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IV. 研究成果の刊行物・別刷

Review

Development of an Evidence-based Guideline for Supervisor Training in Promoting Mental Health: Literature Review

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Abstract: Development of an Evidence-based Guideline for Supervisor Training in Promoting Mental Health: Literature Review: Akizumi TSUTSUMI, Occupational Health Training Center, University of Occupational and Environmental Health—Objective:

To review published studies to assess the effects of supervisor training on the mental health of subordinate workers, and thereby develop an evidence-based guideline for supervisor training in promoting workers' mental health. **Method:** Seven studies that assessed the effect of supervisor training, whose outcomes included psychological stress responses of (subordinate) employees, were retrieved for assessment from PubMed, the Cochrane Library, MEDLINE, the Web of Science, and Ichushi-Web. An additional five studies were also reviewed for discussion on the content and types of training. **Results:** Providing supervisors with necessary skills and information on mental health, including relevant occupational stressors, has a favorable effect on workers' mental health, at least in the short term. The subject populations had a background of requiring mental health measures. The effect of the training varied depending on the participation rate of supervisors, suggesting that the overall effect on an organization may be limited without a certain extent of participation by supervisors. There is no evidence of a long-term (over 1 yr) effect of supervisor training, and the effect of education on the supervisors' knowledge and behavior tends to be lost after 6 mo. **Conclusion:** The current evidence indicates that the following items should be taken into consideration for the development of a guideline for supervisor training: identification of high-priority populations requiring education, development of a strategy to improve the participation rate in education, inclusion of occupational stressors as well as basic information in workplace

mental health teaching materials, and regular repetition of the program.

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Key words: Evidence-based guideline, Intervention, Mental health, Supervisor education, Review, Workplace

The primary prevention of mental health problems among workers has become a high-priority health care issue in many workplaces. Supervisor training is one of the most important measures to this end, because supervisors' attitudes and skills were found to be related to favorable working conditions and mental health among their subordinates¹. Although the effect of supervisor training on workers' mental health has been suggested through research², its utilization rate in workplaces in Japan is only 35%³. Reasons found for the lack of mental health measures in workplaces included "lack of knowledge on such measures" as well as lack of personnel who are in charge of the issue³. Therefore, the development of an evidence-based guideline and the preparation of instructions for training that can be carried out in workplaces may promote the training of supervisors. Although a trial of this process has begun⁴, to the best of my knowledge there have been no systematic reviews on the effect of supervisor training on workers' mental health. This study reviewed relevant effect assessment studies, for the purpose of developing an evidence-based guideline for supervisor training, as a primary measure to support workers' mental health.

Methods

The studies published within the period of January 2000 to June 2009 were searched from the retrieval databases of PubMed, the Cochrane Library, MEDLINE, the Web of Science, and the Ichushi-Web (a Japanese medical science literature database), with the following keywords: (education OR training) AND (supervisor OR manager) AND (job stress OR mental health).

Controlled studies whose outcomes included the

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occupational stressors and stress reactions of workers were selected. If any study was reported in duplicate, only one of the reports was reviewed.

The overall effect of supervisor training was assessed, and the results of each study were considered in terms of target population, content and types of training, duration of training and effect assessment, for reference in our development of the planned guideline. For the discussion of the content and types of training, additional literature references were included as needed.

Results

In total, 188 studies (including 10 reviews) were retrieved. Of those, seven controlled studies that met the inclusion criteria were selected⁵⁻¹¹⁾ (Tables 1 and 2). For the discussion of the content and types of training, five additional studies were included^{1, 12-16)}.

Summary of retrieved literature: randomized controlled trials (Table 1)

In one study, managers in a computer engineering company were assigned to either a training group (n=9) or non-training group (n=7), and the effect of web-based self-directed learning was examined. The content consisted of the knowledge and roles required of supervisors as laid out in the Japanese Guideline for Workers' Mental Health in the Workplace¹⁷⁾ and quizzes were given in each chapter as a learning review. Three months after the end of the program, it was found that the scores for supervisor support had greatly decreased among the subordinates of the non-training-group supervisors, while these scores did not decrease among the subordinates of the training-group supervisors, yielding a statistically significant intervention effect. This difference was particularly remarkable for the question item regarding whether supervisors listen to their subordinates' personal problems. There was no difference between the two groups with regard to support from colleagues, mental stress reactions, or other psychosocial occupational stressors⁵⁾.

The effect of the same form of web-based self-directed learning was examined in a workplace-based randomized controlled study⁶⁾. In total, eight sales- and service-related workplaces were designated as either training workplaces or non-training workplaces. Three months after the intervention, the reported sense of work control among subordinates in the non-training workplaces (control group) had decreased, while reported sense of work control did not decrease among subordinates in the training workplaces (intervention group), which indicates the effect of the intervention. In addition, friendly atmosphere reports increased in the intervention group, but these were unchanged in the control group, indicating a statistically significant effect of the intervention. There was no significant effect on other occupational stressors, support from supervisors or colleagues, or psychological stress reactions.

A lecture on the necessary knowledge and roles required of supervisors as laid out in the Japanese Guideline for Workers' Mental Health in the Workplace was provided to supervisors in a sake brewing company who were randomly assigned to an intervention group. Other components that were carried out with the intervention group included: a lecture on appropriate attitudes and listening and specific response skills (active listening); a presentation of model listening behavior; role playing in which participants practiced the roles of listener, speaker, and observer in turn for 20 min per session; and practical training in active listening with repeated reviews of each session⁷⁾. In subordinates whose performance was rated by supervisors in the intervention group and in the control group, respectively, changes in psychological distress and self-assessment of job performance at 3 mo post-training were compared. An education effect was not observed in all subjects, but a significant effect was observed among young clerical workers who had been worried about their work environment.

Summary of retrieved literature: quasi-experimental studies (Table 2)

In one study, all the workplace supervisors in the intervention workplace (n=2,068) attended lectures given by a counselor over the course of a year on proper attitudes for understanding the ideas and feelings expressed by subordinates, in addition to effective workplace management that takes into consideration the individual differences among subordinates, and measures to be taken to support the independence of subordinates. It was found that reported support from supervisors increased and the frequency of mental health complaints in the workplace decreased, compared with the control workplace⁸⁾.

Among four private hospitals owned by a particular health care organization located in the northeastern United States, two hospitals delivered salary cuts to all nurses as a result of a revision of their salary system. One of the pay-cut hospitals and one non-pay-cut hospital were randomly chosen as the subject hospitals, and 19 supervising nurses from the pay-cut hospital and 21 from the non-pay-cut hospital received two 4-hour sessions, consisting of a lecture on interactional justice, a case study review, and a role play activity, carried out over 2 consecutive days (during office hours), 5 wk following the salary system revisions¹⁴⁾. Immediately after and 6 mo after the training, the rate of insomnia significantly increased in the nurses of the pay-cut hospital, but the increase in insomnia complaints was suppressed in the nurses working under the supervisors who received the training⁹⁾.

Supervisors in an insurance company received education to enhance their managing ability, so as to improve the psychosocial occupational environment, for 2 h every other week for 1 yr (60 h in total)¹⁰⁾. The training on the

Table 1. Effect assessment of supervisor training: randomized controlled trials

Author Year published	Subjects and specific workplace circumstances	Content and type of training	Time of assessment	Main findings
Kawakami <i>et al.</i> 2005 ³⁾	Managers in an information technology company were randomly assigned to an intervention group (n=9) or control group (n=7), and their 92 and 84 subordinates, respectively, were compared.	Roles of supervisors as specified in the guideline from the Ministry of Health, Labour and Welfare. Web-based supervisor training.	Pre-training and 3 mo post-training	Support from supervisors decreased in the control group, while it was maintained in the intervention group (particularly for the item regarding whether supervisors listen to subordinates' personal problems).
Kawakami <i>et al.</i> 2006 ⁴⁾	Eight sales- and service-related workplaces were randomly assigned to an education group or control group, and 81 subordinates of 23 supervisors in the education workplaces were compared with 108 subordinates of 23 supervisors in the control workplaces.	Roles of supervisors as specified in the guideline from the Ministry of Health, Labour and Welfare. Web-based supervisor training.	Baseline and 3 mo post-training	Sense of work control decreased in the control group, but did not change in the intervention group. Friendly atmosphere in the workplace increased in the intervention group.
Takao <i>et al.</i> 2006 ⁵⁾	Supervisors in a sake brewing company were randomly assigned to an intervention group (n=24) or control group (n=22). Subordinates whose performances were rated by the supervisors in either of the above groups (n=154 and n=101, respectively; including some missing data in some analysis items) were compared. This was a small manufacturing company with unfavorable prospects because the sales of their products had decreased. In particular, male clerical employees with a short employment history with the company had greater anxiety (due to occupational instability).	Roles of supervisors as specified in the guideline from the Ministry of Health, Labour and Welfare. Active listening practice using role playing. Training performed in half a day.	Pre-training and 3 mo post-training	A significant effect was observed in mental stress reactions and job performance of young clerical workers who had been worried about their work environment.

Table 2. Effect assessment of supervisor training: quasi-experimental studies

Author Published year	Subjects and specific workplace circumstances	Content and type of training	Time of assessment	Main findings
Kawashima <i>et al.</i> 1996 ⁶⁾	Employees of an electricity service-related workplace whose supervisors received training (n=2,068) were compared with the employees of a control workplace (n=1,004). In the intervention workplace, all managers and assistant managers received the training (the number of the supervisors was not specified).	A part-time counselor lectured for 1 h at a time throughout 1 yr, on proper attitudes for understanding the ideas and feelings expressed by subordinates, workplace management that takes into consideration the individual differences among subordinates, and measures to be taken to support the independence of subordinates.	Pre-training and 1 yr post-training	Complaints regarding relationships with supervisors, depression scores, systolic blood pressure, and rate of subordinates being inadequately supported by their supervisors all decreased in the intervention group.
Greenberg 2006 ⁷⁾	Nurses in four private hospitals owned by a particular health care organization located in the northeastern United States. Two hospitals delivered salary cuts to all nurses as a result of a revision of their salary system. One of the pay-cut hospitals and one non-pay-cut hospitals were selected, and 19 supervisors of the former and 21 of the latter received training at the 5-week point following the salary cuts, and subordinates of the educated supervisors (136 and 105 subordinates, respectively) were compared with subordinates of non-educated supervisors (130 and 96 subordinates, respectively).	Two 4-hour sessions consisting of a lecture on interactional justice, a case study review, and role playing were performed on 2 consecutive days (during office hours).	Immediately after and 6 mo after the training	Insomnia significantly increased in nurses of the pay-cut hospital, but the increase in insomnia complaints was suppressed in the nurses working under the supervisors who received the training.

Table 2. Effect assessment of supervisor training: quasi-experimental studies (continued)

<p>Theorell <i>et al.</i> 2001 ⁸⁾</p> <p>The intervention group included 223 employees and the control group was 260 employees of an insurance company. Forty-two supervisors in each group participated in an education program.</p> <p>The company was facing the prospect of other companies competing in their exclusive business of retirement pensions for salaried workers. The training was performed for the purpose of improving the competency of supervisors in dealing with the increased anxiety and demoralization that could arise during the reorganization of the business structure.</p>	<p>A training program to enhance managing ability so as to improve the psychosocial occupational environment (job demand, control, support, and effort-reward imbalance) was carried out for 2 h every other week for 1 yr (60 h in total).</p>	<p>Pre-training and 1 yr post-training</p>	<p>Serum cortisol decreased in the intervention group. Sense of work control increased in the intervention group, and decreased in the control group.</p>
<p>Tsutsumi <i>et al.</i> 2005 ⁹⁾</p> <p>In a prefectural government workplace (with 1,644 workers in total) where measures against increasing mental health cases were required, 473 supervisors voluntarily participated in a supervisor training program. Workers who responded to surveys before and after the training were compared between the departments in which one-third or more supervisors attended the training and the departments with a lower attendance rate (674 and 190 workers, respectively).</p>	<p>Roles of supervisors as specified in the guideline from the Ministry of Health, Labour and Welfare.</p> <p>Single lecture on active listening.</p>	<p>Pre-training and 3 mo post-training</p>	<p>A significant effect on psychological stress reactions was observed in the departments in which one-third or more supervisors attended the training. The educated supervisors showed favorable changes in knowledge on and attitudes/behavior toward mental health.</p>

Table 3. Evidence-based guideline for supervisor mental health training

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- 1) All supervisors should receive mental health training.
 - 2) High-priority populations requiring the training should be identified before implementation.
 - 3) The training should be planned with a focus on the needs and situation of the individual workplaces.
 - 4) The training content should be determined based on the administrative level of the subject supervisors.
 - 5) The training content should include the items recommended in the Japanese Guideline for Workers' Mental Health in the Workplace and representative items related to occupational stressors.
 - 6) The training should aim for behavior modification among supervisors.
 - 7) Supervisor training should be performed repeatedly rather than only once.
 - 8) Supervisor training should be performed yearly if possible.
 - 9) Stepwise education should be planned by dividing and spreading out the content of the education.
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psychosocial occupational environment covered factors in an occupational stress model such as job demand, control, support, and effort-reward imbalance. Supervisors and their subordinates in the intervention group showed a decrease in serum cortisol and an increase in job control compared with the employees in the control group.

Supervisors at a prefectural government workplace learned about roles and necessary knowledge required for supervisors as set out in the Japanese Guideline for Workers' Mental Health in the Workplace, and about making themselves available for personal consultations. In addition, they learned how to conduct advisory consultations for subordinates in the role of supervisor, the theory and skills of active listening, effects of active listening, and situations in which active listening can be used. Three months after the completion of the program, psychological distress and subjective job performance improved in workers of the departments in which one-third or more supervisors attended the lecture, compared with the workers of the departments with a lower attendance rate. The educated supervisors showed favorable changes in knowledge on and attitudes and behavior toward mental health. Among the reported behaviors, the following items showed significant changes between pre- and post-education: identification and improvement of problems in the workplace environment and referral of sick subordinates to appropriate institutions¹¹⁾.

Discussion

Overall effect assessment

Although the number of controlled studies was limited, their findings indicated that supervisor training in which necessary information and skills were provided to supervisors has a favorable effect, at least in the short term, on mental health, insomnia, and job performance among workers⁵⁻¹¹⁾. The effect of the training varied among the subjects, and the overall effect on the organization may be limited without a certain extent of participation by supervisors¹¹⁾. Improved knowledge and favorable behavior modifications among supervisors may be one of the mechanisms that lead to the effect of supervisor

training¹¹⁾.

Quasi-experimental studies generally supported this hypothesis. Randomized controlled trials reported significant findings, but these were not from the analysis of the primary outcome (i.e. effect on stress reactions) but from sub-analyses of sub-populations and sub-items. Based on the results, the level of current evidence on supervisor training was evaluated as moderate, and the effect of mental health education for supervisors was evaluated as being reasonably demonstrated.

Based on the current evidence and following discussions on relevant implications of supervisor training in the workplace, I propose a guideline for supervisor training toward the promotion of mental health, outlined in Table 3.

Target populations

It has been suggested that the higher the proportion of supervisors receiving training, the more effective the training may be¹¹⁾. In other words, the overall effect on the organization may be limited without a certain extent of participation by supervisors. Therefore, it is recommended that all supervisors receive mental health training, and a strategy to improve the participation rate in such education programs is necessary.

Populations that are particularly responsive to supervisor training, such as those who are anxious about their occupational expectations, have backgrounds that require mental health measures, suggesting that there are populations in which education/training may be more effective^{7, 9-11)}. Thus, it is suggested that it would be effective to identify high-priority populations for this education/training prior to implementing training programs. It also seems preferable to plan this training by focusing on the needs and current situations of the subject workplaces.

Supervisors include those in management (with subordinates) as well as those in administration. For those in management, education on supporting their subordinates and cooperation with occupational health specialists are important, while for administration supervisors, an

understanding of how to construct the corporate environment is of greater importance¹⁶⁾. The content of training should thus be determined depending on the administrative level of the subject supervisors.

Content and types of training

The items required to be learned by supervisors as set out in the Japanese Guideline for Workers' Mental Health in the Workplace (see Appendix¹⁷⁾)^{5-7, 11)}, as well as education on representative occupational stressors and methods to improve the workplace environment^{9, 10)}, have been demonstrated to be effective. Therefore, supervisor training content should include the items recommended in the Japanese Guideline for Workers' Mental Health in the Workplace and representative items related to occupational stressors.

Since the effect of supervisor training may result from their improved knowledge and favorable behavior modifications¹¹⁾, the training should aim to achieve these outcomes.

It has been suggested that web-based self-directed learning can at least help maintain support from supervisors, a sense of work control and friendly workplace atmosphere, as experienced by workers^{5, 6)}. Web-based training is free from the limitations of place and time associated with face-to-face tutorials and classroom teaching, and allows learning at each trainee's pace as well as repeated learning if necessary^{5, 6)}.

Lectures and active listening practice have been incorporated in various programs^{5, 6, 9)}. Active listening training to improve supervisors' attitudes of support for their subordinates, by listening to their concerns and mental health problems, has reportedly improved the attitudes of supervisors toward their subordinates^{12, 13)}. The effectiveness of a 30-hour program was demonstrated¹²⁾, and the effect of a 1-day program consisting of role playing and group discussions was subsequently demonstrated¹³⁾. Although a direct effect assessment of active listening training has not been performed, it has been demonstrated that workers under supervisors with good attitudes and listening skills have better psychological stress reactions compared with other workers¹⁾.

Training period and effect assessment period

The frequency and duration of supervisor education were reviewed. Even among education programs with multiple sessions, no program was longer than 1 yr, and the effect was followed for up to 1 yr. It was found that the effect of education on the knowledge and behavior of supervisors may be lost within approximately 6 mo¹⁵⁾. Although supervisor participation improvement activities and supervisor continuing education carried out through the subsequent year are expected to achieve favorable results^{8, 10)}, this has not been tested in a randomized controlled trial. In addition, excessive information may

decrease the educational effect¹⁸⁾. The effect of repeated trainings performed over a certain period of time should be tested in the future, but at present, I recommend that supervisor training be performed repeatedly, yearly if possible, rather than only once. It is also preferable to plan stepwise education by dividing and spreading out the content of the education.

Evidence required in the future

Most of the current evidence has been obtained through studies that used worker self-assessments to obtain outcomes, but studies using more objective outcomes should be performed in the future. Since it has been pointed out that measures against occupational stress can take several years to be reflected in reduced medical costs and medical leave¹⁹⁾, studies on long-term effects of training should also be performed. Supervisors' acquisition of active listening skills may have a beneficial effect on the mental health of their subordinates. High-quality, specific evidence on the effect of active listening method training should be obtained.

The frequency and number of training sessions should also be examined in the future by assessing the cost-benefit of supervisor training as a mental health measure. In particular, the type of training in which personnel are gathered together in a group for training at a particular location, even for a short time, is worth examining further. Web-based training is beneficial, because it is free from the limitations of time and space associated with face-to-face tutorials and classroom teachings, and it allows learning to occur at each trainee's pace and for lessons to be repeated as needed. However, a strategy is required to improve the effect of this form of education, such as measures not only to increase the knowledge retention of trainees but also to motivate trainees to participate in the program proactively⁵⁾.

Japanese industry has strong vertical hierarchies and a close supervisory style^{20, 21)}. These cultural and workplace characteristics may explain the accumulation of related evidence in Japan²²⁾. However, the increasing importance of management style for mental health promotion in the workplace has also been recognized in Western societies^{4, 9, 10)}, indicating that supervisor training, along with these study findings, can be applied and tested there in the near future.

Conclusion

Effective supervisor training should be planned by taking into consideration the identification of high-priority populations, planning the training with a focus on the needs and situation of individual workplaces, developing a strategy to improve the participation rate in supervisor education programs, and encouraging repetition of the training program. The content of the training should include occupational stressors as well as basic information

on workplace mental health.

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Appendix. Items required to be learned by supervisors as set out in the Japanese Guideline for Workers' Mental Health in the Workplace

Topics	Contents
1. Workplace mental health policy	Supervisors should be aware of their workplace mental health policy, which generally comprises a vision statement, a statement of the values and principles on which the policy is based, and a set of objectives.
2. Significance of positive mental health	Emphasis is placed on three significance areas of positive mental health in the workplace: securing the health and lifestyle of the employees, developing a productive and vibrant workplace/organization, and managing risk in the workplace. Supervisors are responsible for subordinates' safety as an acting employer.
3. Correct knowledge of mental health problems	Eliminating ingrained prejudices against those with mental health problems.
4. Roles of supervisors in positive mental health in the workplace	Supervisors have two important roles in relation to positive mental health in the workplace: improvements to the workplace environment and individual consultations and follow-up.
5. Improving the working environment	The working environment includes all factors that affect health, such as physical surroundings, work procedures, work hours, work patterns, and organization. Some formerly successful examples may be introduced for the improvement of stress factors in the working environment. The goal is to get supervisors to understand the importance of assessing the workplace on a daily basis from the viewpoint of stress management.
6. Becoming aware of and responding to a subordinate's mental health problems	Early awareness of developing cases and how to deal with them are explained.
7. Support for returning to work	A model support system for returning to work is illustrated, and supervisors are encouraged to establish such a system. Emphasis is placed on the importance of preventing a recurrence after job reinstatement, by exemplifying a set of careful reinstatement steps, taking into consideration the time for starting work, restrictions on working conditions, and a follow-up period with regular consultations and reports. Participation consent of the supervisor, medical staff, and the employee is emphasized.
8. Cooperation with medical professionals within and outside the workplace	How to contact and consult with medical professionals is explained.
9. Self-care recommendations	Because the supervisors themselves are exposed to occupational stress, they are provided with some self-care recommendations, including stress awareness, relaxation, and coping methods.
10. Information on medical staff within and outside the workplace	Supervisors are informed of medical institutions or liaison offices both within and outside the workplace.
11. Protection of workers' privacy	Understanding of importance of protecting workers' privacy including health-related information. The privacy policy of the workplace should be reviewed.

Organizational Justice, Willingness to Work, and Psychological Distress: Results from a Private Japanese Company

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Objectives: This study assessed the risk of low organizational justice (OJ) on psychological distress as well as on low willingness to work, and also investigated the underlying factors between OJ and these outcomes. **Methods:** Cross-sectional questionnaire data of 1804 employees (93.6% of subjects) of a Japanese company were collected. Logistic regression analysis was conducted to explore the objectives. **Results:** Subjects with low overall OJ had a higher risk of psychological distress compared with their counterparts (odds ratio: 4.93; 95% confidence interval: 3.17 to 7.68). The corresponding odds ratio for low willingness to work was 2.87 (95% confidence interval: 2.06 to 4.00). Job satisfaction and organizational citizenship behavior play a role of mediation between OJ and these outcomes. **Conclusion:** Low OJ was a notable risk factor for psychological distress as well as for low willingness to work. High OJ might prevent psychological distress and promote willingness to work.

Organizational justice (OJ) is a noteworthy psychosocial factor in the workplace. The concept consists of four components: distributive justice, procedure justice, interpersonal justice, and informational justice. In the historical review of justice research,¹ the first and most acknowledged of the forms of justice is distributive justice, an assessment of the fairness of decision-making outcomes. The second one is procedure justice, an assessment of the fairness of the procedures used to determine these outcomes. Research exploring procedure justice has found that perceptions of procedure justice are often influenced by interpersonal elements. These interpersonal influences can be seen as a third dimension: interactional justice, representing the fairness of interpersonal treatment by one's superior. In addition, interactional justice has been proposed as a combination of both interpersonal and informational justice. In general, OJ research has been characterized by examining the unique effects of different types of justice on various outcomes. Nevertheless, more recently, researchers have suggested that a shift in focus to a consideration of overall fairness judgments might provide a more comprehensive understanding of justice in organizational settings.² Thus, research involving the overall justice component should be conducted.

Japan has some interesting features regarding occupational settings. First, substantial and drastic changes have occurred in employee wages and the employee appraisal system in the past 10 years, along with the introduction of a performance-based component to replace the seniority-based component. In relation to this change, the white paper on the Labour Economy by the Japanese Ministry of Health, Labour and Welfare stated that the willingness to work, which is a positive and spontaneous attitude during work,

as well as job satisfaction had been attenuated. Interestingly, it has also been pointed out that those attenuations depend not only on the performance-based system itself but on the dissatisfaction with the performance appraisal system—the standard of appraisal is not clearly explained to workers and workers do not completely agree with the appraisal outcome.³

Regarding the performance appraisal system, justice has been identified as a key factor determining a worker's acceptance of the appraisal system. Workers' justice perception in performance appraisal is associated with a variety of factors, organizational outcomes (prosocial behaviors targeting the organization), leader-related outcomes (prosocial behaviors targeting the supervisor, satisfaction with the leader), and performance-related behaviors (motivate the individual to exert more effect).⁴ Therefore, analyzing OJ would be useful to elucidate attenuations of willingness to work and job satisfaction.

A secondary feature is that the numbers of cases with mental disorders in Workers' Accident Compensation Insurance Benefits has dramatically increased along with the number of employees who suffer from psychiatric diseases.⁵ The number of employees with a leave of absence of longer than a month due to mental illness has also been increasing, and it is reported that the prevalence of companies with such incidents comes to 77.2%.⁶ In fact, according to the Survey on the State of Employees' Health held every 5 years by the Japan Ministry of Health, Labour and Welfare, approximately 60% of employees experience high anxiety, worry, or stress during their working life.

Among the determinants of employee's mental health, psychosocial work-related factors, including OJ, must be considered as countermeasures against the above situations. Low perceived OJ is associated with a variety of adverse health outcomes, including psychological distress,^{7–12} and clinically diagnosed depression.^{9,13}

Accordingly, we assumed that OJ is an important factor to be examined in present Japanese occupational settings. Nevertheless, there is little research examining the risk of low OJ on psychological distress.

With regard to willingness to work, positive attitude of work-related factors should be examined in relation to OJ. Nevertheless, there is little research examining it.¹⁴ Therefore, the primary purpose of this study was to assess the risk of low OJ on psychological distress and low willingness to work.

We set a secondary purpose of examining the mediating factors between OJ and outcomes^{4,15} because previous research did not fully examine these factors.

In this research, we choose job satisfaction and organizational citizenship behavior (OCB) as underlying factors. Both of these factors are affected by OJ.¹⁶ As mentioned above, the attenuation of job satisfaction has been indicated in Japan.¹ Job satisfaction is associated with a variety of work-related attitudes (eg, work motivation), and many studies have shown a close link between job satisfaction and mental health.¹⁵ Therefore, we hypothesized that job satisfaction partially mediates the relationship between OJ and psychological distress, as well as OJ and willingness to work.

Organizational citizenship behavior is defined as an individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the

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effective functioning of the organization.¹⁷ Previous studies have shown that job satisfaction promotes OCB.^{18–20} Organizational citizenship behavior is related to a variety of work-related consequences, including employee turnover intentions, actual turnover, and absenteeism.²¹ It is presumed that high OJ has both a positive direct effect on OCB and a positive indirect effect on OCB through job satisfaction, and high OCB is associated with high willingness to work. Therefore, we hypothesized that OCB partially mediates the relationship between OJ and willingness to work.

In this article, we investigated the risk of OJ on psychological distress as well as on low willingness to work, and also investigated underlying factors between OJ and these outcomes.

SUBJECTS AND METHODS

Subjects and Procedures

A survey was conducted in November 2007, in an office of an electronics company located in a suburb of Tokyo. All full-time regular employees (N = 1927) were invited to participate in the survey using a self-administered questionnaire. As some survey items were related to workers' appraisal of supervisors, the questionnaire was designed to be anonymous to prevent artificial responses as well as to protect workers' privacy. About 90% of the data were collected through the use of a security-protected intranet where the workers' own computers were available, whereas the other 10% were obtained by paper questionnaires collected in a sealed envelope. A total of 1865 employees participated in this survey and the response rate was 96.8%. After excluding incomplete responses, 1804 employees (93.6% of the original study sample) were included in this analysis. Written informed consent was not obtained beforehand. Nevertheless, the questionnaire was designed so that all the participants had to read the instructions and explanation for the survey beforehand, and responses were voluntarily requested. The study protocol was approved by an administration committee at the company headquarters, which governs the ethical issues for the entire company.

Measures

Organizational justice

Organizational justice was measured using the Japanese version of the OJ questionnaire originally created and validated by Colquitt.²² It includes 20 items and four-dimensional scales: distributive, procedure, interpersonal, and informational justice. A Japanese version of the scale has been reported to show high internal reliability and validity.²³ All items were assessed using a 5-point Likert scale ranging from 1 to 5, and a high score represented high OJ.

Psychological Distress

The Japanese version of the K6 Questionnaire^{24,25} was used to measure psychological distress in the study. K6 has high validity and reliability and is approved as a valuable tool for screening psychological distress and clinical psychiatric disorders such as depression or anxiety disorders. It includes 6 items and all items were assessed with a 5-point Likert scale ranging from 1 to 5 (scoring from 0 to 4), and a high score represented high psychological distress.

Willingness to Work

We defined *willingness to work* as a positive and spontaneous attitude during a typical workday and examined it using three-item scales. Example items are the following: "I always want to do a better job and produce better results." "I want to work towards progressively higher goals." "I want to obtain a great deal of experience and knowledge through my work." All items were assessed using a 5-point Likert scale ranging from 1 to 5, and a high score showed high willingness to work.

Job Satisfaction

Job satisfaction was measured using a six-item scale that was prepared for this survey referring from a validated scale.²⁶ The original scale consists of 14 items and two types of job satisfaction: overall job satisfaction and facets of job satisfaction (eg, pay, promotion, coworkers, and supervisions). A previous study showed that both types of job satisfaction reduced stress reactions. Especially, overall job satisfaction reduced all types of stress reactions regardless of job stressors.²⁶ Therefore, we chose items mainly from the general job satisfaction component and prepared the survey scales. Example items are the following: "You feel satisfied with your present job demand and quality," "You feel satisfied with the company as a place where you spend your working life," "You feel satisfied with your colleagues," "You feel a sense of pride and meaning when working at your company," "You can build the skills and experience for your desired career at the workplace," and "You think it is advantageous to keep working at your present workplace." All items were assessed using a 5-point Likert scale ranging from 1 to 5, and a high score showed high job satisfaction.

Organizational Citizenship Behavior

Organizational citizenship behavior was measured using three-item scales that were made on the basis of Williams and Anderson's concept of OCB.²⁰ Two of these items represented OCBO-behaviors that benefit the organization in general and the other one represented OCBI-behaviors that immediately benefit specific individuals and indirectly contribute to the organization. Example items are: "If necessary, I contribute to my workplace even when it is not part of my job description," "I follow work regulations and social rules even when no one watches me," and "I always willingly support colleagues when they are having difficulties." All items were assessed using a 5-point Likert scale ranging from 1 to 5, and high score showed high OCB.

Job Demand, Job Control, and Social Support at Work

Job demand, job control, and social support at work were measured using the Brief Job Stress Questionnaire.²⁷ This scale was developed with a research grant for Japanese ministry of labor with referring to Karasek's Job Content Questionnaire and the National Institute for Occupational Safety and Health Genetic Job Stress Questionnaire.

Job demand was evaluated with three-item quantitative job demand scales. Example items are the following: "I have an extremely large amount of work to do," "There is not sufficient time to handle work," and "My job requires me to work very hard."

Job control was evaluated with three-item job control scales. Example items are the following: "I can work at own pace," "I have influence over the order and the way in which I perform tasks at work," and "I can influence on the workplace policies."

Social support at work was evaluated with a three-item scale for coworker support and a three-item scale for supervisor support. Example items are the following: "How easy is it to talk with each of the following people?"; "How much can each of these people be relied on when things get tough at work?"; and "How much is each of the following willing to listen to your personal matters?"

All items were assessed using a 4-point Likert scale ranging from 1 to 4 and a high score showed high job demand, high job control, and high social support, respectively.

Characteristics of Subjects

Sex, age, marital status, type of occupation, working conditions (shift work, others), occupational status (manager, deputy manager, regular employee), overtime work hours per month (less than 20 hours per month, 20 to 45 hours per month, 45 to 80 hours

per month, more than 80 hours per month), sickness absence during the previous year (none, less than 5 days per year, 5 to 10 days per year, more than 10 days per year), sleeping hours (less than 4 hours per day, 4 to 5 hours per day, 5 to 6 hours per day, 6 to 8 hours per day, more than 8 hours per day), smoking status (current smokers vs nonsmokers), drinking frequency (No or occasionally vs almost everyday), and regular physical activity (more than half an hour of exercise is conducted two times or more per week) were asked.

STATISTICAL ANALYSIS

Exploratory factor analysis was conducted to test structural validity among the original 12 items measured for job satisfaction, OCB, and willingness to work. We conducted correlation analyses between all the combinations of examined scales. Cronbach α coefficient was calculated for all scales to confirm internal consistency reliability.

Logistic Regression Analysis

Associations between OJ and psychological distress, and OJ and willingness to work, were examined using logistic regression analysis. Results are presented as odds ratios (ORs) and 95% confidence intervals (CIs) adjusted for sex, age, occupational status, smoking status, drinking frequency, regular physical activity, and job demand. The justice measures were divided into quartiles and treated as categorical variables. Overall OJ (summative scores of each justice component) and each justice component were examined, respectively. *High psychological distress* was defined as a K6 score of more than 9.²⁴ The willingness to work measure has divided into quartiles, and the bottom quartile was defined as low willingness to work.

Furthermore, to assess the contribution made by job satisfaction and OCB in the relationships between OJ and outcomes, we adjusted the effects for these variables. Statistical significance was set at $P < 0.05$. All the data were analyzed using SPSS Version 11.5J (SPSS, Japan Inc, Tokyo, Japan).

RESULTS

Subject Characteristics

Study subjects' characteristics are shown in Table 1. The mean age of the subjects was 39.4 (SD = 8.9) years. The majority of subjects were men (90.1%), engaged in engineering work (74.5%) and worked an extra 20 to 45 hours per month (46.4%). Fifteen point one percent of participants had high psychological distress.

Scale Characteristics and the Results of Correlation Analysis

Exploratory factor analysis with promax rotation for items such as OCB, job satisfaction, and willingness to work showed the assumed factor structure composed of these three separate factors. Table 2 shows descriptive characteristics and correlations of all variables. Cronbach α reliability coefficients were all in the preferable range (0.71 to 0.96).

Results of Logistic Regression Analysis

Low OJ was associated with a high risk of psychological distress with all justice components as well as overall OJ. Results of the test for trends were also all significant (Table 3). Even after adjustment for sex, age, occupational status, smoking status, drinking frequency, regular physical activity, and job demand, these associations were still significant (Model 1).

Low OJ was associated with a higher risk of low willingness to work with all justice components as well as overall OJ. Results of the test for trends were also all significant (Table 4). Even after adjustment for covariate, similar to psychological distress, those associations were still significant (Model 1).

TABLE 1. Characteristics of Subjects

Variables	N (%)
Sex	
Men	1626 (90.1)
Women	178 (9.9)
Age, y Mean (SD)	39.4 (8.9)
Marital status	
Married	1107 (61.3)
Other	697 (38.7)
Type of occupation	
Technician	1344 (74.5)
Worker	178 (9.9)
Manager	143 (7.9)
Clerk	122 (6.8)
Other	17 (0.9)
Working condition	
Shift work	150 (8.3)
Other	1654 (91.7)
Occupational status	
Managerial position	380 (21.1)
Deputy manager	621 (34.4)
Regular employee	803 (44.5)
Overtime work, hrs/mo	
<20	448 (24.8)
$\leq 20-45 <$	837 (46.4)
$\leq 45-80 <$	488 (27.1)
≤ 80	31 (1.7)
Sickness absence, d/yr	
None	563 (31.2)
<5	852 (47.8)
$\leq 5-10 <$	246 (13.6)
≤ 10	133 (7.4)
Sleeping hours, hrs/d	
<4	38 (2.1)
$\leq 4-5 <$	285 (15.8)
$\leq 5-6 <$	880 (48.8)
$\leq 6-8 <$	593 (32.9)
≤ 8	8 (0.4)
Current smoker	470 (26.1)
Drinking frequency	500 (27.7)
(almost everyday)	
Regularly physically active	376 (20.8)

When we additionally adjusted for job satisfaction and OCB, we found a substantial attenuation in these relationships. After adjustment for job satisfaction (Model 2), the ORs for psychological distress and willingness to work among those reporting low overall OJ compared with those reporting high overall OJ decreased by 68% (ORs 4.93 changed to 2.25) (Table 3) and by 77% (ORs 2.87 changed to 1.43) (Table 4), respectively.

After adjustment for OCB (model 3), the ORs for willingness to work among those reporting low overall OJ compared with those reporting high overall OJ decreased by 50% (ORs 2.87 changed to 1.93) (Table 4). There was no clear effect on the relationship between OJ and psychological distress (ORs 4.93 changed to 4.36) (Table 3).

DISCUSSION

Our results showed that workers with low OJ had a higher risk of psychological distress, which supported the previous findings. In

TABLE 2. Descriptive Statistics, Reliability Coefficients, and Correlations of All Variables (N = 1804)

Variables (range)	Mean	SD	Cronbach α	1	2	3	4	5	6	7	8	9	10	11	12
1. Procedure justice (7–35)	22.7	5.2	0.91	1.000											
2. Distributive justice (4–20)	13.5	3.5	0.96	0.673**	1.000										
3. Interpersonal justice (4–20)	15.3	3.2	0.91	0.490**	0.464**	1.000									
4. Informational justice (5–25)	17.5	4.1	0.92	0.694**	0.620**	0.717**	1.000								
5. Overall organizational justice (20–100)	69.0	13.6	0.95	—	—	—	—	1.000							
6. Organizational citizenship behavior (3–15)	12.3	1.8	0.77	0.196**	0.194**	0.283**	0.255**	0.270**	1.000						
7. Willingness to work (3–15)	12.3	2.1	0.88	0.134**	0.076**	0.200**	0.153**	0.165**	0.373**	1.000					
8. Job satisfaction (6–30)	21.7	4.5	0.90	0.440**	0.465**	0.432**	0.459**	0.530**	0.385**	0.305**	1.000				
9. Psychological distress (0–24)	4.2	4.4	0.91	-0.218**	-0.206**	-0.246**	-0.230**	-0.265**	-0.190**	-0.154**	-0.424**	1.000			
10. Job demand (3–12)	9.0	2.0	0.82	-0.027	-0.068**	-0.007	-0.025	-0.037	0.041	0.129**	-0.053*	0.163**	1.000		
11. Job control (3–12)	8.0	1.8	0.71	0.299**	0.283**	0.294**	0.294**	0.346**	0.201**	0.173**	0.419**	-0.350**	-0.280**	1.000	
12. Social support at work (6–24)	15.5	3.4	0.85	0.448**	0.387**	0.515**	0.551**	0.560**	0.350**	0.217**	0.459**	-0.283**	0.037	0.349**	1.000

*P < 0.05.
**P < 0.01.

TABLE 3. Odds Ratios of Psychological Distress* by Levels of Organizational Justice

	Range	N (%)	Unadjusted OR (95% CI)	P	(Model 1 + 95% CI)	P	(Model 2 ± 95% CI)	P	(Model 3 95% CI)	P
Overall organizational justice (quartiles)										
1 (Low)	20-61	476 (26.4)	5.01 (3.26-7.70)	<0.001	4.93 (3.17-7.68)	<0.001	2.25 (1.38-3.66)	0.001	4.36 (2.78-6.85)	<0.001
2	62-70	441 (24.4)	2.81 (1.78-4.42)	<0.001	2.70 (1.70-4.29)	<0.001	1.77 (1.09-2.87)	0.021	2.44 (1.53-3.90)	<0.001
3	71-78	441 (24.4)	1.76 (1.08-2.84)	0.022	1.66 (1.02-2.72)	0.041	1.33 (0.80-2.20)	0.273	1.60 (0.98-2.61)	0.063
4 (High)	79-100	446 (24.7)	1.00		1.00		1.00		1.00	
Test for trend										P < 0.001
Procedure justice (quartiles)										
1 (Low)	7-20	456 (25.3)	4.57 (3.03-6.90)	<0.001	4.87 (3.18-7.45)	<0.001	2.48 (1.56-3.94)	<0.001	4.42 (2.88-6.80)	<0.001
2	21-22	432 (23.9)	2.19 (1.40-3.42)	<0.001	2.10 (1.33-3.31)	0.001	1.46 (0.91-2.35)	0.118	1.90 (1.20-3.00)	0.006
3	23-26	451 (25.0)	1.97 (1.26-3.08)	0.003	2.08 (1.32-3.29)	0.002	1.56 (0.97-2.50)	0.068	1.96 (1.24-3.10)	0.004
4 (High)	27-35	465 (25.8)	1.00		1.00		1.00		1.00	
Test for trend										P < 0.001
Distributive justice (quartiles)										
1 (Low)	4-11	346 (19.2)	3.16 (2.20-4.55)	<0.001	2.98 (2.03-4.37)	<0.001	1.39 (0.90-2.14)	0.137	2.72 (1.85-4.01)	<0.001
2	12	423 (23.4)	2.78 (1.95-3.95)	<0.001	2.50 (1.74-3.60)	<0.001	1.56 (1.06-2.30)	0.024	2.32 (1.60-3.34)	<0.001
3	13-15	288 (15.9)	2.21 (1.48-3.31)	<0.001	2.01 (1.33-3.04)	0.010	1.40 (0.91-2.16)	0.131	1.89 (1.25-2.87)	0.003
4 (High)	16-20	747 (41.4)	1.00		1.00		1.00		1.00	
Test for trend										P < 0.001
Interpersonal justice (quartiles)										
1 (Low)	4-13	428 (23.7)	2.80 (1.96-3.98)	<0.001	2.94 (2.03-4.27)	<0.001	1.44 (0.95-2.18)	0.083	2.50 (1.70-3.68)	<0.001
2	14-15	347 (19.2)	1.58 (1.06-2.36)	0.023	1.64 (1.09-2.48)	0.018	1.06 (0.69-1.64)	0.790	1.46 (0.96-2.21)	0.079
3	16	540 (29.9)	0.75 (0.50-1.13)	0.174	0.80 (0.53-1.22)	0.298	0.62 (0.40-0.96)	0.033	0.73 (0.48-1.12)	0.154
4 (High)	17-20	489 (27.1)	1.00		1.00		1.00		1.00	
Test for trend										P < 0.001
Informational justice (quartiles)										
1 (Low)	5-15	527 (29.2)	3.26 (2.10-5.03)	<0.001	3.61 (2.30-5.69)	<0.001	1.73 (1.05-2.84)	0.031	3.03 (1.89-4.84)	<0.001
2	16-18	413 (22.9)	1.38 (0.85-2.24)	0.195	1.49 (0.91-2.46)	0.116	0.95 (0.56-1.62)	0.863	1.30 (0.79-2.17)	0.302
3	19-20	574 (31.8)	0.99 (0.61-1.60)	0.972	1.06 (0.65-1.73)	0.824	0.83 (0.50-1.39)	0.486	0.96 (0.58-1.57)	0.863
4 (High)	21-25	290 (16.1)	1.00		1.00		1.00		1.00	
Test for trend										P < 0.001

*Psychological distress indicates K6 score is 9 or more. 272 (15.1%) participants had psychological distress in this study.

†Model 1: Adjusted for sex, age, occupational status, smoking status, drinking frequency, regular physical activity, and job demand.

‡Model 2: Additionally adjusted for job satisfaction in model 1.

¶Model 3: Additionally adjusted for organizational citizenship behavior in model 1.

TABLE 4. Odds Ratios of Low Willingness to Work* by Levels of Organizational Justice

	Range	N (%)	Unadjusted OR (95% CI)	P	(Model 1 † 95% CI)	P	(Model 2 ‡ 95% CI)	P	(Model 3 § 95% CI)	P
Overall organizational justice (quartiles)										
1 (Low)	20-61	476 (26.4)	3.11 (2.26-4.29)	<0.001	2.87 (2.06-4.00)	<0.001	1.43 (0.98-2.08)	0.065	1.93 (1.36-2.74)	<0.001
2	62-70	441 (24.4)	2.47 (1.78-3.43)	<0.001	2.45 (1.75-3.44)	<0.001	1.69 (1.19-2.41)	0.004	1.79 (1.26-2.54)	0.001
3	71-78	441 (24.4)	1.41 (0.99-2.00)	0.054	1.40 (0.98-2.00)	0.067	1.14 (0.79-1.65)	0.474	1.19 (0.82-1.71)	0.359
4 (High)	79-100	446 (24.7)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Test for trend				P < 0.001		P < 0.001		P = 0.020		P < 0.001
Procedure justice (quartiles)										
1 (Low)	7-20	456 (25.3)	2.89 (2.08-4.02)	<0.001	2.75 (1.96-3.86)	0.001	1.45 (1.00-2.11)	0.051	2.09 (1.47-2.98)	<0.001
2	21-22	432 (23.9)	2.88 (2.06-4.02)	<0.001	2.89 (2.05-4.08)	<0.001	2.09 (1.46-2.98)	<0.001	<2.24 (1.57-3.19)	<0.001
3	23-26	451 (25.0)	2.12 (1.51-2.97)	<0.001	2.10 (1.48-2.97)	<0.001	1.66 (1.16-2.36)	0.006	1.82 (1.28-2.61)	0.001
4 (High)	27-35	465 (25.8)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Test for trend				P < 0.001		P < 0.001		P = 0.050		P < 0.001
Distributive justice (quartiles)										
1 (Low)	4-11	346 (19.2)	1.71 (1.27-2.31)	<0.001	1.48 (1.08-2.03)	0.01	0.70 (0.49-1.01)	0.056	1.14 (0.82-1.59)	0.446
2	12	423 (23.4)	2.32 (1.77-3.05)	<0.001	2.19 (1.65-2.91)	<0.001	<1.39 (1.03-1.89)	0.033	1.76 (1.31-2.37)	<0.001
3	13-15	288 (15.9)	1.71 (1.25-2.35)	<0.001	1.64 (1.18-2.28)	<0.001	1.19 (0.85-1.67)	0.316	1.36 (0.97-1.92)	0.074
4 (High)	16-20	747 (41.4)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Test for trend				P < 0.001		P < 0.001		P = 0.373		P = 0.058
Interpersonal justice (quartiles)										
1 (Low)	4-13	428 (23.7)	3.24 (2.38-4.41)	<0.001	2.89 (2.10-3.98)	<0.001	1.68 (1.18-2.38)	0.004	1.83 (1.30-2.58)	<0.001
2	14-15	347 (19.2)	2.07 (1.48-2.89)	<0.001	2.00 (1.42-2.82)	<0.001	1.44 (1.01-2.06)	0.047	1.42 (1.00-2.04)	0.053
3	16	540 (29.9)	1.34 (0.97-1.84)	0.072	1.29 (0.93-1.79)	0.120	1.10 (0.79-1.53)	0.580	0.99 (0.70-1.38)	0.933
4 (High)	17-20	489 (27.1)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Test for trend				P < 0.001		P < 0.001		P = 0.001		P < 0.001
Informational justice (quartiles)										
1 (Low)	5-15	527 (29.2)	3.37 (2.31-4.90)	<0.001	3.13 (2.12-4.60)	<0.001	<1.64 (1.08-2.50)	0.021	1.80 (1.20-2.71)	0.005
2	16-18	413 (22.9)	2.26 (1.52-3.36)	<0.001	2.19 (1.46-3.28)	<0.001	1.54 (1.01-2.35)	0.044	1.43 (0.94-2.18)	0.098
3	19-20	574 (31.8)	1.55 (1.06-2.29)	0.026	1.47 (0.99-2.19)	0.057	1.21 (0.81-1.82)	0.358	1.05 (0.70-1.58)	0.815
4 (High)	21-25	290 (16.1)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Test for trend				P < 0.001		P < 0.001		P = 0.007		P < 0.001

*The bottom quartile of willingness to work; 458(25.4%) participants corresponded with the status.

†Model 1: Adjusted for sex, age, occupational status, smoking status, drinking frequency, regular physical activity, and job demand.

‡Model 2: Additionally adjusted for job satisfaction in model 1.

§Model 3: Additionally adjusted for organizational citizenship behavior in model 1.

addition, not only overall justice but also several components were clearly related to psychological distress in a dose-response manner.

In the assessment of risk of OJ on psychological distress and willingness to work, job control and social support at work were not adjusted because there were moderate correlations between these factors and OJ components. Nevertheless, when we include these two variables in adjustment, the risk of low OJ on psychological distress was still statistically significant.

A previous cross-sectional study conducted in a hospital of mostly female employees showed that the relationships between low OJ and minor psychiatric disorders among men were not significant after adjustment for psychosocial factors. (Among women, the associations were significant, irrespective of adjustment. The OR of minor psychiatric disorders associated with low vs high levels of perceived procedure justice was 1.89 [95% CI: 1.44 to 2.49].⁸) On the other hand, in additional analysis of this study among men, the relationships between low perceived OJ and psychological distress was still significant, irrespective of adjustment for demographic factors, behavioral risks, job demand, job control, and social support at work. The OR of psychological distress with low versus high levels of perceived procedure justice was 2.65 (95% CI: 1.62 to 4.33).

This difference might be due to the difference in measurement of psychological distress. In a previous study, the General Health Questionnaire (GHQ-12) was used,⁸ whereas, in this study, the K6 Questionnaire was used. We have chosen the K6 Questionnaire because it was developed recently on the basis of large general population samples and is more discriminative for anxiety disorder and depression than GHQ-12.²⁸ Thus, the psychological distress in this study is regarded as the one that is more disease-oriented. With regard to the difference in study populations, the evaluation procedure of the employee appraisal system seems to be more severe in private companies. Thus, the result of this study suggested that the impact of perceived OJ on psychological distress was apparent in private companies.

Recently, it has been pointed out that the integrative effect of multiple justice components should be examined.² On the other hand, each justice component was related to different work-related factors,¹⁴ and therefore the justice component that should have priority changes according to target factors. There is little research examining the risk of each justice component (procedure, distributive, interactional) for psychological distress simultaneously. This study result showed that all justice components were relevant factors of psychological distress. Especially, the procedure justice component was strongly related, and the OR is almost equal to that of overall OJ, thus when considering the relationship between OJ and psychological distress, procedure justice component should be given priority.

Our results also indicated that workers with low OJ possessed low willingness to work. After adjustment for demographic factors, behavioral risks, and job demand, the risk of low OJ on low willingness to work was still statistically significant for all justice components and overall justice. Among each justice component, the interactional justice component (informational justice and interpersonal justice) was strongly related, and the relationship between the distributive justice component and willingness to work was relatively weak. According to a previous review, it was indicated that there were moderately high correlations between the distributive justice component and work-related negative attitudes such as withdrawal and negative reactions.¹⁴

Taking our results and previous research into consideration, the key justice components related to positive or negative work-related attitude might be different. It is suggested that focusing on the interactional justice component would be more useful to promote positive attitude such as willingness to work, and focusing on the distributive justice component would be more useful for preventing negative attitudes.

The distributive justice component refers to the justice of decision outcomes. The fact that our subjects are the employees at one office of a leading large manufacturing corporation and the majority of these employees are white-collar may in part explain this result. Because there is the possibility that distributive justice is relatively high in our subjects and the effect of the distributive justice component may be attenuated. In fact, when we compared the scores of each of the OJ scales with the scores of 2331 individuals from 16 independent samples in previous research from the United States,²⁹ scores of procedural justice and distributive justice were higher (unpaired *t* test: $P < 0.01$, $P < 0.01$), and those of interpersonal justice and informational justice were lower (unpaired *t* test: $P < 0.01$, $P < 0.01$) in our sample. Although comparison between different cultural contexts and the results should carefully be considered, these results agree that the study subjects had a better distributive justice component.

In this research, we examined job satisfaction and OCB as underlying factors. Our results showed that job satisfaction partially mediated the relationship between overall OJ and both psychological distress and willingness to work. Correspondingly, OCB partially mediated the relationship between overall OJ and willingness to work. Accordingly, job satisfaction and OCB play a role of mediation between all justice components and these outcomes. Therefore, job satisfaction and OCB might be useful measures to assess the effect of intervention to promote OJ.

Our study results suggest that intervention to train managers, whose work involves praising subordinates, to be impartial might be an effective measure against low willingness to work and high psychological distress among private company workers. Nevertheless, previous intervention studies involved only a labor union^{30,31} and hospital staff.³² No intervention studies had been reported on private companies to our knowledge. Intervention protocols in previous studies^{30,31} were reported to be effective. Nevertheless, it took up a considerable amount of time. More feasible, acceptable, and effective intervention strategies for private companies are needed.

This study had a high response rate and showed significant findings that OJ is related to both psychological distress and willingness to work in a large private company. Nevertheless, several limitations merit careful consideration. First, our study was a cross-sectional study and causal relationships could not be examined. Second, all scales were self-reported, and not measured objectively. For instance, obtaining ratings of OCB from a variety of sources such as supervisors or colleagues may be preferable.³³ Nevertheless, we could not use these methods because our study was conducted anonymously. Third, this study sample consists of regular employees of a large private company, mainly men and white-collar. It cannot be generalized to other types of workers such as temporary workers, women, and blue-collar workers. To generalize the present findings, different organizational settings should be studied.

In conclusion, this study showed that low OJ is a risk factor for psychological distress, that the perception of OJ is also associated with low willingness to work, and that OCB and job satisfaction play a role of mediation between these relationships. We believe these findings may provide useful information in preventing psychological distress and low willingness to work. Further research is needed to examine effective interventions to prevent psychological distress among workers.

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職場における個人向けストレス対策 —介入方略の変遷と新たな視点—

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要約 労働者個人を対象としたストレス対策において、近年、パフォーマンスの維持・向上を意識した新たな技法導入の流れが起りつつある。個人がいきいきと活気ある職業生活を送るためには、ストレスの低減のみに縛られない新たな視点が必要とされる。

本稿では、職場における個人向けストレス対策の変遷と近年注目される行動理論を用いた新たな介入方略（アクセプタンス&コミットメントセラピー：ACT）について、文献を紹介したい。

I. はじめに

近年、我が国では個人や組織の活性化を目的としたメンタルヘルス対策への関心が高まっている。これまでの職場におけるメンタルヘルス対策は、Lazarusの心理学的ストレスモデル¹⁾やNIOSHの職業性ストレスモデルに基づき、労働者の感じるストレスをいかに低減するかが主な目的とされてきた。しかし、労働力人口が減少し、組織の在り方が大きく変化する中で、精神的不調者を対象とした対策だけでなく、健康度の高い労働者による生産性の高い職場づくりを目的とした対策が求められはじめた。このような状況の中、個人を対象としたストレス対策で用いられる方略においても、ストレスの低減だけでなく、パフォーマンスやコミットメントの向上を意識した技法が導入されるようになった。本稿では、職場における個人向けストレス対策の変遷と近年注目される行動理論を用いた新たな介入方略について、文献を紹介したい。

II. 個人向けストレス対策：介入技法の変遷

ストレスに関する個人の気づきや効果的な対処法を習得するための心理教育活動は一般にストレスマネジメントトレーニング（Stress

Management Training：SMT）と呼ばれている²⁾。職場におけるSMTでは様々な技法が用いられているが、認知再体制化やリラクゼーション法などの認知的・行動的技法に基づくコーピングスキル訓練が最も一般的かつ効果的な介入方法としてあげられる³⁾。これらの介入は、個人のコーピング資源を強化したり、好ましくない認知と感情との関係を弱めたりすることを目的としており、多くはセルフケア研修として講義やグループワーク、e-ラーニングの形式で提供されている。

過去30年における職場SMTプログラムの内容は、認知／行動療法の技法開発の流れを反映している⁴⁾。Hayes⁵⁾は、介入プログラムにおける技法の開発過程を3つの波に例えて、それぞれを第一の波（第一世代）、第二の波（第二世代）、第三の波（第三世代）としてこれまでの技法の変遷を示した。これらの記述を参考に、職場SMTプログラムにおける介入の目的と技法の変遷を図1にまとめた。第一世代の介入は、系統的脱感作に基づくリラクゼーション技法を中心としたプログラムであり、1970年代頃に導入された。第二世代の技法は、バック⁶⁾やエリス⁷⁾の認知療法の原理と手法を用いた方略であり、1980年代、職場SMTに関する介入研究の