how they allocated urgency to their inflexible needs, i.e., caring and work duties, rather than 'optional' health and wellness-promoting behaviors due to lack of time and energy.^{3,20} That is the reason why working mothers are in dire need of support from the worksite in the form of workplace wellness programs to help them maintain physical and psychological health. The opportunities and support provided to them to do physical activities, relieve stress, obtain flexible working time, healthy food, and health information should be based on the types of work they do and their work environment.²¹

We have attempted to find previous research on the implementation of workplace wellness programs for working mothers; however, there was only little of it. Tucker et al. reported on 58 nurses (30 interventions and 28 controls) who provided replicated measures of body composition and physical activity (steps) at baseline and after the intervention.²² In both groups, the average daily steps at baseline and after intervention exceeded 12400. There were no significant results for physical activity, but significant results for fat index, fat mass, and percentage of fat (P < .03). The employer promised of targeting the wellness of working mothers.²² Dixon reported that 44 working mothers from a university in the Southwestern United States contributed to focus group inquiries concerning their physical activities, sports participation, paths they bargained for those barriers, difficulties in partaking, and suggestions for modification.²³ The findings showed that guilt, rigid timetables, and narrow programming restricted the activity involvement with limits being varied by marital status and social class.23

Therefore, this systematic review aims to find the workplace wellness programs that have previously been run for , 2022

9585.12379 by INASP/HINARI

INDONESIA, Wiley Online

working mothers as well as their outcomes. There are two research questions that we aim to address: (1) What kind of workplace wellness programs have previously been run for working mothers?, and (2) What are their outputs on the working mothers?

2 | MATERIAL AND METHODS

2.1 | Search strategy and study eligibility

We used the 2020 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for this systematic review.²⁴ The data needed for this systematic review were collected from AgeLine-Medline, Embase, PubMed and Scopus databases by the Boolean operator using the keywords "occupational" OR "workplace" AND "wellness" AND "programs" AND "working" AND "mothers". The original articles from these databases are in English. They were published between 2012-2021. The data were collected from 2012-2021 because we only focused on the development of the past 10 years regarding the workplace wellness program of working mothers to find out how much awareness and attention employers have on the wellness for working mothers. The search date was 12 January 2022. The search strategy structure used was based on the PICOS-style approach. The population of the research must have working mothers under 65 years old. The intervention programs used were any workplace wellness programs consisting of screening activities to recognize health risks (e.g., monitoring of body weight, biometric measures); preventive interventions to address manifest health risks (e.g., smoking cessation, weight control counseling, physical activities, vaccination, access to fitness facilities, stress management, supportive social and physical environments, wearing personal protective equipment); health promotion to improve healthy lifestyle (e.g., healthy diet options, health education, company policies, workplace bullying); disease management (e.g., on-site medical clinics and health insurance for workers with or without their families).2-4,16,17 The outcomes of the research were the conditions of the working mothers in terms of the mental health, physical health, job satisfaction, work-life balance, depression, stress levels, burnout, alcohol consumption, smoking, overweight, and bullying.^{1–4,16,17}

We selected only the original full-text articles in English (published studies) with any kind of study design (such as cross-sectional, longitudinal, survey, RCT, qualitative study) and with working mothers doing any kind of occupation. The workplace wellness programs carried out at least one screening activity to identify health risks (e.g., monitoring body weight, biometric measures) or preventive interventions to reduce health risks (e.g., physical activity, weight control counseling, vaccination, smoking cessation, access to fitness facilities, stress management, supportive social and physical environments, wearing personal protective equipment) or health promotion to improve healthy lifestyle (e.g., healthy diet options, health education, company policies, workplace bullying) or disease control (e.g., health insurance and on-site medical clinics for workers with or without their families), but not any breastfeeding programs, because Kin JH et al have carried out an updated systematic review related to workplace lactation interventions until September 2017.25 The articles were omitted if there were no working mothers among the respondents, no workplace wellness programs implemented, and no outcomes mentioned. The criteria for working mothers were women working pregnant or having a minimum of one child of any age.

2.2 | Data extraction and quality assessment

The PRISMA guidelines were used during the data collection process, as shown in Figure 1. The current research team consisted of 7 authors (4 physicians and 3 psychologists). The concept was created by four of the authors, namely E, DH, GW, and ST (E and ST as the originator of ideas when the first PICO concept was and DH and GW provided input and correction for the first PICO concept). Of 941 articles, 14 were removed due to duplication, and 827 were excluded after the titles and abstracts were reviewed by E, M, R and F independently (E and M re-checked after being chosen together with R and F). Of 100 full-text articles, 53 articles were excluded after finding out that no working mothers were involved as the research respondents; no workplace wellness programs were implemented; no original articles were found out. Of the remaining 47 articles, 39 were excluded by E, M, R and F independently because there were neither specific working mothers mentioned in the respondent section nor specific workplace wellness programs implemented. The seventh author (DH) was consulted when there were disagreements among the rest of the authors. The methodology review was carried out by E, DH, GW, and ST. Finally, there were 8 articles included in the review with 2 were published in 2014, 2 in 2016, 3 in 2017 and 1 in 2020.

2.3 | Statistical analysis

Based on the final search output, there were only 8 articles considered eligible for this systematic review, consisting of 2 qualitative studies and 6 quantitative studies. Clarke 2022

-9585.12379 by INASP/HINARI

INDONESIA, Wiley Online Library on [17/12/2022].

. See

÷0A

applicable Crea

contends, "systematic review does not need to combine the results of the studies to provide an average estimate" when such heterogeneity in methodology exists.²⁶ Therefore, in this study, the data were collected and synthesized through narrative interpretation. Approaches to the results were organized based on the study designs, occupations, workplace wellness programs, and outcomes. The results were presented in Table 1. Every implemented workplace wellness program had an outcome, and the survey study showed the report from their workplace.

2.4 | Risk of bias assessment

Quality assessment of the selected studies was appraised with the 'QualSyst created by Kmet and teammates using a checklist consisting of 14 questions to assess the quantitative studies and 10 questions to examine the qualitative study.²⁷ They set up a cut-off of 75% for quantitative papers and 55% for qualitative papers. The total details of quality reviews of personal studies were provided in Supplement 1. Based this quality assessment by Kmet and teammates, quality interpretation for quantitative papers is considered "strong" if the summary score is >0.80, "good" if the summary score is 0.71-0.79, "adequate" if the summary score is 0.50-0.70, and "limited" if the summary score is <0.50. For qualitative papers, a score of \geq 0.55 is categorized as "adequate" while a score of ≤0.54 is considered as "low-quality".²⁷ Each study quality assessment is shown in Supplement 1.

3 | RESULTS

The 8 articles consisted of two qualitative, one RCT, one questionnaire survey, one longitudinal and three crosssectional study. All of them show adequate results for qualitative studies and are strong for quantitative studies after doing a quality assessment using QualSyst tool. Six of them were conducted in the USA, one in Thailand, and the other was in the UK. Three of them had physicians as their respondents, while the rest did not.^{28–35}

3.1 Workplace wellness programs

Workplace wellness programs mentioned in the eight studies consisted of indoor walking clubs, worksite pedometer challenges, recipe contests, social support (exercising or eating healthy food together), extra free time provided during the workday for workers to exercise or choose a continuing education class, working hour flexibility, work environment stimulation, activities during



free time, maternity leaves, job reward, workplace integration and support, institution-affiliated child-care and Authentic Connections Groups (ACG) programs with 12 sessions (1. Introduction, 2. Minimizing rumination, 3. Children's pain and go-to committees, 4. Obstacles for connecting authenticity, 5. Anger/hurt, 6. Support wallets, 7. Assertiveness and mentorship at work, 8. "Good enough" mothering, 9. Continuity after termination 10. Shame versus self-compassion, 11. Limit-setting and affection, 12. Prioritize tending) that have working mothers.^{28–31} According to the author, many other workplace wellness programs in the worksite can be added to suit the needs and abilities of employees; however, they have not been designed to accommodating other working mothers' needs (for example, on-site clinics that can serve reproductive health problems for working mothers, health insurance related to diseases specifically for reproductive organs in working mothers, special health checks on reproductive organs for working mothers, etc.).

Some research revealed that workplace wellness programs held at worksite helped working mothers manage their time well. Research by Maraolo and Christiansen for example, showed that physical activity can be done properly if adequate places, facilities, time,^{28,30} and support from supervisors as well as co-workers are available. Maraolo, mentioned activities during free time, maternity leave,²⁹ working hour flexibility as part of stress management.^{33,34} Similarly, the study by Luthar using the ACG intervention²⁹ and by Apple using institution-affiliated childcare³¹ improved working mothers' time management which led to less stress. Christiansen, Zhou discovered that workplace wellness programs giving some extra free time to working mothers allow them to do other activities, such as eating healthy food and doing physical activities at the worksite and on workdays.^{28,34} These programs should also be supported by the co-workers and supervisors. However, these do not suit the shift workers because they have a different work schedule compared

		om s strain cant. uificant upport egnant	te nds were ts, job srcise, argetic orry orry ational women juate	eward	out er to s that of
	comes	tal health (psychological distress). The results fr he hierarchical multiple linear regression models ndicated that the interaction terms between job s and perceived workpiace support was not signific. Another contribution of the findings was the signific litect effect of perceived workplace and family su in reducing psychological distress in employed pr vomen.	entive health behaviors (adequate sleep, adequat exercise, time to relax, healthy diet) \rightarrow job demands associated with days of adequate sleep for mother lexibility statistical significant with adequate exet ime to relax and healthy diet. ective health outcomes (feel worried or stress, fel werwhelmed, feel healthy and energetic) \rightarrow job lexibility statistical significant with feel worried tress, feel overwhelmed and feel healthy and ene- hers who had higher levels of education and job lexibility reported fewer days per week of feeling vorried or stressed, whereas those with greater w. nous and work pressure reported more days of we day for a status: positive association with occupa tatus ($D = .32^*$), indicating that the professional vorkers in the sample reported more days of adeq leep	k life balance (work-family enrichment) \rightarrow job re ussociated with higher work-family enrichment	k life balance previously mentioned, time is a limiting factor, b vorkplace integration enables the working mothe nake time for her role as AT and leader as well as nom and caretaker"
	Out	Men i a a c c c c	Prev e e e e e e e e e e e e e	Wor	Wor No No No No No No No No No No No No No
	Workplace wellness programs	Workplace support	Job flexibility Co-worker support	Job reward Reduced work hours	Supportive supervisor, supportive co-worker, family oriented environment in workplace/workplace integration
	Respondent's age, age of children and number of children	The average working mother's age is 28.76 years (SD 5.22). The average gestational age was 30.77 weeks (SD 3.89).	The average working mother's age was 35.71 years (SD 4.8). The number of children averages 2 with preschool age.	There is no data on the age of working mothers nor the number of children. There is only data on the age of children from 6 months to grade 5.	The average working mother's age is 38years old (SD 9). The number of children and the age of the child is not mentioned
cription of the study intaings	Occupation	Full time worker (skilled and semi-skilled workers in private and government workplace)	Professional/managerial	No information	Head athletic trainers
IABLE I Des	Study design First author	Cross-sectional Sanguanklin N (2014)	Cross-sectional Pedersen DE (2014)	Longitudinal study Zhou N (2016)	Qualitative Mazerolle SM (2016)

TABLE 1 Description of the study findings

^{6 of 11} WILEY-Journal of Occupational Health_

ERNAWATI ET AL.

13489585, 2022. 1, Downloaded from https://online1b.may.wiley.com/doi/10.1002/1348-9585.12379 by INASPHINARI - INDONESIA, Wiley Online Library on [17/1/22022]. See the Terms. and (wile m Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

13489585 2022, 1. Downloaded from https://onlindibrary.wiley.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA. Wiley Online Library on [17/12/2022]. See the Terms and Conditions 00 tps://onlinelibrary.

.wiley. .com/terms-and-c

conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 1 (Co	ontinued)			
Study design First author	Occupation	Respondent's age, age of children and number of children	Workplace wellness programs	Outcomes
Qualitative Christiansen K (2017)	Female primary caregivers, schools, tribal employees from tribal agencies, enterprises (such as the casino and gas station)	There is no explanation of the age of the working mother, the number of children and the age of her child. Only the age of adult respondents aged 18– 75 years and child respondents aged 6–17 years	Indoor walking clubs, worksite pedometer challenges, recipe contests, and social support (exercise or eat healthier together, extra break time given during the workday for workers to exercise or choose a continuing education class), incentives to engage in healthier behaviors	Work-life balance Work-family balance Healthy behaviors (regular eating, activity schedule, physical activity, healthy diet) Positive responses to the respondents
RCT Luthar SS (2017)	PhD clinicians, physicians, physician assistants, nurse practitioners	The age of working mothers in the intervention group was 38.76 (SD 6.13) and the control group was 39.39 (SD 4.83). The ages of the working mothers' children are all ages, <18 years old and > 18 years old. There is no mention of the number of children.	Authentic Connections Groups (ACG) based on the structured Relational Psychotherapy Mothers' Groups (RPMG) with 12 sessions (stress management)	Mental health (less depression, less stress, lower stress hormone)
Questionnaire survey Maraolo AE (2017)	Physicians	The average working mother's age is 32 years (SD 5). The ages of the working mothers' children are all ages. There is no mention of the number of children.	Working hour flexibility, stimulating work environment, activities during free time, maternity leaves	Work-life balance (maternity leave)> 50% Healthy behaviors <50% (physical activity) Mental health <50% (stress management)
Cross-sectional Apple R (2020)	Physicians; house staff physicians; clinical providers; non- clinical support or administration non- clinical faculty	The age of the working mother is not stated, there is only a minimum number of children 1 who are aged 6 months to 6years	Institution-affiliated childcare (supportive social and physical environments)	Mental health (less stress and burnout)

to the schedule of working mothers. Workplace wellness programs must be of great quality, comprehensive, easy to apply, engaging, fun, personalized, and designed well with some main programs.⁶ These eight studies do not explicitly explain nominal financial benefits for employers and working mothers, but we clearly understand that the ability to maintain physical and mental health and balance tasks at work and home will reduce health costs and increase benefits for employers, working mothers, and their families.^{28–35} This is what was conveyed from The RAND Employer Survey data showing that more than 60% stated that their program reduced healthcare costs, and around four-fifths reported that it decreased absenteeism and increased productivity. The evaluation showed that the employer saved \$111 per member in 2009 and \$261 in 2010.²

3.2 | Working mothers wellness, worklife balance, and job satisfaction

The respondents' occupations in the eight studies were physicians, workers in tribal agencies, schools, and enterprises, PhD clinicians, physician assistants, nurses, house staff physicians, other clinical providers, non-clinical support, and non-clinical faculty administrators, skilled and semi-skilled workers in private and government workplace, professional/managerial, and head athletic trainers.^{28–35} Five of the eight articles mentioned mental health studies,^{29–33} because the most common issues faced by working mothers are stress, burnout, and depression. The amount of work they have both at work and home is often overwhelming, which reduces their physical capacity, time, endurance, energy, and psychological acceptance.^{3,17,18,29,33}

These eight studies were proof that the implementation of workplace wellness programs can improve the working mothers' health by allowing them to do a healthy diet and physical activity to lower the risks of chronic diseases, such as hypertension, cardiovascular problems, diabetes, and stroke.⁶ Christiansen and Pedersen reported that there were positive impacts of physical activities and a healthy diet carried out at worksites and during workdays, such improved work-life balance, work-family balance, and healthy behaviors.^{28,33} Luther provided evidence that the implementation of stress management, such as ACG program intervention can improve working mothers' mental health.²⁹ Sanguanklin and Mazerolle proved that workplace support can reduce stress and maintain work-life balance.^{32,35} This result is similar to that of the Apple study that implemented institution-affiliated childcare.³¹ Significant improvements were found between the intervention and mothers in the control group based on the results of central psychometric measures, with the .3489585, 2022, 1, Downloaded from https:/

Vonlinelibrary.wiley.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, WILey Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, WILey Online Library on [17/12/2022]. See the Terms and Conditions (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, WILey Online Library (https://www.com/doi/10.1002/1348.9585.12379 by INASP/HINARI - INDONESIA, WILey (https://www.com/doi/10.1002/1

/onlinelibrary.wile

nditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Comm

transition mainly manifesting three months after the program had ended. Psychological indices were measured using Brief Symptom Inventory,³⁶ the Beck Depression Inventory,³⁷ The Self-Compassion Scale,³⁸ Parenting Stress Index,³⁹ while the burnout was measured using The Maslach Burnout Inventory.⁴⁰

Other evidence showed a significant reduction of cortisol level from baseline.²⁹ Apple study reported a 6.3 lower median stress score for the worksite with implemented institution-affiliated childcare compared to without institution-affiliated childcare.³¹ Maraolo reported more than 50% of working mothers who enjoyed the maternal leave had that impact on their work-life balance.³⁰

4 | DISCUSSION

There were not much data found on workplace wellness programs specifically designed for working mothers from 2012 and 2021. This suggests that many worksites may not have specifically designed or fully prepared workplace wellness programs yet for working mothers, although there are already existing ones that can be used by both working and non-working mothers such as physical activity, weight loss, healthy diet, health promotion and stress management programs.^{1,2,5-7} Three of the studies focused on health workers like physicians. All workplace wellness programs in the eight studies also showed positive impacts of the programs on reducing obesity, depression, burnout, and stress related to childcare, finances, work-life balance, and other individual health.²⁸⁻³⁵ The studies' results were in accordance with the result of Ryan et al., in which social support can promote healthy lifestyle choices, safety, health, wellbeing,^{41,42} work and family satisfaction, mental health, cardiovascular health,43 job satisfaction44 and economic outcome.45 A large U.S. warehouse retail company running a worksite wellness program gained significantly greater rates among the exposed employees. They reported that there were some positive health behaviors developed among the exposed employees compared with those who were not exposed. However, there were no significant differences after 18 months of clinical or biometric measures, healthcare utilization and spending, and employment outcomes.45

All the workplace wellness programs implemented in the eight studies were similar to those recommended by the National Institute for Occupational Safety and Health⁴¹ and The National Workplace Wellness Programs (WWP) in Botswana, which mainly consisted of stress management and team building, psychological and spiritual care, health screening, health promotion, therapeutic recreation, occupational health and safety,⁴⁶ and multicomponent or multidimensional

3489 585, 2022, 1, Downloaded from https:

/onlinelibrary.wiley.com/doi/10.1002/1348-9585.12379 by INASP/HINARI - INDONESIA, Wiley Online Library on [17/12/2022]. See the Terms

appneable Creative Commons

workplace wellness program. They were also similar to the programs presented by many U.S. employers, such as nutrition, stress reduction, issues typically addressed by registered dietitians at the therapy worksites, and physical activity.45 Workplace wellness programs were described comprehensively in a study by Biswas et al., in which they consisted of flexible work hours, onsite shower facilities, worker assistance programs, fitness programs and/or physical activity, stress management and prevention, self-care books/tools, nutrition education, education on work-family balance, fitness breaks, on-site fitness or walking trails, health risk assessment, smoking cessation classes/counseling, weight management classes/counseling, screenings for high blood pressure, alcohol or drug abuse support programs, cholesterol reduction education, screenings for cholesterol levels, screening for diabetes, chronic disease management programs, promotions/discounts to encourage healthy food choices, food labels with specific health information in the cafeteria, nurse advice line, screenings for any forms of cancer, signages to encourage people to use the stairs, and education on HIV/AIDS.

Although some workplace wellness programs suit all types of workers, some others require special treatments to be included for certain groups, such a group of working mothers. The treatments include working flexibility that can be used by the working mothers for breastfeeding, the availability of childcare access, and social support from supervisors and co-workers to ease a large amount of burden they have.²⁸⁻³⁵ A successful workplace wellness program is typically one that suits a particular worker population, workers' needs, the workplace, individual and organizational health targets.³

There is no doubt that workplace health programs starting to be widely recognized by employers for the great benefits that they offer for workers, employers, and companies, such as improved physical health, mental health, life balance work safety, job satisfaction, work productivity and economic outcomes.^{1,41-45} These benefits will certainly bring a positive impact on the workers' families as well.

4.1 | Strengths and limitations

The study's strength is that it is based on a search that is entirely focused on the wellness of working women in the workplace and excludes breastfeeding initiatives.

As a limitation, we searched databases by the Boolean operator only using the keywords "occupational" OR "workplace" AND "wellness" AND "programs" AND "working" AND "mothers". There may be some other words that can show more detailed results based on the set criteria.

5 | CONCLUSION

The implementation of workplace wellness programs for working mothers showed positive effects on health problems and health costs directly or indirectly. The results of these 8 studies showed that workplace wellness programs for working mothers can lead to time efficiency and work-life balance. They were held in or near the worksite, made available in the work environment, and implemented during workdays. These suit the conditions of working mothers well because they tend to have limited time and energy to balance household, family and work tasks.

AUTHOR CONTRIBUTION

Conceptualization: Ernawati, Dany Hilmanto, Guswan Wiwaha, Sri Tiatri. Data curation: Ernawati, Melissa, Roswiyani, Fitriana Mawardi. Formal analysis: Ernawati, Melissa, Fitriana Mawardi. Methodology: Ernawati, Melissa, Fitriana Mawardi. Project administration: Ernawati. Visualization: Ernawati, Melissa. Writingoriginal draft: Ernawati, Sri Tiatri. Writing-review & editing: Ernawati, Dany Hilmanto, Guswan Wiwaha, Sri Tiatri.

ACKNOWLEDGMENTS

The authors would like to thank Ambar Pratiwi, a librarian who greatly helped us find some full-text articles and Fia Fia, who also helped us find some full-text articles.

CONFLICT OF INTEREST

There is no conflict of interest among the authors associated with the materials used in this paper.

DATA AVAILABILITY STATEMENT

Available from the corresponding author on request.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE Not applicable.

ORCID

Ernawati Ernawati © https://orcid. org/0000-0003-3009-4573 Fitriana Mawardi © https://orcid. org/0000-0002-8058-3220 Roswiyani Roswiyani © https://orcid. org/0000-0001-9506-6974 Melissa Melissa © https://orcid.org/0000-0001-5721-3590 Guswan Wiwaha © https://orcid.org/0000-0001-5721-3590 Guswan Wiwaha © https://orcid. org/0000-0002-2514-7493 Sri Tiatri © https://orcid.org/0000-0003-2047-1603 Dany Hilmanto © https://orcid.org/0000-0003-3684-4144

REFERENCES

- Swayze JS, Burke LA. Employee wellness program outcomes: a case study. J Work Behav Health. 2013;28(1):46-61. doi:10.1080/ 15555240.2013.755448
- Mattke S, Liu H, Caloyeras JP, et al. Workplace Wellness Programs Study; Final Report. RAND Corporation. 2013:1-28. https://www.rand.org/pubs/research_reports/RR254.html
- 3. Centres for disease control and prevention. Workplace Health Model 2022. Available from: https://www.cdc.gov/workplaceh ealthpromotion/model/index.html
- 4. Centres for Disease Control and Prevention. Workplace health program definition and Description. 2022. Available from: https://www.cdc.gov/workplacehealthpromotion/pdf/Workp lace-Health-Program-Definition-and-Description.pdf
- Berry LL, Mirabito AM, Baun WB. What's the hard return on employee wellness programs? *Harv Bus Rev.* 2011;89(3):1-10.
- Burke RJ. Corporate wellness programs: an overview. In: Burke RJ, Richardsen AM, eds. Corporate wellness programs: linking employee and organizational health. Edward Elgar publishing; 2014. doi:10.4337/9781783471706.00009
- Emmons KM, Linnan LA, Shadel WG, Marcus B, Abrams DB. The working healthy project: a worksite health-promotion trial targeting physical activity, diet, and smoking. *J Occup Environ Med.* 1999;41:545-555.
- Sorensen G, Stoddard AM, LaMontagne AD, et al. A comprehensive worksite cancer prevention intervention: behavior change results from a randomized controlled trial (United States). J Public Health Policy. 2003;24(1):5-25.
- Golaszewski T, Barr D, Cochran S. An organization-based intervention to improve support for employee heart health. *Am J Health Promot.* 1998;13(1):26-35. doi:10.4278/ 0890-1171-13.1.26
- Short ME, Goetzel RZ, Young JS, et al. Measuring changes in lipid and blood glucose values in the health and wellness program of Prudential financial, Inc. J Occup Environ Med. 2010;52:797-806.
- Byrne DW, Goetzel RZ, McGown PW, et al. Seven-year trends in employee health habits from a comprehensive workplace health promotion program at Vanderbilt University. J Occup Environ Med. 2011;53:1372-1381. Available from: https://www. jstor.org/stable/45009919
- Jackson J, Kohn-Parrott KA, Parker C, et al. Blood pressure success zone: you auto know a worksite-based program to improve blood pressure control among auto workers. *Popul Health Manag.* 2011;14(5):257-263. doi:10.1089/pop.2010.0060
- Merrill RM, Aldana SG, Pope JE, et al. Evaluation of a bestpractice worksite wellness program in a small-employer setting using selected well-being indices. J Occup Environ Med. 2011;53:448-454.
- Neville BH, Merrill RM, Kumpfer KL. Longitudinal outcomes of a comprehensive, incentivized worksite wellness program. Eval Health Prof. 2011;34(1):103-123. doi:10.1177/ 0163278710379222
- Berry LL, Adcock G, Mirabito AM. Do-it-yourself employee health care. MIT Sloan Management Review. 2012;53(2):15.
- Jayita P, Murali P. Working mothers: how much working, how much mothers, and where is the womanhood? In: Singh AR, Singh SA, eds. Some Issues in women's Studies, and other essays. MSM; 2009:63-79.

- 17. Manimekalai K, Sivakumar I, Geetha S. Working mothers and parenting: health status in India. *IJAR*. 2019;5(9):168-173.
- Kashefi M, Kermanshahi SMK, Fesharaki MG. The barriers to a healthy lifestyle in employed mothers of toddlers. J Holist Nurs Midwifery. 2018;28(4):211-217.
- Halley MC, Rustagi AS, Torres JS, et al. Physician mothers' experience of workplace discrimination: a qualitative analysis. *BMJ*. 2018;363:k4867. doi:10.1136/bmj.k4926
- Madden SK, Blewitt CA, Ahuja KDK, et al. Workplace healthy lifestyle determinants and wellbeing needs across the preconception and pregnancy periods: a qualitative study informed by the COM-B model. *Int J Environ Res Public Health*. 2021;18:4154.
- Osilla KC, Busum KV, Schnyer C, Larkin JW, Eibner C, Mattke S. Systematic review of the impact of worksite wellness programs. *Am J Manag Care*. 2012;18(2):e68-e81.
- Tucker SJ, Lanningham-Foster LM, Murphy JN, et al. Effects of a worksite physical activity intervention for hospital nurses who are working mothers. *AAOHN J.* 2011;59(9):377-386. doi:10.1177/216507991105900902
- Dixon MA. From their perspective: a qualitative examination of physical activity and sport programming for working mothers. Sport Manag Rev. 2009;12(1):34-48. doi:10.1016/j.smr.2008.09.002
- Page MJ, Moher D, Bossuyt PM, et al. PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. *BMJ*. 2021;372:n160. doi:10.1136/ bmj.n160
- Kim JH, Shin JC, Donovan SM. Effectiveness of workplace lactation interventions on breastfeeding outcomes in the United States: an updated systematic review. J Hum Lact. 2019;35(1):100-113. doi:10.1177/0890334418765464
- Clarke M. Overview of methods. In: Webb C, Roe B, eds. Reviewing Research Evidence for Nursing Practice: Systematic Reviews. Blackwell Publishing; 2007:3-7.
- Kmet LM, Lee RC, Cook LS. Standard quality assessment criteria for evaluating primary research papers from a variety of fields. Edmonton: Alberta Heritage Foundation for Medical Research (AHFMR). AHFMR - HTA Initiative #13. 2004. doi: 10.7939/R37M04F16
- Christiansen K, Gadhoke P, Pardilla M, Gittelsohn J. Work, worksites, and wellbeing among North American Indian women: a qualitative study. *Article in Ethnicity and Health*. 2017;24:24-43. doi:10.1080/13557858.2017.1313964
- Luthar SS, Curlee A, Tye SJ, Engelman JC, Stonnington CM. Fostering resilience among mothers under stress: "authentic connections groups" for medical professionals. *Womens Health Issues*. 2017;27:382-390. doi:10.1016/j.whi.2017.02.007
- Maraolo AE, Ong DSY, Cortez J, et al. Personal life and working conditions of trainees and young specialists in clinical microbiology and infectious diseases in Europe: a questionnaire survey. *Eur J Clin Microbiol Infect Dis.* 2017;36:1287-1295.
- Apple R, Samuels LR, McGee-Swope K, Alsup C, Dewey C, Roumie CL. The relationship between institution-affiliated childcare and employee stress. *JOEM*. 2020;62(1):87-92. doi:10.1097/JOM.00000000001774
- Sanguanklin N, McFarlin BL, Finnegan L, et al. Job strain and psychological distress among employed pregnant Thai women: role of social supportand coping strategies. *Arch Womens Ment Health.* 2014;17:317-326. doi:10.1007/s00737-013-0410-7

2022

y INASP/HINARI

INDONESIA, Wiley

ERNAWATI ET AL.

Journal of Occupational Health-WILEY-11 of 11

- 33. Pedersen DE. Work characteristics and the preventive health behaviours and subjective health of married parents with preschool age children. J Fam Econ Iss. 2014;36:48-63. doi:10.1007/ s10834-014-9433-0
- 34. Zhou N, Buehler C. Family, employment, and individual resource-based antecedents of maternal work-family enrichment from infancy through middle childhood. J Occup Health Psychol. 2016;21(3):309-321. doi:10.1037/ocp0000016
- Mazerolle SM, Eason CM. Navigating motherhood and the role 35. of the head athletic trainer in the collegiate setting. J Athletic Training. 2016;51(7):566-575. doi:10.4085/1062-6050-51.10.02
- 36. Derogatis L. Brief Symptom Inventory: Administration, Procedures and Scoring Manual-II. Clinical Psychometric Research: 1992.
- 37. Beck AT. Beck R. Screening depressed patients in family practice: a rapid technique. Postgrad Med. 1972;52:81-85. doi:10.108 0/00325481.1972.11713319
- 38. Neff KD. The self-compassion scale is a valid and theoretically coherent measure of self-compassion. Mind. 2016;7(1):264-274. doi:10.1007/s12671-016-0560-6
- 39. Abidin RR. Parenting Stress Index (PSI). Pediatric Psychology Press; 1990. doi:10.4236/psych.2018.97104
- Maslach C, Jackson SE. The Maslach Burnout Inventory 40. Manual. 2nd ed. Consulting Psychologists Press; 1986.
- 41. Ryan M, Erck L, McGovern L, et al. "Working on wellness:" protocol for a worksite health promotion capacity-building program for employers. BMC Public Health. 2019;19:111.
- 42. National Institute for Occupational Safety and Health. Total Worker Health. 2018. Available from: https://www.cdc.gov/ niosh/twh/ Accessed 12 Jun 2018
- 43. French KA, Dumami S, Allen TD, Shockley KM. A metaanalysis of work-family conflict and social support. Psychol Bull. 2018;144(3):284-314. doi:10.1037/bul0000120

- 44. Ledikwe JH, Kleinman NJ, Mpho M, et al. Associations between healthcare worker participation in workplace wellness activities and job satisfaction, occupational stress and burnout: a cross-sectional study in Botswana. BMJ Open. 2018;8:e018492. doi:10.1136/bmjopen-2017-018492
- 45. Song Z, Baicker K. Effects of a workplace wellness program on employee health and economic outcomes. A Randomized Clinical Trial. JAMA. 2019;321(18):1491-1501. doi:10.1001/ jama.2019.3307
- 46. Ledikwe JH, Semo BW, Sebego M, et al. Implementation of a national workplace wellness program for health workers in Botswana. JOEM. 2017;59(9):867-874.
- 47. Biswas A, Severin CN, Smith PM, Steenstra IA, Robson LS, Amick BC III. Larger workplaces, people-oriented culture, and specific industry sectors are associated with co-occurring health protection and wellness activities. Int J Environ Res Public Health. 2018;15:2739. doi:10.3390/ijerph15122739

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Ernawati E, Mawardi F, Roswiyani R, et al. Workplace wellness programs for working mothers: A systematic review. J Occup Health. 2022;64:e12379. doi:10.1002/1348-9585.12379

348958

Journal of Occupational Health

HOMEABOUT ~CONTRIBUTE ~BROWSE ~Image: State of the control of the

Journal of Occupational Health

HOME ABOUT CONTRIBUTE BROWSE	
Editorial Decod	Submit an article
	Get Content alerts
Editor-in-Chief	
SUGANUMA, Narufumi (Kochi Medical School, Nankoku, Japan)	Published on behalf of the Japan Society
Deputy Editor-in-Chief	for Occupational Health
TELITELIMI Akinumi (Vitarato University School of Medicine Samanihara Japan)	• •
CHIDATA Elii (Archi Monital University Archi Japan)	
NOMIYAMA Tetsuo (Shinshu Llowersity School of Medicine Matsumoto, Japan)	
terminal contraction of the second	
International Associate Editor	
KAWACHI, Ichiro (HSPH, Boston, MA, USA)	1 220 (121) (1222)(21) 20
International Associate Editor	More from this journal
KAWACHI, Ichiro (HSPH, Boston, MA, USA)	
Montal Hashb	More from this journal
Mental Health	Video Abstract Gallery
Field Editor	 Open science Author tips: Get read, shared & cited
NAKATA, Akinori (International University of Health and Welfare, Tokyo, Japan)	
ODAGIRI, Yuko (Tokyo Medical University, Tokyo, Japan)	
	Trending Articles
Associate Editor	
EGUCHI, Hisashi (University of Occupational and Environmental Health, Japan, Kitakyushu, Japan)	
IMAMURA, Koutaro (The University of Tokyo Graduate School of Medicine, Tokyo, Japan)	Click here to view the latest trending articles
INOUE, Akiomi (University of Occupational and Environmental Health, Japan, Kitakyushu, Japan)	from Journal of Occupational Health
INDUE, Koki (Usaka Metropolitan University Graduate School of Medicine, Usaka, Japan)	
Kitta Josh (Manuser University Collage of Madicine, Secul, Kares)	
LI lian (Iniversity of California Los Angeles USA)	
McLINTON Samen (University of South Australia Adelaide Australia)	
NAGATA Tomobisa (University of Occupational and Environmental Health, Japan, Kitakvushu, Japan)	
OTSUKA, Yasumasa (University of Tsukuba, Tokyo, Japan)	
SHIMAZU, Akihito (Kelo University, Kanagawa, Japan)	
TAKAHASHI, Masaya (National Institute of Occupational Safety and Health, Japan. Tokvo, Japan)	
TSUNO, Kanami (Kanagawa University of Human Services, Kanagawa, Japan)	
Occupational Health Practice	
Party Pattern	

Occupational Health Practice

Field Editor

IWASAKI, Akio (Sony Corporate Services (Japan) Corporation, Tokyo, Japan) MIKI, Akiko (Kansai Medical University, Osaka, Japan)

Associate Editor

FUKUDA, Hiroshi (Juntendo University, Tokyo, Japan) HATANAKA, Junko (University of Shizuoka, Shizuoka, Japan) IKEGAMI, Kazunori (University of Occupational and Environmental Health, Kitakyushu, Japan) LIN, Ro-Ting (China Medical University, Taichung, Taiwan) MORIGUCHI, Jiro (Kyoto Industrial Health Association, Kyoto, Japan) NAKATANI, Junko (University of Occupational and Environmental Health, Japan, Kitakyushu, Japan) SATO, Yuji (Fujitsu Umived, Kawasaki, Japan) WATAI, Lumi (Hamamatsu University School of Medicline, Hamamatsu, Japan)

Toxicology

Field Editor

YAMANO, Yuko (Showa University, School of Medicine, Tokyo, Japan) MORIMOTO, Yasuo (University of Occupational and Environmental Health, Japan, Kitakyushu, Japan)

Associate Editor ARAKI, Atsuko (Hokkaido University, Sapporo, Japan)

BERGAMASCHI, Enrico (Universita degli Studi di Torino, Turin, Italy) HIRAKU, Yusuke (University of Fukui School of Medical Sciences, Fukui, Japan) ICHIHARA, Sahoko (lichi Medical University, Tochigi, Japan) ITO, Yuki (Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan) BERGAMASCHI, Enrico (Universita degli Studi di Torino, Turin, Italy) HIRAKU, Yusuke (University of Fukui School of Medical Sciences, Fukui, Japan) ICHIHARA, Sahoko (Jichi Medical University, Tochigi, Japan) ITO, Yuki (Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan) KIM, Yangho (University of Ulsan, Ulsan, Korea) NISHIMURA, Yasumitsu (Kawasaki Medical School, Okayama, Japan) RIEDIKER, Michael (St&SCOEH: Swiss Centre for Occupational and Environmental Health, Winterthur, SAITO, Hiroyuki (National Institute of Occupational Safety and Health, Japan, Kawasaki, Japan) SUWAZONO, Yasushi (Chiba University Graduate School of Medicine, Chiba, Japan) TSUJI, Mayumi (University of Occupational and Environmental Health, Japan, Kitakyushu, Japan) TSUKAHARA, Teruomi (Shinshu University, Nagano, Japan) ZHOU, Zhijun (School of Public Health, Fudan University, Shanghai, China)

Ergonomics

Field Editor

OHTA, Masanori (Fukuoka Women's University, Fukuoka, Japan) KUBO, Tomohide (National Institute of Occupational Safety and Health, Japan, Tokyo, Japan)

Associate Editor

HIGUCHI, Yoshiyuki (Fukuoka University of Education, Fukuoka, Japan) ISHITAKE, Tatsuya (Krumme University, Fukuoka, Japan) LIU, Xinxin (National Institute of Occupational Safety and Health, Japan, Tokyo, Japan) LU, Ming-Lun (NIOSH/DFSF, USA) TACHI, Norihide (Chubu University, Aichi, Japan) TOKIZAWA, Ken (National Institute of Occupational Safety and Health, Japan, Tokyo, Japan) Health Promotion

FIGIO EGICO

YATSUYA, Hiroshi (Nagoya University, Nagoya, Japan) NAKAMURA, Koshi (University of the Ryukyus Graduate School of Medicine, Okinawa, Japan)

Associate Editor

KANDA, Hideyuki (Okayama University, Okayama, Japan) MIYATAKE, Nobuyuki (Kagawa University, Kagawa, Japan) NAKAMURA, Mieko (Hamamatsu University School of Medicine, Hamamatsu, Japan) OZAKI, Itsuko (Nagoya City University, Nagoya, Japan) TSUJI, Masayoshi (Kinki University, Kyushu Junior College, Fukuoka, Japan)

Epidemiology

Field Editor

OTA, Atsuhiko (Fujita Health University, Aichi, Japan) MIYAKE, Yoshihiro (Ehime University Graduate School of Medicine, Ehime, Japan)

Associate Editor

KUWAHARA, Kelsuke (Teikyo University Graduate School of Public Health, Tokyo, Japan) LIN, Ro-Ting (China Medical University, Taichung, Taiwan) NISHIURA, Chihiro (Tokyo Gas Co., Ltd., Tokyo, Japan) NOMURA, Kyoko (Akita University Graduate School of Medicine, Akita, Japan) SUZUKI, Etsuji (Okayama University, Okayama, Japan) TANIHARA, Shinichi (Kurume University School of Medicine, Fakuoka, Japan) TIPAYAMONGKHOLGUL, Mathuros (Mahidol University, Bangkok, Thailand) YOSHIOKA, Eli Asahikawa Medical University, Hokkaldo, Japan)

International Editors

BONDE, Jens Peter (Department of Public Health, University of Copenhagen, Copenhagen, Denmark) CHOI, Kyungho (Seoul National University, Seoul, Korea) FLORA, Sawaran Jeet Singh (Defence Research and Development Establishment, Gwallor, India) GUO, How-Ran (National Cheng Kung University, Tainan, Taiwan) GUO, Yue-Liang Leon (National Taiwan University, Taipei, Taiwan) KANG, Seong-Kyu (Gachon University, Gyeonggi-do, Korea) KAWACHI, Ichiro (Harvard T.H. Chan School of Public Health, Boston, MA, USA) KAWAKAMI, Tsuyoshi (International Labour Organization, Geneva, Switze KITAMURA, Satoshi (State University of Campinas - UNICAMP, Sao Paulo, Brazil) KOH, David Soo Quee (National University of Singapore, Singapore) LEE, Byung-Kook (Chonnam National University Hospital, Seoul, Korea) LOWRY, Larry K. (University of Texas Health Center, Texas, USA) MANUABA, Adnyana (IndoneUniversity of Udayana, Bali, Indonesia) MUTTI, Antonio (Università degli Studi di Parma, Parma, Italy) PAIK, Nam Won (Seoul National University, Seoul, Korea) PARK, Jung Sun (Korea Occupational Safety and Health Agency, Korea) RUGULIES, Reiner (National Research Centre for the Working Environment, Copenhagen, Denmark) SAVOLAINEN, Kai M. (Finnish Institute of Occupational Health, Helsinki, Finlan STRASSER, Patricia Boyer (Partners in BusinessHealth Solutions, Inc, Ohio, USA) WANG, Jung-Der (National Cheng Kung University, Tainan, Taiwan) ZHOU, Zhi-jun (Fudan University, Shanghai, China)



Previous Issue | Next Issue >

GO TO SECTION

ISSUE INFORMATION

A Free Access

Issue Information First Published: 13 January 2022

PDF | Request permissions

ORIGINAL ARTICLES

Den Access

Cross-sectional study exploring the association between stressors and burnout in junior doctors during the COVID-19 pandemic in the United Kingdom

Anli Yue Zhou, Mark Hann, Maria Panagioti, Mumtaz Patel, Raymond Agius, Martie Van Tongeren, Aneez Esmail, Peter Bower

ORIGINAL ARTICLES

🗇 Open Access

Cross-sectional study exploring the association between stressors and burnout in junior doctors during the COVID-19 pandemic in the United Kingdom

Anli Yue Zhou, Mark Hann, Maria Panagloti, Mumtaz Patel, Raymond Agius, Martie Van Tongeren, Aneez Esmail, Peter Bower

e12311 | First Published: 13 January 2022

Abstract | Full text | PDF | References | Request permissions

Dipen Access

A randomized controlled trial of the web-based drinking diary program for problem drinking in multi workplace settings

Takashi Sunami, Ryuhei So, Hironobu Ishii, Eiji Sadashima, Takefumi Ueno, Takefumi Yuzunha, Akira Monji

e12312 | First Published: 13 January 2022

Abstract | Full text | PDF | References | Request permissions

🗟 Open Access

Treatment interruption is a risk factor for sickness presenteeism: A large-scale crosssectional study during the COVID-19 pandemic

Makoto Okawara, Tomohiro Ishimaru, Seiichiro Tateishi, Ayako Hino, Mayumi Tsuji, Akira Ogami, Tomohisa Nagata, Shinya Matsuda, Yoshihisa Fujino, for the CORoNaWork project

e12313 | First Published: 18 January 2022

Abstract | Full text | PDF | References | Request permissions

Submit an article

Published on behalf of the Japan Society for Occupational Health



More from this journal

Video Abstract Gallery

Open Science
 Author tips: Get read, shared & cited



Click here to view the latest trending articles from *Journal of Occupational Health*



Click here to view the latest trending articles from *Journal of Occupational Health*

Di Open Access

The association between work-related physical and psychosocial factors and musculoskeletal disorders in healthcare workers: Moderating role of fear of movement Stijn Keyaerts, Lode Godderfs, Ellen Delvaux, Liesbeth Daenen e12314 | First Published: 18 January 2022

Abstract | Full text | PDF | References | Request permissions

BRIEF REPORTS

Di Open Acces

Prospective cohort study of workers diagnosed with COVID-19 and subsequent unemployment

Tomohisa Nagata, Masako Nagata, Ayako Hino, Selichiro Tateishi, Akira Ogami, Mayumi Tsuji, Shinya Matsuda, Yoshihisa Fujino, Koji Mori, CORoNaWork project

e12317 | First Published: 13 February 2022

Abstract | Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

D Open Access

Assessment of sunlight exposure across industries and occupations using blood vitamin D as a biomarker

Dong-Hee Koh, Ju-Hyun Park, Sang-Gil Lee, Hwan-Cheol Kim, Hyejung Jung, Inah Kim, Sangjun Choi, Donguk Park

e12318 | First Published: 13 February 2022

Abstract | Full text | PDF | References | Request permissions

Dipen Access

Temporary employment and suicidal ideation in COVID-19 pandemic in Japan: A crosssectional nationwide survey

Natsu Sasaki, Takahiro Tabuchi, Ryo Okubo, Tomohiro Ishimaru, Mayumi Kataoka, Daisuke Nishi e12319 | First Published: 23 February 2022

Correction(s) for this article

Abstract | Full text | PDF | References | Request permissions

OCCUPATIONAL HEALTH AND SAFETY IN THE WORLD

Dipen Access

Differences in cardiovascular risk levels between cleaning staff and hotel OCCUPATIONAL HEALTH AND SAFETY IN THE

Differences in cardiovascular risk levels between cleaning staff and hotel housekeepers

Ángel Arturo López-González, Zoe Manzanero, Hilda María González San Miguel, Sebastiana Arroyo Bote, Pere Riutord Sbert, María del Mar Rigo Vives, José Ignacio Ramírez Manent e12320 | First Published: 28 February 2022

Abstract | Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

Associations between chronic work stress and plasma chromogranin A/catestatin among healthy workers Xin Liu, Weimin Dang, Hul Liu, Yao Song, Ying Li, Weixian Xu e12321 | First Published: 17 March 2022 Abstract | Full text | PDF | References | Request permissions

BRIEF REPORTS

D Open Access

Open Access

BRIEF REPORTS

Open Acces

 Working hours, on-call shifts, and risk of occupational injuries among hospital physicians: A case-crossover study

 Annina Ropponer, Aki Koskinen, Sampsa Puttoren, Jenni Ervasti, Mika Kivimäki, Tuula Oksanen, Mikko Härmä, Kati Karhula

 e12322
 I prist Published: 17 March 2022

 Abstract
 Full text
 PDF
 References
 Request permissions

ORIGINAL ARTICLES

Open Access

Comparative analyses of occupational injuries among temporary agency worker and direct contract workers: Findings from the Korea Health Panel 2009–2018 Joonho Ahn, Jongin Lee, Hyoung-Ryoul Kim, Yu Min Lee, Tae-Won Jang, Dong-Wook Lee, Mo-Yeol

Kang e12326 | First Published: 26 March 2022

Abstract | Full text | PDF | References | Request permissions

Den Access

Exploring the contributing factors to multiple chemical sensitivity in patients with migraine

Kelsuke Suzuki, Madoka Okamura, Yasuo Haruyama, Shiho Suzuki, Tornohiko Shiina, Gen Kobashi, Koichi Hirata



🖻 Open Access

CORRIGENDUM e12324 | First Published: 05 April 2022

This article corrects the following:

Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

🗄 Open Access

Mitigation of heat strain by wearing a long-sleeve fan-attached jacket in a hot or humid environment

Kimiyo Mori, Chikage Nagano, Kimie Fukuzawa, Natsuko Hoshuyama, Riho Tanaka, Kento Nishi, Kahori Hashimoto, Seichi Horie

e12323 | First Published: 06 April 2022

Abstract | Full text | PDF | References | Request permissions

Open Access

Effectiveness of participatory ergonomic interventions on musculoskeletal disorders and work ability among young dental professionals: A cluster-randomized controlled trail

Sihao Lin, Cheng Chung Tsai, Xudong Liu, Zhenyi Wu, Xianzhe Zeng

e12330 | First Published: 06 April 2022

e12330 | First Published: 06 April 2022 Abstract | Full text | PDF | References | Request permissions

Den Acces

Workplace bullying and tiredness at work: A cross-lagged prospective study of causal directions and the moderating effects of a conflict management climate

Michael Rosander, Morten Birkeland Nielsen

e12327 | First Published: 06 April 2022

Abstract | Full text | PDF | References | Request permissions

Open Access

Low back pain and telecommuting in Japan: Influence of work environment quality

Ryutaro Matsugaki, Tomohiro Ishimaru, Ayako Hino, Kelji Muramatsu, Tomohisa Nagata, Kazunori Ikegami, Seiichiro Tateishi, Mayumi Tsuji, Shinya Matsuda, Yoshihisa Fujino, CORoNaWork Project e12329 | First Published: 06 April 2022

Abstract | Full text | PDF | References | Request permissions

🛱 Open Access

Assessing workplace civility: Validity and 1-year test-retest reliability of a Japanese version of the CREW Civility Scale

Kanami Tsuno, Akihito Shimazu, Katerine Osatuke, Kyoko Shimada, Emiko Ando, Akiomi Inoue, Sumiko Kurioka, Norito Kawakami

e12332 | First Published: 17 April 2022

Abstract | Full text | PDF | References | Request permissions

BRIEF REPORTS

Open Access
Screening check test to confirm the relative reactivity and applicability of 2,4dinitrophenylhydrazine impregnated-filters for formaldehyde on other compounds
Naoko Inoue, Mitsutoshi Takaya
e12333 | First Published: 24 April 2022
Abstract | Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

D Open Access

Psychometric properties of the Japanese version of the Occupational Fatigue Exhaustion Recovery Scale among shift-work nurses

Shinya Yamaguchi, Miho Sato, Naomi Sumi, Yoichi M. Ito, Peter C. Winwood, Rika Yano e12325 | First Published: 03 May 2022 Abstract | Full text | PDF | References | Request permissions

in an a bring the second for the second s

Open Access

Relationship between alcohol consumption and telecommuting preference-practice mismatch during the COVID-19 pandemic

Chihiro Watanabe, Yusuke Konno, Ayako Hino, Masako Nagata, Keiji Muramatsu, Selichiro Tateishi, Mayumi Tsuji, Akira Ogami, Reiji Yoshimura, Yoshihisa Fujino, CORoNaWork project e12331 | First Published: 04 May 2022

Abstract | Full text | PDF | References | Request permissions

Open Access

Conversation time and mental health during the COVID-19 pandemic: A web-based cross-sectional survey of Japanese employees

Shuhel Izawa, Nanako Nakamura-Taira, Toru Yoshikawa, Rie Akamatsu, Hiroki Ikeda, Tomohide

e12334 | First Published: 10 May 2022

Abstract | Full text | PDF | References | Request permissions

Open Access

Suggestions for new organizational-level item pools for the national Stress Check Program from management philosophy and mission statement: A qualitative study using unsupervised learning Kazuhiro Watanabe, Akiomi Inoue, Hisashi Eguchi, Noboru Iwata, Yuko Odagiri, Akizumi Tsutsumi

e12335 | First Published: 19 May 2022

Abstract | Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

Open Access

 Relationship between insomnia and rest time between shifts among shift workers: A multicenter cross-sectional study

 Juho Sim, Byungyoon Yun, Jin-Ha Yoon, Jiho Lee, Juyeon Oh, Ara Cho, Sung-Kyung Kim

 e12336 | First Published: 23 May 2022

 Abstract | Full text | PDF | References | Reouest permissions

 @ Open Access

 Occupational disparities in tumor grade and cytosolic HMGB1 expression in renal cell cancer

 Masayoshi Zaitsu, Takumi Takeuchi, Masaaki Zaitsu, Akiko Tonooka, Toshimasa Uekusa, Yudai Miyake, Yasuki Kobayashi, Gen Kobashi, Ichiro Kawachi

 e12340 | First Published: 16 June 2022

 Abstract | Full text | PDF | References | Request permissions

 @ Open Access

 Gender differences in housework and childcare among Japanese workers during the

CovID-19 pandemic Toshihide Sakuragi, Rie Tanaka, Mayumi Tsuji, Seiichiro Tateishi, Ayako Hino, Akira Ogami, Masako

roamine second prime tension mayorin radii. Sendino radiani, ryano mino, roma ogarini, masa Nagata, Shinya Matsuda, Yoshihisa Fujino, for the CORoNaWork Project e12339 | Frist Published: 04 July 2022

Abstract | Full text | PDF | References | Request permissions

🖻 Open Access

Prevalence, characteristics, and consequences of verbal and physical violence against healthcare staff in Chinese hospitals during 2010–2020 Chen Jia, Yijing Han, Wenping Lu, Ruofan Li, Weizheng Liu, Jianan Jiang e12341 | First Published: 04 July 2022 Abstract | Full text | PDF | References | Request permissions

RECOMMENDATION

🗄 Open Access

 Weaknesses of research methodologies on musculoskeletal disorders associated with mobile touch-screen devices

 All Eighomati, Adham Mackleh, Tareq Babaqi

 e12337 | First Published: 05 July 2022.

 Abstract | Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

Open Access A prospective cohort study of presenteeism and poverty among Japanese workers during the COVID-19 pandemic Yoshihisa Fujino, Makoto Okawara, Yu Igarashi, Mami Kuwamura, Ayako Hino, Keiji Muramatsu, Tomohisa Nagata, Akira Ogami, Tomohiro Ishimaru, for the CORoNaWork project e12342 | First Published: 05 July 2022 Abstract | Full text | PDF | References | Request permissions @ Open Access

The clinical consequence of using less than four sensory perception examination methods in the Swedish surveillance system for Hand-Arm vibration syndrome Carl Antonson, Frida Thorsén, Catarina Nordander e12343 | First Published: 05 July 2022 Abstract | Full text | PDF | References | Request permissions @ Open Access

Associations between job and workplace factors, health and physical factors, personal factors, and presenteeism among general employees in Japan: A longitudinal study

Eiko Goto, Hirono Ishikawa, Tsuyoshi Okuhara, Hiroko Okada, Aiko Tsunezumi, Yumi Kagawa, Yoshihisa Fujino, Takahiro Kiuchi e12344 | First Published: 07 July 2022

Abstract | Full text | PDF | References | Request permissions

BRIEF REPORTS

 В Open Access
 Development of a method to determine workers' personal exposure levels to glyphosate
 Kenta Ishil, Akito Takeuchi, Osamu Nishinoiri, Ginji Endo, Mariko Ono-Ogasawara
 e12345 | First Published: 07 July 2022
 Abstract | Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

Open Access The differences of the economic losses due to presenteeism and treatment costs between high-stress workers and non-high-stress workers using the stress check survey in Japan Tomohisa Nagata, Ryotaro Ito, Masako Nagata, Kiminori Odagami, Shugeyuki Kajiki, Keriji Fujimotu survey int Japan

Tomohisa Nagata, Ryotaro Ito, Masako Nagata, Kiminori Odagami, Shigeyuki Kajiki, Kenji Fujimoto Shinya Matsuda, Koji Mori e12346 | First Published: 07 July 2022

Abstract | Full text | PDF | References | Request permissions

LETTERS TO THE EDITOR

 ☆ Open Access
 Low- to moderate-level chemical exposures can trigger migraines and are associated with multiple chemical sensitivity
 Luke Curtis
 e12348 | First Published: 20 July 2022
 Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

Open Access
Long-term impact of overnight shiftwork implementation on pediatric residents'
mental wellness: A repeated cross-sectional survey
Hiro Nakao, Osamu Nomura, Mitsuru Kubota, Akira Ishiguro
e12349 | First Published: 29 july 2022.
Abstract | Full text | PDF | References | Request permissions

Open Access

Workplace infection prevention control measures and work engagement during the COVID-19 pandemic among Japanese workers: A prospective cohort study

Kazunori Ikegami, Hajime Ando, Yoshihisa Fujino, Hisashi Eguchi, Keliji Muramatsu, Tomohisa Nagata, Seiichiro Tateishi, Mayumi Tsuji, Akira Ogami, for the CORoNaWork project

e12350 First Published: 08 August 2022

Abstract | Full text | PDF | References | Request permissions

Open Access

Effect of employers' concerns about cancer countermeasures on the implementation of cancer screening and support for balancing cancer treatment and work in small and medium-sized japanese enterprises

Masanari Minamitani, Masayuki Tatemichi, Tomoya Mukai, Atsuto Katano, Keiichi Nakagawa

e12352 | First Published: 21 August 2022

Abstract | Full text | PDF | References | Request permissions

REVIEW ARTICLES

Dopen Access

Association of hairdressing with cancer and reproductive diseases: A systematic review

Željka Babić, Marija Macan, Zrinka Franić, Sarah Hallmann, Martin S. Havmose, Jeanne D. Johansen, Swen M. John, Cara Symanzik, Wolfgang Uter, Patricia Weinert, Henk F. van der Molen, Sanja Kezic, Rajka Turk, Jelena Macan

e12351 | First Published: 25 August 2022 ORIGINAL ARTICLES

Open Access

Validation of the Japanese version of the Dutch Boredom Scale

Michiko Kawada, Akihito Shimazu, Masahito Tokita, Daisuke Miyanaka, Wilmar B. Schaufeli e12354 | First Published: 25 August 2022

Abstract | Full text | PDF | References | Request permissions

FIELD STUDY

Open Access

Promoting endoscopists' health through cutting-edge motion analysis technology: Accuracy and precision of ergonomic motion tracking system for endoscopy suite (EMTES)

Hiroaki Ono, Yasuki Hori, Mafu Tsunemi, Ippel Matsuzaki, Kazuki Hayashi, Michihiro Kamijima, Takeshi Ebara

e12355 | First Published: 07 September 2022

Abstract | Full text | PDF | References | Request permissions

OPINION

Open Access
 A brief overview of the registration system of radiation exposure doses for decontamination workers and their occupational health management
 Hisanori Fukunaga, Temohiro Asano
 e12357 | First Published: 08 September 2022
 Abstract | Full text | PDF | References | Request permissions

REVIEW ARTICLES

Open Access

 Workplace interventions for increasing physical activity in employees: A systematic
 review

 Mozhdeh Ramezani, Batool Tayefi, Elham Zandian, Neda SoleimanvandiAzar, Narjes Khalili,
Soodabeh Hoveidarmanesh, Parissa Massahikhaleghi, Zahra Rampisheh

 e12358 | First Published: 09 September 2022.

 Abstract | Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

Open Access
Cohort study of long working hours and increase in blood high-sensitivity C-reactive
protein (hsCRP) concentration: Mechanisms of overwork and cardiovascular disease

Woncheol Lee, Hyeon Woo Yim, Yeseong Lee e12359 | First Published: 13 September 2022

Abstract | Full text | PDF | References | Request permissions

Open Access

Loneliness and social support as key contributors to burnout among Canadians workers in the third wave of the COVID-19 pandemic: A cross-sectional study Kiffer G. Card, Aidan Bodner, Richard Li, Simran Lail, Niloufar Aran, Ashmita Grewal, Shayna Skakoon-Sparling e12360 | First Published: 16 September 2022

Abstract | Full text | PDF | References | Request permissions

🗇 Open Access

Poor neck posture and longer working duration during root canal treatment correlated with increased neck discomfort in dentists with <5-years' experience in endodontics Watcharapa Adulyawat, Uraiwan Chokechanachaisakul, Prawit Janwantanakul

e12362 | First Published: 20 September 2022

Abstract | Full text | PDF | References | Request permissions

REVIEW ARTICLES

Open Access

Mental health and wellbeing of seafaring personnel during COVID-19: Scoping review
Samantha K. Brooks, Neil Greenberg
e12361 | First Published: 22 September 2022
Abstract | Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

Open Access

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

Koji Mori, Takahiro Mori, Tomohisa Nagata, Hajime Ando, Ayako Hino, Selichiro Tateishi, Mayumi Tsuji, Keiji Muramatsu, Yoshihisa Fujino, for the CORoNaWork Project. e12365 | First Published: 30 September 2022.

Abstract | Full text | PDF | References | Request permissions

BRIEF REPORTS

Open Access

Association of cardiorespiratory fitness with the risk factors of cardiovascular disease: Evaluation using the Japan step test from the National Institute of Occupational Safety and Health Rina So, Fumiko Murai, Tomoaki Matsuo

e12353 | First Published: 05 October 2022 Abstract | Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

☆ Open Access
 Factors associated with distress among female cancer survivors at the workplace: A Factors associated with distress among female cancer survivors at the workplace: A cross-sectional study
 Juhyun Jin, Eunju Lee, Suin Lee
 e12364 | First Published: 19 October 2022
 Abstract | Full text | PDF | References | Request permissions

🕆 Open Access

Development and validation of police mental health ability scale Chengju Liao, Xingmei Gu, Jian He, Yonggang Jiao, Fan Xia, Zhengzhi Feng e12366 | First Published: 19 October 2022 Abstract | Full text | PDF | References | Request permissions

Open Access

The effect of job strain and worksite social support on reported adverse reactions of COVID-19 vaccine: A prospective study of employees in Japan Natsu Sasaki, Reiko Kuroda, Kanami Tsuno, Kotaro Imamura, Norito Kawakami e12356 | First Published: 21 October 2022

Abstract | Full text | PDF | References | Request permissions



☆ Open Access
 Corrigendum
 e12368 | First Published: 01 November 2022

O This article corrects the following: ~

Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

Open Access
Socieconomic determinants of long sickness absence affected by work, family, and
personal health-related characteristics: A longitudinal study of the Japanese civil
servants
Sacri Nose, Michikazu Sekine, Takashi Tatsuse, Masaaki Yamada
e12363 | First Published: 02 November 2022

Abstract | Full text | PDF | References | Request permissions

Open Access

Association of visual display terminal time with prevalence of temporomandibular disorder among Japanese workers

Takashi Zaltsu, Yuko Inoue, Akiko Oshiro, Akira Nishiyama, Yoko Kawaguchi, Jun Aida e12370 | First Published: 09 November 2022

Abstract | Full text | PDF | References | Request permissions

Open Access

Pulmonary toxicity of tungsten trioxide nanoparticles in an inhalation study and an intratracheal instillation study

Takashi Marui, Taisuke Tomonaga, Hiroto Izumi, Yukiko Yoshiura, Chinatsu Nishida, Hidenori Higashi, Ke-Yong Wang, Miyako Shijo, Masaru Kubo, Manabu Shimada, Yasuo Morimoto e12367 | First Published: 10 November 2022 Abstract | Full text | PDF | References | Request permissions

REVIEWER ACKNOWLEDGMENT

Open Access
 Reviewer acknowledgment
 e12371 | First Published: 22 November 2022
 Full text. | PDF | Request permissions

CORRIGENDUM

☆ Open Access
 Corrigendum
 e12372 | First Published: 24 November 2022
 ⑦ This article corrects the following: ~
 First Page | Full text | PDF | References | Request permissions

ORIGINAL ARTICLES

⊕ Open Access
 Corporate health culture promotes infection control measures against COVID-19 in the
 corporate health culture promotes infection control measures against COVID-19 in the
 workplace
 Tomohisa Nagata, Kiminori Odagami, Masako Nagata, Koji Mori
 e12373 | First Published: 24 November 2022
 Abstract | Full text | PDF | References | Request permissions

🖨 Open Access

Pulmonary disorder induced by cross-linked polyacrylic acid

Yasuyuki Higashi, Yasuo Morimoto, Chinatsu Nishida, Talsuke Tomonaga, Hiroto Izumi, Ke-Yong Wang, Hidenori Higashi, Ryohel Ono, Kazuki Sumiya, Kazuo Sakurai, Kei Yamasaki, Kazuhiro Yatera e12369 | First Published: 02 December 2022

Abstract | Full text | PDF | References | Request permissions

🗇 Open Access

Working hours, side work, and depressive symptoms in physicians: A nationwide crosssectional study in Japan

Makoto Okawara, Tomohiro ishimaru, Toru Yoshikawa, Michiko Kido, Yoshifumi Nakashima, Anna Nakayasu, Kokuto Kimori, Satoshi Imamura, Kichiro Matsumoto

e12377 | First Published: 02 December 2022

Abstract | Full text | PDF | References | Request permissions

Open Access

The effect of a multicomponent intervention on occupational fall-related factors in older workers: A pilot randomized controlled trial

Yosuke Osuka, Yu Nofuji, Satoshi Seino, Kazushi Maruo, Hiroyuki Oka, Shoji Shinkai, Yoshinori Fuliwara, Hiroyuki Sasai

e12374 First Published: 02 December 2022 Abstract | Full text | PDF | References | Request permissions

🗄 Open Access

Association between working hours and cancer risk in Japan: The Japan public health center-based prospective study Kana Hattori, Tomotaka Sobue, Ling Zha, Tetsuhisa Kitamura, Yoshimitsu Shimomura, Motoki Iwasaki, Manami Inoue, Taiki Yamaji, Shoichiro Tsugane, Norie Sawada

e12375 | First Published: 11 December 2022

Abstract | Full text | PDF | References | Request permissions

Di Open Access The impact of COVID-19 on hospital-based workers influenza vaccination uptake: A two-year retrospective cohort study

Beatrice Albanesi, Marco Clari, Silvia Gonella, Daniela Chiarini, Carla Aimasso, Ihab Mansour, Maurizio Coggiola, Lorena Charrier, Valerio Dimor e12376 | First Published: 13 December 2022

Abstract | Full text | PDF | References | Request permissions

REVIEW ARTICLES

Open Access

Workplace wellness programs for working mothers: A systematic review

Ernawati Ernawati, Fitriana Mawardi, Roswiyani Roswiyani, Melissa Melissa, Guswan Wiwaha, Sri Tiatri, Dany Hilmanto

REVIEW ARTICLES

🗇 Open Access

Workplace wellness programs for working mothers: A systematic review Ernawati Ernawati, Fitriana Mawardi, Roswiyani Roswiyani, Melissa Melissa, Guswan Wiwaha, Sri Tiatri, Dany Hilmanto e12379 | First Published: 15 December 2022 Abstract | Full text | PDF | References | Request permissions

About Wiley Online Library Help & Support Privacy Policy Terms of Use About Cookies Manage Cookies Accessibility Wiley Research DE&I Statement and Publishing Policies

Contact Us Training and Support DMCA & Reporting Piracy Opportunities Subscription Agents Advertisers & Corporate Partners

Connect with Wiley The Wiley Network Wiley Press Room

Developing World Access



(9) WhatsApp	× S .::LINTAR DOSEN ::.	× 🛛 🍫 Merge PDF files online. Free se	Journal of Occupational	Health × +	~		
\leftrightarrow \rightarrow C $$ onlinelit	orary.wiley.com/page/journal/13489585/jo	urnal-metrics		G 🖞 🕸 :	🕨 🔲 📢 Error 🗄		
M https://accounts.g M	ear 🔇 Ġ Hak Cipta dan Ha				Cther Bookmarks		
	HOME ABOUT V CONTRIBUT	te v Browse v					
	Journal Metrics: Journal	Submit an article					
	Get Content alerts						
	We're supporting responsible research assessment practices by rolling out a broader range of journal and article metrics publicly available, and helping authors gain deeper insights into the impact of their work. To learn more about these plans, read our <u>press release</u> .						
	These metrics were last updated on De	cember 15, 2022.		• •			
	CiteScore (<u>Scopus</u>):		3.1				
Journal Citation Indicator (Clarivate): 0.6 More from this journal Impact Factor (Clarivate): 2.57 • Video Abstract Gallery • Open Science • Author tips: Get read, shared & cited							
Full Text Views (2021): 29018 Click here to view the latest trending articles from Journal of Occupational Health				Click here to view the latest trending articles			
				from Journal of Occupational Health			
ST+ INDERA.pdf ^ Show All							
← → X	eresurchify.com/impact/detail	s/29280#:~:text=Journal%20of	%20Occupational%20Hea	alth%20Rank.of%20Occupational%20Heath%20n	%209744		
M https://acc	counts.g M ear 🗿 G Hak Cipt	a dan Ha		,	70208744. G		
Now Playing Could Life On Eating grapes New Scientific Neat/Hall of					Adobe @		
					Download Tem		
About Journal of Occupational Health							
Journal of Occupational Health is a journal covering the technologies/fields/categories related to Public Health, Environmental and Occupational Health (Q2). It is published by Japan Society for Occupational Health. The overall rank of Journal of Occupational Health is 8744. According to SCImago Journal Rank (SJR), this journal is ranked 0.57. SCImago Journal Rank is an indicator, which measures the scientific influence of journals. It considers the number of citations received by a journal and the importance of the journals from where these citations come. SIR acts as an alternative to the lournal							
by a ournal and the importance of the journals from where these citations come. SJR acts as an alternative to the Journal Impact Factor (or an average number of citations received in last 2 years). This journal has an h-index of 63. The best quartile for this journal is Q.							
The ISSN of Journal of Occurational Health journal is 13489585, 13419145. An International Standard Serial Numl (ISSN) is a unique code of 8 digits. It is used for the recognition of journals, newspapers, periodicals, and magazines in kind of forms, be it print-media or electronic. Journal of Occupational Health is cited by a total of 520 articles during t last 3 years (Preceding 2021).							
		Ad	01	ANT CONTRACTOR	Bi		
the loss		Published with	Hindawi		@ PZOIC		
		Math, Eng., & Comp. So Reviewed, Open Acces	s And Available Online		C. C		