Proposed guidelines for primary prevention for mental health at work: an update

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Abstract

Objectives: To provide a range of standard evidence-informed recommendations for the primary prevention of mental health problems at work. Methods: Occupational health experts and practitioners evaluated systematic reviews of primary-prevention measures for occupational mental health. A series of consensus meetings were held with the intent of developing primary-prevention guidelines for mental health at work. Results: Three preventive strategies were developed: self-care training, supervisor training, and improving the workplace environment. The guidelines for self-care training consist of four steps that coincide with the process of formulating and implementing measures to help individuals cope with stress (self-care) in the workplace: planning and preparing, deciding what self-care entails, selecting the forms of self-care, and making subsequent efforts. Six recommendations and four tips are provided for these four steps. The guidelines for supervisor mental health training have four categories: selection of training participants, content, delivery format, and frequency. Based on recent findings, we provided recommendations for the content that should be included in training. Training has been shown to improve supervisors’ knowledge, attitude, confidence, and behaviors in supporting employees with mental health problems. For improving the psychosocial work environment, 12 items were compiled, including eight recommended items and four tips in four categories: planning and organization development, implementation regarding the basic rules of procedures, proposals for effective improvement measures, and continued implementation. Conclusions: Based on the best evidence currently available, we propose guidelines for primary prevention for mental health at work.

Keywords: improving workplace environment, management, organizational approach, participatory approach, self-care training, stress management

Introduction

In a previous study, we developed guidelines for occupational practitioners regarding the primary prevention of mental health problems at work, providing three main prevention strategies: self-care training, supervisor training, and improving the workplace environment. These guidelines were based on a systematic review of studies that investigated the psychological stress responses of employees as study outcomes. In addition, expert opinions were obtained and incorporated into the suggested guidelines. Since we published our original guidelines, several studies have provided new evidence regarding the prevention of mental health problems in the workplace. Thus, we sought to update our guidelines based on this new research.

To improve workplace mental health, international organizations, including the World Health Organization, International Labour Organization, and European Union, have adopted common strategies to disseminate useful tools, such as guidelines and manuals based on evidence and best practice. Although the major pro-
grams adopted by the organizations mentioned above are focused on risk management, similar strategies are appropriate for the development of practical measures for workplaces to improve the psychosocial work environment. The guidelines presented here were developed based on the best evidence currently available and are intended for application in the workplace. Because relevant evidence is limited in the field of occupational health, we also took consensus of experts into account.

Characteristics of guidelines

Interventions designed to reduce occupational stress can be categorized according to their focus, content, method, and duration. Regarding their focus, interventions can be divided into two main categories: 1) interventions that aim to increase individual psychological resources and responses, such as coping (individual-focused interventions), or 2) interventions that aim to improve stressful work environments (organization-focused interventions). The first category of intervention is usually referred to as stress management interventions or self-care training, while the second category refers to interventions like organizational development and job redesign (improving workplace environment) and supervisor training. Accordingly, three preventive strategies were developed in the proposed guidelines: self-care training, supervisor training, and improving the workplace environment.

Suggestions in the currently proposed guidelines are classified into recommendations and tips. For each suggestion, proposed measures are presented, along with their rationale and key aspects of their implementation. The distinction in the level of a suggestion was made according to the level of evidence; items are recommended if the measures were found to be effective or feasible in the workplace in empirical studies, whereas tips are composed of items that experts’ consensus suggested to be included. Occupational health practitioners can easily prioritize measures in accordance with feasibility in the workplace and adapt the measures to their workplace.

Methods

1. Literature search for the first guidelines

For the development of the first guidelines for self-care training, a working group including one of the authors (AS) selected studies that had been published from 1979 to 2009 from the databases of PsychARTICLE, PsychINFO, PubMed, MEDLINE, the Web of Science, and the Ichushi-Web (a Japanese medical science literature database). The following keywords were used: (worksite OR work OR workplace) AND (stress OR distress OR depression) AND (management OR reduction OR prevention) AND (training OR program OR intervention) AND (clinical trial OR randomized controlled trial). Eligibility criteria were as follows: 1) primary prevention; 2) individual-focused intervention; 3) psychological distress, depression, or anxiety as primary outcomes; 4) conducted in the workplace; 5) randomized controlled trial or controlled trial; and 6) original article. Following these criteria, 60 studies were included in the qualitative review.

For the development of the first guidelines for supervisor training, one of the authors (AT) selected studies from the databases of PubMed, the Cochrane Library, MEDLINE, the Web of Science, and the Ichushi-Web, using the following keywords: (education OR training) AND (supervisor OR manager) AND (job stress OR mental health). Seven controlled studies that included outcomes of occupational stressors and stress reactions of workers were selected up to 2010.

To develop the first guidelines for improving workplace environment, a working group consisting of multidisciplinary members, including one of the authors (TY), referred to two major systematic reviews on job-stress reduction by means of organizational interventions and two intervention studies conducted in Japan after the publication of these two review articles. A total of 33 articles were used as basic sources for developing the guidelines. In addition, other relevant articles were also referred to for re-examining the practical use of guidelines.

2. Consensus meetings for the first guidelines

To confirm if the guideline content is applicable for practice, we held a series of consensus meeting. The meeting members included stakeholders who were representatives for management and labor (Japan Federation of Economic Organizations and Japanese Trade Union Confederation) and occupational health practitioners, a psychologist, researchers, and a lawyer with expertise in the occupational health field (listed in the Acknowledgment). The primary investigators on each preventive strategy (AS for self-care training, AT for supervisor training and TY for improving workplace environment) presented the draft of guidelines and asked the members of how to improve the draft. Based on the recommendations of these stakeholders, the draft was revised. The process was repeated twice, and then the first guidelines were completed.

3. Revision of the guidelines

In the current revised process of guidelines for self-care training, 44 newly identified studies, which had been published from 2009 to 2015, were selected, following the same procedures as those in the first guidelines. The added evidence was similar to that in the first review, but the background information was expanded.

In the current revised process of guidelines for supervi-
sor training, five newly identified studies were selected up to April 2019. While the added evidence was limited, the expression was aligned with the other guidelines and the background information was expanded. As the guideline contents were not changed substantially for self-care training and supervisor training, consensus meetings were not held for the revised processes of those sections.

As for the guidelines for improving working environment, the working group referred to the latest review(7). Scrutinizing the latest information confirmed that the use of the first guidelines was expected to standardize workplace environment measures as means of primary prevention for occupational mental health and to promote improvement actions, particularly at small- and medium-sized workplaces with the support of occupational health professionals. However, as the updating process clarified the importance of overcoming the practical obstacles against the implementation to facilitate the process of improving the workplace environment, ‘how to implement the process’, including usage of tools, has been emphasized in the current guidelines.

Results

1. Guidelines for self-care training
1.1 State of the art on self-care training

Several previous review articles(5,18-21) have reported that self-care training in the workplace can be effective for reducing employees’ stress-related complaints. Accumulated evidence has led to the development of guidelines for self-care training in the workplace. A total of 10 suggestions (six recommendations and four tips) are presented in the guidelines(1) (Table 1). These suggestions are arranged following the steps involved in formulating and implementing measures to help individuals cope with stress: planning and preparing to implement self-care, determining what self-care entails, selecting the forms of self-care, and carrying out subsequent efforts. Those in control of developing measures to help workers cope with stress can immediately see which actions they should take.

1.2 Content of guidelines
Category 1: Planning and preparation

Self-care training can be effective through the use of newly acquired knowledge and skills. The inclusion of at least two training sessions and one follow-up session is recommended to reduce psychological distress among participants(22) (Recommendation 1).

Self-care training may be provided by specialists in occupational mental health or occupational health professionals(23,24) (Recommendation 2). When a specialist outside the workplace provides care, the specialist should be provided with information regarding workplace characteristics and the needs of potential participants. If training is conducted by an occupational health staff member with little experience in implementing self-care, they should be trained in the necessary knowledge and skills in advance.

Many workplaces use questionnaires to assess the stress levels of their workers. Simply informing workers of their results on these assessments is not appropriate to reduce their psychological distress. Self-care training in combination with feedback about a profile of stress assessment should be provided(23,25) (Recommendation 3).

When self-care training is implemented in the workplace, various constraints on time, expense, and personnel can arise. In such instances, groups most in need of the training should be identified, and the training should begin with those groups(23) (Tip 1). In selecting a certain group, a high level of interest in self-care, conditions in the workplace (whether conditions facilitate the use of what has been learned), and the level of stress should be considered.

Based on the conditions in the workplace, the burden placed on participants, and the associated fatigue, the duration of a training session should be kept within 2 hours(26) (Tip 2). If a single session does not allow adequate time for training, self-care training can be implemented over multiple sessions.

Category 2: Deciding what self-care entails

Review articles on individual-focused stress management in the workplace(5,18-21) have indicated that the most effective stress management programs are those involving cognitive-behavioral training or cognitive-behavioral training in combination with relaxation techniques. Therefore, applying cognitive-behavioral training or cognitive-behavioral training in combination with relaxation techniques is recommended(19,27) (Recommendation 4). Since a range of cognitive-behavioral training and relaxation techniques exist, appropriate techniques should be chosen in accordance with the needs and circumstances of potential participants.

Category 3: Forms of self-care

An appropriate format should be chosen, taking into account the circumstances of participants, the trainer, and relative advantages and disadvantages of each program format(27) (Recommendation 5). Programs can be conducted as group training, individual training, or through e-learning. There are advantages and disadvantages of each format. For instance, group training allows a large number of participants to be trained at one time, but participation tends to be more passive, and it may be challenging to meet the diverse needs of participants. Individual training involves one-on-one interaction between trainer and participant. This method allows a flexible approach to meeting the participant’s needs, but is more expensive (including labor costs, as well as the allocation of a location and time). Web-based learning (e-learning) is free from the constraints of time and place that hamper individual training and group training, and allows participants to learn at their own pace. However, participants in...
web-based learning programs have few opportunities to interact with other participants, and participants can only learn in places equipped with a computer.

The effectiveness of self-care training can be improved through the repeated use of learned knowledge and acquired skills in everyday life. Thus, creating conditions in the workplace that encourage workers to apply learned skills is crucial (Tip 3). In a workplace where workers are given appropriate discretion, opportunities to apply newly acquired knowledge and skills will occur, enhancing the likelihood that training will be effective. Thus, self-care training should be accompanied by measures to increase worker discretion in the workplace.

Category 4: Subsequent efforts

Self-care training can lead to reduced psychological distress by teaching both knowledge and skills and by encouraging the use of newly acquired knowledge and skills in everyday life. Following training, a follow-up session should be conducted to enable participants to reflect on what they have learned, to encourage them to remember the knowledge gained and the skills acquired, and to encourage them to apply their newly acquired knowledge and skills in everyday life (Recommendation 6). This will help participants improve the effectiveness of the training.

Even if participants understand the content of training, improvement of mental health cannot be achieved without applying what has been learned to everyday life. Thus, it is recommended to encourage workers to apply learned knowledge and acquired skills to their own problems and circumstances (Tip 4) by, for instance, assigning homework to the participants.

2. Guidelines for supervisor training

2.1 State of the art on workplace mental health training for supervisors

A recent systematic review and meta-analysis revealed that supervisor mental health training improved supervisor’s knowledge in terms of mental health issues and their roles and responsibilities when supporting employees with mental health problems, their attitudes towards mental health issues, such as non-stigmatizing attitudes; and their behavior in supporting employees experiencing mental health problems. However, due to the relatively small number of studies, no effect of supervisor mental health training on employees’ psychological distress has been confirmed. Thus, as in the first guideline set, we updated our guidelines based on the best available individual evidence showing positive effects of supervisor training on employees’ health outcomes.

New evidence has accumulated since we conducted our first systematic review. A cluster randomized controlled trial revealed that a 4-hour manager mental health training program led to a significant reduction in work-related sickness absence. A 3-hour training program designed to increase leaders’ mental health literacy, with primary areas including early recognition, early action (referral for cases) and assessment, resulted in a reduction in the duration of short-term disability claims of employees in a cluster randomized controlled trial. Another controlled trial using a wait-list design with random assignment indicated that a short (3-hour) training session for leaders increased their subordinate employees’ willingness to seek out resources.

2.2 Content of guidelines

Category 1: Selection of training participants

As a general rule, training should be provided to all supervisors (Recommendation 1). Evidence from one study suggested that a higher proportion of supervisors

| Table 1. Guidelines for self-care training for occupational mental health* |
|---|---|
| **Category 1: Planning and preparation** |
| R-1 Include at least two training sessions and one follow-up session |
| R-2 Trainers may be specialists in occupational mental health or occupational health professionals |
| R-3 Feedback a worker profile of stress assessment in combination with stress management training |
| T-1 Start with groups that are most in need of that training, on the limited condition |
| T-2 Wrap up a session within 2 hours |
| **Category 2: Deciding what self-care entails** |
| R-4 Apply cognitive-behavioral techniques, combined with relaxation techniques if appropriate |
| **Category 3: Forms of self-care** |
| R-5 Select the training format (group training or individual training) in accordance with characteristics of and conditions in the workplace and characteristics of and circumstances faced by participants |
| T-3 Create conditions in the workplace to encourage participants to apply what they have learned |
| **Category 4: Subsequent efforts** |
| R-6 Conduct a follow-up session where workers can reflect on the program |
| T-4 Encourage workers to apply learned knowledge and acquired skills into daily life |

* R-# stands for six recommended items, T-# stands for tip items in four categories.
participating in training sessions led to better outcomes\textsuperscript{25}. Identifying populations with an increased need for training is also recommended, based on the finding that cases that showed positive effects of supervisor training tended to have a background requiring mental health management\textsuperscript{36}. Identification of such a group can be useful for prioritizing target supervisors and planning training focused on the needs and circumstances of the target workplace (Recommendation 2).

An experts’ consensus suggested the importance of stratifying the target management position according to needs in training content (Tip 1). For staff who supervise others, the main training content may include a process for dealing with employees and cooperating with occupational health staff members; for business managers, training to ensure the effectiveness of establishing a system for mental health support was thought to be important\textsuperscript{31}.

Category 2: Content of training

Our previous review focused on studies showing the effectiveness of learning content that was delivered as a package\textsuperscript{10} (Recommendation 3). Recent studies have reported the effectiveness of individual content, such as a combination of mental health knowledge and communication training\textsuperscript{32}, early recognition and referral for employees (mental health awareness training)\textsuperscript{33}, and improving employee resource utilization\textsuperscript{34}. Training in active listening could be effective, although the detailed effects are unknown because the technique is typically incorporated in a package of several intervention components, and the effect of the individual technique has not been tested\textsuperscript{35}.

A mixed-method study identified specific attitudes and behaviors of supervisors that may impact workers with mental health problems returning to work\textsuperscript{37}. These include knowledge about symptoms of mental health problems and administrative procedures to return to work, appropriate responses and an empathic attitude, adjustment and reallocation of job responsibilities, consideration of other workers, and cooperation with occupational health staff and external organizations. Although this content belongs to tertiary prevention, we decided to include it in the delivery package together with other contents related to secondary prevention (‘early recognition and referral for employees’) because providing supervisors with appropriate information and skills could be an effective means of enhancing mental health within an organization\textsuperscript{35}.

Category 3: Delivery format of training

Beneficial effects of training appeared to be achieved through improved knowledge and the consequent favorable behavioral changes of supervisors\textsuperscript{35,38}. It is important to enhance not only knowledge but also self-efficacy among supervisors. For the latter purpose, incorporating participatory training, such as role playing and interactive case studies, is recommended\textsuperscript{39}. Such trainings can be applicable for developing listening and advising techniques (active listening and referral for employees) (Recommendations 4 and 5).

It is necessary to seek efficient ways to promote better understandings of managers. Online training is an option. It allows participants to learn at their own pace, without time and place restrictions, which are often problematic in face-to-face training. A guided e-learning program for health managers based on Health and Safety Executive Management Standards was found to be acceptable\textsuperscript{39}.

Expert opinions suggested that incorporating data or cases that are specific to a particular workplace into the training program may help to engage participants (Tips 2 and 3).

Category 4: Frequency

Evidence is still scarce regarding the long-term effects of training beyond 1 year. Randomized controlled studies have suggested that beneficial training effects on supervisors’ knowledge last no longer than 6 months following training\textsuperscript{32,40}. The experts in the current study also pointed out that attempting to convey an excessive amount of information may reduce the educational effects of training. Taken together, this evidence suggests that training needs to be repeated to maintain the effects, and providing training at least once each year is recommended (Recommendations 6 and 7).

3. Guidelines for improving workplace environment

3.1 State of the art on improving workplace environment

In recent years, increasing attention has focused on the effectiveness of the organizational approach addressing the improvement of the workplace environment using primary prevention measures\textsuperscript{13,14,17}. This view is also adopted in psychosocial factors management in the workplace, as represented by the European Directive 89/391 – OSH\textsuperscript{11}. Improving working conditions through workplace-level interventions is expected to reduce the negative impacts on health of workers. The effectiveness of preventing job stress through improving the workplace environment has been reported in several recent systematic reviews\textsuperscript{13,14,17}, which included a number of studies conducted in Japan\textsuperscript{15,16,41,42}. However, in these reviews, a lack of consistency of the intervention effects has been noted\textsuperscript{17,43}, and it is important to discuss methodological and practical aspects of such interventions\textsuperscript{44-46}. Difficulties in engaging employers\textsuperscript{45}, the role of employees in intervention activities, interference of the intervention by organizational changes and personnel turnover\textsuperscript{46}, and an inability to adjust to a variety of confounding factors\textsuperscript{46,47} have been identified as major factors leading to such inconsistency.

To successfully conduct workplace interventions for preventing stress at work, how the employees evaluate the intervention itself, how the employees are involved in the planning and implementation of multifaceted preven-
tive measures, and how the line managers and supervisors are involved in the intervention processes are important factors to consider\textsuperscript{(45,48)}. Meanwhile, work environment improvement tools for job-stress prevention, such as mental health action checklists, have been developed\textsuperscript{(49)}, and a series of studies has been conducted to assess the usefulness of these tools\textsuperscript{(2,15,16,50)}. It is important to clarify which aspects of ongoing intervention procedures and management processes are useful for overcoming the difficulties encountered in workplace-level interventions to improve the work environment.

### 3.2 Content of guidelines

#### Category 1: Planning and organizational development

Workplace improvements in which workers actively participate are generally effective in improving mental health\textsuperscript{(14-16,48)}. The improvement process commonly follows steps involving policy setting, planning, implementation, and evaluation\textsuperscript{(2,13,16,51)}. The usual efforts, such as redesigning work, reducing workload, and improving communication, may also be involved in meeting the needs of a system-based approach\textsuperscript{(15)}. In clarifying policy, these steps require the creation of a concrete system and role-sharing to secure an internal system for improving the work environment\textsuperscript{(16)}. In the decision-making process for improving the work environment, interventions involving workers are essential for improving psychosocial and health indicators\textsuperscript{(13-16,41)}. Organizing a “work committee” designed to reduce work stress under a stress reduction program, comprising supervisors, workers, and occupational health staff; setting up a work team; and improving the work procedures and command systems in varied work stages are also reported to improve depression scores and rates of sick leave\textsuperscript{(41,52)} (Recommendation 1).

Organizations conducting work environment improvement generally focus on taking a problem-solving approach\textsuperscript{(2,4,16,48)}. A step-by-step problem-solving process through participatory workplace improvement activities is typically realized by a group of workers engaged in the same manufacturing area, or in a work team with improved job performance\textsuperscript{(16)} (Recommendation 2).

As one of the important steps of primary prevention measures through improvement of the workplace environment, support and policy statements of top-level management, such as the president or plant manager, have been identified\textsuperscript{(16,51)}. Discussing the needs for work environment improvement involving a management department or a human resource department is recommended when

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**Table 2. Guidelines for supervisor training for occupational mental health**

<table>
<thead>
<tr>
<th>Category 1: Selection of training participants</th>
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<tbody>
<tr>
<td>R-1 Provide mental health training to all personnel in managerial positions</td>
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<tr>
<td>R-2 Identify population with an increased need for training and prioritize their training</td>
</tr>
<tr>
<td>T-1 Stratify the target management position according to needs in training content</td>
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<tr>
<th>Category 2: Contents</th>
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<tr>
<td>R-3 Deliver the following contents</td>
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<tr>
<td>Workplace mental health policy</td>
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<td>Significance of positive mental health</td>
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<td>Correct knowledge of mental health problems (eliminating prejudices, stigma)</td>
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<td>Roles of supervisors (improvements to the workplace environment / individual consultations)</td>
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<td>Early awareness of developing cases and how to deal with them</td>
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<td>Support for returning to work (administrative procedure of returning to work, arrangement of work condition)</td>
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<td>Self-care recommendations, including stress awareness, relaxation, and coping methods</td>
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<tr>
<td>Information on medical institutions or liaison offices both within and outside the workplace and increasing employees’ willingness to use the resources</td>
</tr>
<tr>
<td>How to contact and consult with medical professionals or cooperate with other insiders</td>
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<tr>
<td>Importance of protecting workers’ privacy</td>
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<tr>
<td>Major occupational stress models</td>
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<td>Active listening and communication training</td>
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<th>Category 3: Delivery formats</th>
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<tr>
<td>R-4 Incorporate participatory training to develop listening and advising techniques</td>
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<tr>
<td>R-5 Present interactive case studies</td>
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<tr>
<td>T-2 Present issues and data of the workplace</td>
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<td>T-3 Present case examples to increase motivation in training participation</td>
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<th>Category 4: Frequency</th>
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<td>R-6 Provide training once a year</td>
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<td>R-7 Provide training periodically (not only once)</td>
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<td>T-4 Plan stepwise training</td>
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</tbody>
</table>

* R-# stands for seven recommended items, T-# stands for four tip items.
beginning workplace environment improvement\textsuperscript{13,16,53). Effective workplace environment improvement is widely recognized as a process that operates in stages to gain the understanding of the organization and the workplace\textsuperscript{2,16) (Tip 1).

Category 2: Implementation regarding the basic rules of procedures

Learning from good workplace practices in the same industry is important for stress prevention through the improvement of the work environment\textsuperscript{13,14,16). To share concrete examples of workplace environment improvement, it is useful to collect good practices that have already been implemented and utilize them in improvement activities\textsuperscript{16). Similarly, providing good examples of workplace environment improvement is proven to be useful in management supervisor training\textsuperscript{15) (Recommendation 3).

Previous studies have provided evidence for the benefits of involving worker-participation in improving the workplace environment on the health of individuals\textsuperscript{13-16,32,54-57). Work environment improvement activities undertaken by committees organized by workers and mental health experts in the workplace have proven useful for improving psychosocial indicators, such as the sense of control and subjective performance, mental and physical health status, work stress reduction, absence rate decrease, and other health indicators\textsuperscript{12,24,34,55-60). Creating several small groups in the workplace, meeting once every 2 weeks to identify psychosocial stressors, and proposing solutions to employees and managers have proven effective in dealing with many stress-related factors\textsuperscript{58} (Recommendation 4).

Improvement activities that take various factors into consideration, such as work environment and working conditions related to physical and mental burden, are reported to improve health-related indices\textsuperscript{16,55,56,58). Reconstruction of work tasks, such as multi-functionalization at the task level, reorganization of work teams, and changes in production lines, may worsen the health index by increasing demands and decreasing control\textsuperscript{19} (Recommendation 5).

Category 3: Effective improvement measures

The department in charge of work environment improvement sets the schedule for training and meetings in consideration of the work situation\textsuperscript{16,44). Participatory improvements that are conducted when the management situation has deteriorated, such as restructuring of the workplace for improved management, is unlikely to improve health indices\textsuperscript{16,55,61). There may be limitations on participatory efforts when external factors, such as business conditions, are deteriorating\textsuperscript{20). Therefore, it is useful to promote workplace environment improvement activities by utilizing worker-driven committees voluntarily planned or set by mental health experts at the workplace\textsuperscript{2,15,16,61,51,52,60,62). Interventions that consider the situation in the workplace and are tailored to the individual workplace situation, such as personnel, scheduling of work, action-oriented training, and reviewing measures for improvement by committees authorized by management, are reported to be effective\textsuperscript{50) (Recommendation 6).

The use of good practices, action checklists, and participatory group discussions as participation-type promotion tools can facilitate positive suggestions from the workplace, which can be implemented and linked to continuous improvement\textsuperscript{2,15,16). In workplace discussions, such tools are used to support participatory efforts that draw on-site awareness and ideas, identify key risks in each workplace, and specifically propose effective and low-cost improvement measures\textsuperscript{53,56).

An approach suited for the workplace should be considered, making use of existing workplace structures that can lead to continuous improvement in the workplace (e.g., occupational safety and health committees and quality control circle activities). A workplace system that can be used to improve the workplace environment should involve a health and safety committee\textsuperscript{16,41), staff members of the health management department\textsuperscript{13,60), a work committee composed of supervisors, staff members in human resource management, and medical expertise for job-stress reduction\textsuperscript{41), labor-management utilization of a liaison coordinator\textsuperscript{59), team formation with budget authority\textsuperscript{53), and launching programs tailored to workplace safety and health training and management training\textsuperscript{45) (Recommendation 7).

Improving the program environment gradually in accordance with the acceptance and preparation of the workplace can aid program operations\textsuperscript{15,16). Employee representatives can act as liaisons between the manager and employees, and team communication, job scheduling, and employee conflict may improve with improvements in related health indicators\textsuperscript{37). An employee-led committee chaired by a mental health specialist can help improve mental health through improvement activities combining individual-level stress management and physical burden reduction\textsuperscript{90}.

Following discussions and organizational reforms via an advisory committee consisting of employees, managers, and researchers, improvements in psychosocial scales and a drop in the rate of absenteeism were observed\textsuperscript{40}. As a result of creating an action plan designed to reduce sources of stress to increase workers’ autonomy and support participatory activities in small groups, the degree of discretion and physical health both improved. Thus, taking an approach tailored to a designated workplace appears to be useful (Tips 2 and 3).

Category 4: Continuous implementation

Problem-solving participatory workplace improvement activities following the stages of activities of workers engaged in the manufacturing industry line can improve the mental health of workers and job performance\textsuperscript{69). As
part of supervisor education for effective management, workshops can aid understanding of workplace environment improvement and follow-up evaluation. In participatory interventions based on the “health circles” model, small groups of different types of employee representatives, led by an external moderator, meet every 2 weeks to identify psychosocial stressors and recommend solutions to employees and management. Setting the time period, implementation status, and results can confirm the effects of these recommendations. These activities can lead to continuous work environment improvement activities (Recommendation 8).

In research on organizational interventions, work environment improvement efforts are incorporated into the planning, implementation, evaluation, and review cycle. This cycle and continuous implementation play key roles for the sustainability of these interventions. Various workers’ participatory programs have been implemented, including: 1) establishment of workplace consensus, 2) improvement in multiple technical areas, and 3) continuous improvement through conducting risk assessment, taking into account various workplace stress factors related to both physical and mental health. Planning, risk assessment, and reduction measures leading to implementation, recording, and process reviews may thus be identified with an Occupational Safety and Health Management System (OSHMS) (Tip 4).

Discussion

We acknowledge that the proposed guidelines involve several limitations, including the small number of previous studies (in particular on supervisor training), the relatively small effects observed, and methodological shortcomings, limiting the conclusions that can be drawn. Unlike clinical guidelines, most of the present guideline recommendations were underpinned by best available evidence in the occupational health field because of the limited evidence from effectiveness studies. To develop the guidelines based on the current evidence, we decided against quality assessment of the selected studies. Thus, the guidelines should be regularly reviewed and refined through the incorporation of new evidence and good practices.

A unique feature of intervention in the workplace is that measurements are delivered as a package (a single measurement is rarely tested). This characteristic makes it difficult to interpret the effectiveness of the individual intervention measurements and to make clear recommendations on them in the guidelines. On the users’

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<td><strong>Category 1: Planning and organizational development</strong></td>
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<td>R-1 Making an agreement on the purpose, policy, and promotional organization for improving workplace environment at the workplace</td>
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<tr>
<td>R-2 Applying problem-solving approach instead of problem-finding approaches</td>
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<tr>
<td><strong>T-1 Promoting proactive involvement of management represented by the persons in charge of organizing the implementing steps of workplace environment improvement</strong></td>
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<tr>
<td><strong>Category 2: Implementation regarding the basic rules of procedures</strong></td>
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<td>R-3 Use of good practices for planning practical and feasible improvements</td>
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<td>R-4 Planning participatory steps to make it possible for workers to participate in the discussion and implementation of improvement measures</td>
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<td>R-5 Looking broadly into the work environment and working conditions related to both physical and mental burdens for considering improvement measures</td>
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<tr>
<td><strong>Category 3: Effective improvement measures</strong></td>
</tr>
<tr>
<td>R-6 Promoting locally adjusted proposals, such as practical improvement measures in consideration of the situation, timing, and resources of the workplace</td>
</tr>
<tr>
<td>R-7 Use of effective tools for workplace improvement, especially tools that can bring out workplace awareness and ideas and make suggestions that are easy to put into action</td>
</tr>
<tr>
<td><strong>T-2 Use of existing mechanisms of the workplace</strong></td>
</tr>
<tr>
<td><strong>T-3 Considering an approach suited for the workplace, such as selecting the reasonable intervention way according to organization systems for acceptance and immediate implementation</strong></td>
</tr>
<tr>
<td><strong>Category 4: Continuous implementation</strong></td>
</tr>
<tr>
<td>R-8 Establishing follow-up and evaluation opportunities, such as requesting the submission of an interim report, setting the reporting period, and checking the implementation status and results in order to support continuity of implementation of workplace environment improvement</td>
</tr>
<tr>
<td><strong>T-4 Developing a PDCA cycle, by incorporating work environment improvement efforts into the planning (Plan), implementation (Do), evaluation (Check), and review (Action) cycle so that they can be implemented continuously</strong></td>
</tr>
</tbody>
</table>

* R-# stands for eight recommended items, T-# stands for tip items in four categories.
side, it is possible that not all measures of a multimodal intervention will be accepted in the workplace. Guideline developers should provide an assessment of the strength of each individual recommendation so that practitioners can choose between the recommendations more easily[64]. As the evidence underpinning workplace guidelines is scarce[63], we adopted two categories of suggestion — recommendations and tips — based on the best available evidence.

Conclusions

Based on the best evidence currently available, we propose guidelines for primary prevention for mental health at work. Although evidence is limited, providing recommendations about the most effective measures to take first in the workplace can be useful for promoting effective occupational health practices. We believe that a range of standardized evidence-informed recommendations is useful for occupational practice.

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Conflict of interest

The authors declare no conflicts of interest.

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