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Effects of web-based supervisor training on supervisor support and psychological distress among workers: A randomized controlled trial

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Abstract

Background. A randomized controlled trial was conducted to determine the effects of web-based supervisor training on worksite mental health on supervisor support and psychological distress among subordinate workers.

Methods. Section chiefs in a computer engineering company were randomly assigned to either a training group ($n = 9$) or a non-training group ($n = 7$). The section chiefs in the training group participated in web-based self-learning training on worksite mental health. A total of 92 subordinate workers under the trained section chiefs (the intervention group) and 84 subordinate workers under the untrained section chiefs (the control group) completed a questionnaire at baseline and a 3-month follow-up.

Results. The score of supervisor support greatly decreased in the control group during the follow-up period, and the score changed very little in the intervention group, with a significant intervention effect ($P = 0.032$). This pattern was more pronounced for one particular item dealing with the extent to which a supervisor listens to personal problems of subordinate workers (the intervention effect, $P = 0.012$). No intervention effect was observed for the score measuring co-worker support, psychological distress, or other job stressors among subordinate workers ($P > 0.05$).

Conclusions. It is suggested that the web-based training of supervisors on worksite mental health is useful in improving, or at least maintaining, supervisor support among subordinate workers.

Keywords: Web-based training; Health education; Job strain; Worksite health promotion; RCT; Japan

Introduction

Previous research has shown that greater supervisor support, as one of the dimensions of worksite social support, has a beneficial effect on worker health [1]. Supervisor support has been associated with a wide range of better health outcomes among workers, for example, less depression [2], less fatigue [3], greater job satisfaction [4,5], lower blood pressure [1,6], fewer musculoskeletal problems [7–9], successful return to work [10], and greater productivity [5].

To prevent adverse health effects of psychosocial job stressors, studies have focused on ways to improve the work environment [11]. One of the key elements that is targeted for improvement in the work environment is supervisor support. Two major roles that supervisors can play in promoting better mental health among workers are: (a) to listen to their subordinates, provide necessary information and advice, and consult with mental health services, if applicable, and (b) to improve difficulties and problems on the job, which might be a source of worker stress, through day-to-day practices related to the management of the workplace [12,13]. Supervisors are a source of emotional, informational, and instrumental social support as well as being key individuals in preventing job stressors in the work environment [14]. In addition to strategies, such as increased communication through meetings or greater opportunities for worker participation, a supervisor education/training program on these topics might be effective for increasing supervisor support and decreasing job stressors, which would ultimately reduce work-related strain and enhance workers' health and well-being.

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However, only a few attempts have been made to evaluate the effects of supervisor training in reducing psychosocial job stressors and improving mental health among workers. Some studies have focused on supervisor training involving the skills of listening to subordinate workers (so called "active listening' training"). Kubota et al. [15] conducted a 2-day workshop on listening skills for supervisors and found that after the training, the supervisors reported that they listened more attentively to their subordinates. This study, however, did not assess the effects of supervisor training on stress reduction or the mental health of their subordinates. The interpretation of the findings was also limited since the study had no control group and there was the possibility of bias, such as a natural course or regression to the mean.

As an innovated method of education, web-based training has recently become a part of health education in industrial settings [16], as well as being used for the general population [17–19]. Web-based training has been reported to be effective for workplace health and safety [16], injury prevention [18], nutrition education [17], and smoking cessation [19]. It may also be useful in training supervisors for enhancing supervisor support and mental health among subordinates. The merit of web-based supervisor training compared with traditional lectures and workshops are: (1) Participants do not have to attend a lecture together, which sometimes results in a significant reduction of time on the job and considerable expenses in traveling to the training site. (2) Web-based training provides greater flexibility for participants: Supervisors can access the training at their own pace and anywhere and anytime they like. (3) Supervisors may repeat the lesson as many as needed. (4) The progress made by supervisors can be monitored by a central personnel office, which controls the entire learning process. On the other hand, the effects of web-based training may be limited because there is no personal interaction with a lecturer, tutor, or other participants. The effectiveness of web-based supervisor training on worksite mental health should be evaluated in a scientific manner to ascertain its efficacy and limitations for stress prevention and the improvement of mental health in the workplace.

Our newly developed web-based training program for supervisors on the subject of worksite mental health, is called "E-learning Worksite Mental Health for Supervisors" (Fujitsu Infosoft Technology Co. Ltd., Japan, 2002). We conducted a randomized controlled trial (RCT) to determine the effects of web-based supervisor training on the improvement of supervisor support and the psychological well-being of subordinate workers.

Methods

Study design and participants

The study site was a computer software engineering company located in Okayama City, Japan that had a total of 219 employees. All section chiefs (n = 16) of this company were randomly assigned to a training group (n = 9) or a non-training group (n = 7). Managers ranked higher than section chief were excluded from the web-based training and subsequent analyses. In November 2002, the section chiefs in the training group were asked to participate for one to four weeks in the web-based supervisor training. The training was provided from an Internet server PC at the Okayama University Graduate School of Medicine and Dentistry, Japan. Eight section chiefs completed the 4-week training session; one remaining section chief, who was originally assigned to the training group, did not receive the training. During the same period, the section chiefs in the non-training group participated in a 2-h training session regarding a method of relaxation, instead of the web-based training.

In November 2002, before the beginning of the web-based training for section chiefs, all employees were asked to participate in a baseline survey of job stress and mental health. The survey was conducted using Internet technology. Employees were asked to access the server at Okayama University Graduate School of Medicine and Dentistry, complete a web-based questionnaire, and then submit it. Three months after the end of the web-based supervisor training, a similar follow-up survey was conducted in February 2003.

A total of 100 subordinate workers was working for the nine section chiefs in the training group (intervention group workers); 90 subordinate workers were working for the seven section chiefs in the non-training group (control group workers). Among them, 90 (90%) and 90 (100%), respectively, participated in the first baseline survey of stress and mental health (before supervisor training), and 89 (89%) and 85 (94%), respectively, participated in the second survey at the 3-month follow-up. The numbers of subordinate workers who participated in both baseline surveys and follow-up were 82 (82%) and 84 (93%) in the intervention group and control group workers, respectively. These workers were subjects of an intention-to-treat (ITT) analysis. There were 16% and 24% women workers in the intervention and control groups, respectively; the average age was 32.7 (7.0) and 32.7 (6.1) in the intervention and control groups, respectively; 69 (84%) technicians and 13 (16%) clerks were in the intervention group; 58 (69%) technicians and 26 (31%) clerks were in the control group; and 42 (54%) in the intervention group and 41 (49%) in the control group worked 60 or more hours of overtime per month. Seven workers in the intervention group were working under a section chief who was originally assigned to the training group but did not receive training. Thus, data from 75 subordinate workers in the intervention group (excluding these seven workers) and 84 workers in the control group were used for a per-protocol (PP) analysis.

The study design and procedure were reviewed and approved by the Human Ethics Committee for Epidemiological Research at the Okayama University Graduate