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Effects of coaching skills training by occupational health staff on improving managers' communication behavior: a randomized controlled trial

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Objective: We conducted a randomized controlled trial to investigate whether or not coaching skills training by occupational health staff improves managers' communication behavior.
Methods: The participants were 122 managers randomly assigned to an intervention or a control group. The intervention group underwent 5 hours of group training and 8 weeks of online training learning coaching skills. Scores on scales for communication skills and behavior were compared between the groups at 10 months after training. We performed an overall analysis and a subgroup analysis of participants demonstrating the lowest baseline communication skills.
Results: The overall analysis revealed a statistically significant improvement in the intervention group on "rapport building" ($P < 0.01$). In the subgroup analysis, we observed significant improvements in communication skills ($P < 0.05$), "active listening" ($P < 0.01$), and "thinking together to solve problems" ($P = 0.04$).
Conclusions: These results suggest coaching skills training in the workplace by occupational health staff effectively improves managers' communication abilities and behaviors. Such educational intervention by occupational health staff providing managers with coaching skills training is practical and will most likely result in significant benefits. Further and larger intervention studies in coaching skills training is warranted.

Key words: coaching skills, communication, managers, occupational health staff

Introduction

Some 60% of workers in Japan report strong feelings of anxiety, worry, or stress in their places of employment and working lives, with "interpersonal relations in the workplace" being the issue most often cited as contributing to those feelings.[1] Promoting better workplace communication behaviors is thought to be an essential means to address this issue. In particular, the communication skills of managers have a profound impact on the workplace environment. Japan's Ministry of Health, Labour and Welfare issued guidelines regarding the maintenance of good mental health in the workplace. In these guidelines, the Ministry called for the implementation of a variety of managerial educational programs conducted by occupational health staff, including programs that educate managers in the use of appropriate communication behaviors.[2]

In Japanese workplaces, group education programs for managers that teach active listening techniques conducted by occupational health staff have successfully changed managers' attitudes and behaviors,[3,4] and those changes have been reported to improve employees' mental health and reduce workplace absenteeism.[5,6]

It has also been suggested that nurses in leadership positions in medical workplaces should receive individual training from coaching specialists to improve their communication abilities.[7-9] Experiments implementing

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such interventions suggest that such training may be quite effective. Investigators recently report that training nurse managers in the use of coaching skills improves attitudes and behaviors[10-12] as well as the nurses' communication skills.[13] Coaching has been commercially developed in the United States as a communication method that emphasizes the cultivation of independence and proactive behavior. From around 1995, these types of American coaching programs began appearing in Japan as well, brought by commercial enterprises seeking to provide business services in conjunction with coaching specialists. Coaching encompasses numerous skills; however, three main areas of focus are: active listening techniques, the ability to ask effective questions, and the ability to effectively communicate one's thoughts.[14] Coaching is particularly beneficial to individuals seeking to improve their decision-making abilities[15] and is considered an effective intervention for improving communication and leadership skills.[16-18] Furthermore, there is a considerable body of research regarding the effectiveness of coaching programs implemented by specialists to help leaders in general business settings, including meta-analyses of such studies. Considering these points, coaching by specialists demonstrates a moderate effect on workers' performance skills, wellness, coping, attitude, and self-regulation.[19,20] Coaching may therefore be considered a useful tool for the development of individuals and organizations[21] and may be expected to have a considerable effect when used in interventions for managers. However, a major drawback of professional, individual coaching programs is their considerable financial cost.[22,23]

Nursing researchers in Japan have therefore been developing and investigating the effectiveness of group training programs that teach nurse managers coaching skills. These group training programs have been reported to not only improve the communication and coaching skills of nurses in leadership positions, but to also improve the wellness[24] and subordinate opinions[25] of workplace leaders. However, to our knowledge, there has been no research published on the investigation of the effects of similar coaching skills training programs developed by researchers, specifically for managers in general business fields.

We therefore conducted this randomized controlled trial to investigate whether or not general workplace supervisors' communication behaviors were improved by a coaching skills training program implemented by corporate occupational health staff in collaboration with coaching experts.

Materials and Methods

Participants and Procedures

There were 123 participants who were managers in a company providing electrical maintenance and inspection services in Japan. Using a computer-generated table of numbers, participants were randomly assigned to 1 of 2 groups: one that participated in a communication training program (the intervention group) and one that did not (the control group). All the participants were to be included to the end of the study, therefore there were no exclusion criteria. As an ethical consideration, and to provide equal opportunity for all the managers in the participating company to receive the same, essential training, the managers in the control group completed the same program as did those in the intervention group after the study had been completed.

This research was approved by both the Kitasato University School of Allied Health Sciences Ethics Committee and the company at which the experimental intervention took place. Participation in the research was voluntary for all participants, and we took precautions to ensure that managers electing not to participate would not receive unfair or biased treatment.

Intervention

The training program was developed by coaching specialists and corporate occupational health staff (medical doctors and nurses) in reference to published materials[26,27] regarding coaching skills. The training program consisted of 5 hours of group training provided by 2 nurses, followed by 8 weeks of online training. To facilitate implementation of workplace training, programs should be designed to run for the minimal amount of time necessary to produce effective results. Previous studies have suggested the efficacy of an 8-week period of online training,[28] therefore, we decided to use an online training component of that length in our program, preceded by 5 hours of group training. The program was designed to impart basic coaching skills. Table 1 shows the training content. In the group training, a lecture was delivered regarding basic coaching elements using several group-assignments and role-plays. The group training was carried out in 2 districts by the same occupational nurses (39 participants in Tokyo, 22 in Osaka). In the online training, learning tools were provided to the participants, and reports about participants' communication behaviors were actively collected. The nurses provided participants with advice based on information in the reports. The online training component required about 30 minutes to complete each week and

Table 1. Outline of training content

Group training
・Identifying strengths necessary in a manager (considering what kind of team you want to build)
・Controlling emotions (coping with anger)
・Skills for acknowledging and encouraging subordinates
・Skills for giving feedback to subordinates and making requests
・Identifying simple daily behaviors to help build your ideal team
Online training
・Week 1: Identifying your own communication style (four different styles of communication)
・Week 2: Observing your subordinates
・Week 3: Building rapport with your subordinates (acknowledgment and encouragement)
・Week 4: Communication styles of your subordinates (communicating in a style that fits others)
・Week 5: Active listening
・Week 6: Asking effective questions (guiding subordinates to discover the information they need)
・Week 7: Skills for feedback and requests (communicating bad news, making requests)
・Week 8: Self-reflection and identifying behaviors you want to focus on in the future

was accessible from both the workplace and home. All the participants had experienced having annual health interviews given by the nurses, because they were full-time workers at the same company.

Measurements

Outcomes

The study outcome was determined by measuring changes in scores on each item of a survey conducted prior to and 10 months following the intervention, then comparing the relative difference in those changes between the intervention and control groups. The survey consisted of the following components.

General communication skills (GCS):[29] a set of 6 items regarding GCS from a communication skills questionnaire developed by Takahashi et al.[29] who demonstrated its reliability and validity. Each item was evaluated on a 5-point scale from 1 to 5, for a total score of 5 to 30. Higher scores represented higher degrees of ability.

Scale of wellness behaviors (SWB):[30] a scale as an index of communication behaviors believed to help nurse managers have a more satisfying working experience developed by Ikeda et al.[30] The reliability and validity of the scale has previously been demonstrated. It includes 7 major items, from which we chose 3 ("rapport building," "accepting others as they are," and "adopting different points of view") as being applicable to our participants and the goals of this study. Each of these 3 major items incorporates multiple sub-items, and each sub-item is measured using a 4-point scale from 1 to 4, with higher scores representing a greater presence of wellness behaviors. Evaluations for these major items were made by calculating the average score of the relevant sub-items.

Self-evaluation of communication with subordinates: An originally developed, self-administered questionnaire used to measure 4 items: "use of active listening," "tendency to identify positive things in others' work performance," "demonstrated intent to think together to solve problems," and "awareness of differences in the other party's communication style." Each of these items was rated a 10-point Likert scale from 1 to 10, with higher scores representing a more positive evaluation for that item.

Basic attributes

We administered a pre-intervention questionnaire asking about the following basic attributes: age, number of years of management experience, hours of overtime worked per month, sleep habits (daily hours of sleep), alcohol consumption habits, exercise habits, and a survey of psychological health (K6). The K6 inventory consists of 6 items measured on a 5-point scale from 0 to 4, for a total score of 0 to 24 points. Higher scores represent a poorer state of mental health. A study on the cutoff point to diagnose clinically significant psychological distress of respondents suggest a cutoff point of 4 or 5.[31] Continuous variables were evaluated using *t*-tests, and categorical variables were evaluated using χ^2 tests.

Statistical analyses

Study results were evaluated by comparing changes in scores from baseline to post-intervention. We performed an intention-to-treat (ITT) analysis with a multiple-imputation-based generalized estimating equation, adjusted according to the participants' years of managing experience. We also performed a subgroup analysis on

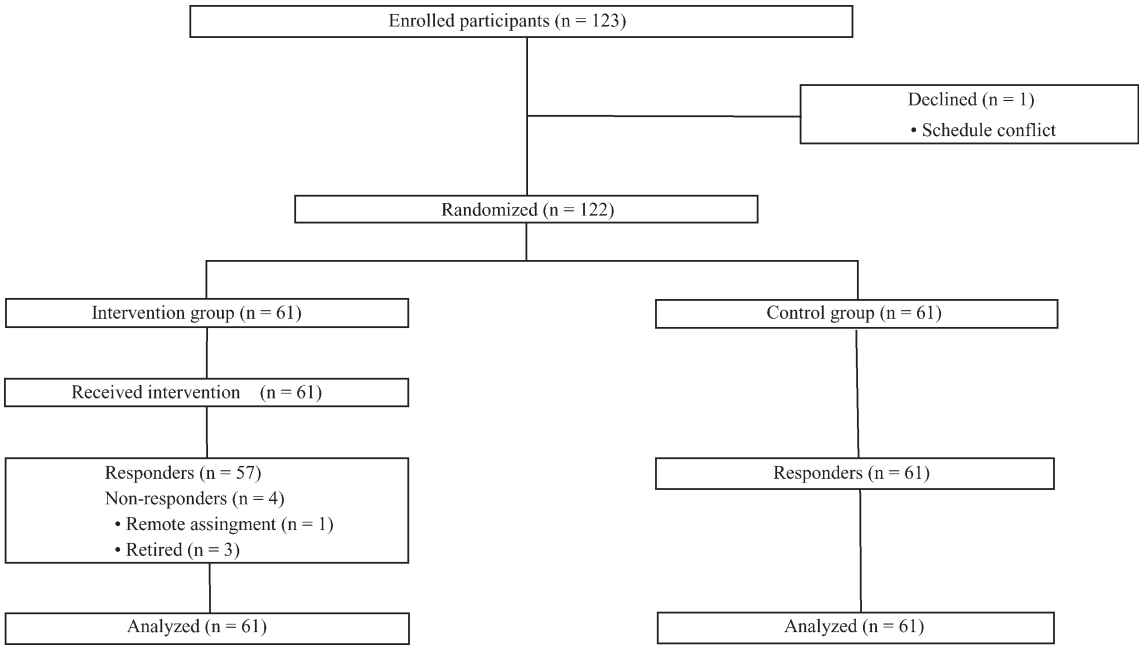

Figure 1. Flow diagram for participation in the study

Table 2. Basic attributes in intervention and controlled groups

Variable	Total (n = 122)	Intervention (n = 61)	Control (n = 61)	P value
Age average, years (SD)	49.4 (5.42)	49.3 (5.59)	49.5 (5.29)	0.89
Years of management experience, n (%)				
Less than 2	28 (23.0)	13 (21.3)	15 (24.6)	0.91
2 or more and less than 5	41 (33.6)	21 (34.4)	20 (32.8)	
5 or more	53 (43.4)	27 (44.3)	26 (42.6)	
Hours of overtime worked per month, n (%)				
Less than 20	34 (27.9)	16 (26.2)	18 (29.5)	0.91
20 or more and less than 45	27 (54.9)	34 (55.8)	33 (54.1)	
45 or more	21 (17.2)	11 (17.0)	10 (16.4)	
Daily hours of sleep, n (%)				
Less than 5	18 (14.8)	11 (18.0)	7 (11.5)	0.67
5 or more and less than 6	68 (55.7)	31 (50.8)	37 (60.7)	
6 or more and less than 7	34 (27.9)	18 (29.5)	16 (26.2)	
7 or more	2 (1.6)	1 (1.6)	1 (1.6)	
Alcohol consumption, n (%)				
None	24 (19.7)	13 (21.3)	11 (18.0)	0.44
1－3 days/week	38 (31.1)	18 (29.5)	20 (32.8)	
4－6 days/week	26 (21.3)	16 (26.2)	10 (16.4)	
Every day	34 (27.9)	14 (23.0)	20 (32.8)	
Exercise habit, n (%)				
None	72 (59.0)	36 (59.0)	36 (59.0)	0.13
1－2 times/week	43 (35.2)	24 (39.3)	19 (31.1)	
3 or more times/week	7 (5.7)	1 (1.6)	6 (9.8)	
K6 score, mean (SD)	2.92 (3.10)	2.89 (3.17)	2.95 (3.06)	0.56

SD, standard deviatioin
Categorical variables were analyzed using Pearson's χ^2 test
Continuous variables by the *t*-test

the lowest tertile in regard to baseline GCS scores. The decision to perform this subgroup analysis was inspired by reports of greater effects of workplace training among groups with low baseline scores.[32-34] We hypothesized that training effects might be most pronounced among those participants exhibiting poorer scores for general communication skills prior to the intervention. Statistical analysis was performed using IBM SPSS Statistics 24.

Results

Figure 1 shows a flow diagram for participation in the study. Of the 123 participants initially registered for participation in the study, 1 was unable to participate due to work-related circumstances. The remaining 122 participants were randomly assigned to 1 of 2 groups: 61 participants to the intervention group and 61 participants to the control group. Of these, 57 of the 61 (93.4%) participants in the intervention group participated in the 10-month post-intervention survey, as did all the participants in the control group (3 participants who did not respond to the survey were no longer working at the company, and 1 non-responder was on a long-term remote assignment).

Table 3. Baseline scores for each group

Variable	Mean (SD)			P value
	Total (n = 122)	Intervention (n = 61)	Control (n = 61)	
General communication skills	21.79 (4.35)	21.62 (4.47)	21.95 (4.27)	0.60
Scale of wellness behaviors				
Rapport building	3.21 (0.41)	3.17 (0.41)	3.25 (0.41)	0.98
Accepting others as they are	3.09 (0.47)	3.08 (0.47)	3.10 (0.46)	0.62
Adopting different points of view	2.77 (0.57)	2.73 (0.55)	2.80 (0.60)	0.53
Self-evaluation of communication with subordinates				
Active listening	8.30 (1.60)	8.26 (1.76)	8.33 (1.43)	0.82
Identify positive things in others' performance	7.15 (1.68)	6.95 (1.79)	7.34 (1.55)	0.20
Think together to solve problems	7.61 (1.58)	7.69 (1.75)	7.52 (1.41)	0.57
Awareness of differences in communication style	7.11 (1.71)	6.98 (1.88)	7.25 (1.54)	0.40

SD, standard deviation

Table 4. Effects of coaching skills training by occupational health staff (ITT analysis)

Variable	Mean change (SE)		Difference (95% CI)	P value
	Intervention (n = 61)	Conrtol (n = 61)		
General communication skills	1.03 (0.48)	0.25 (0.47)	0.79 (-0.50, 2.08)	0.23
Scale of wellness behaviors				
Rapport building	0.07 (0.04)	-0.08 (0.04)	0.15 (0.03, 0.26)	0.01
Accepting others as they are	0.02 (0.06)	-0.02 (0.06)	0.05 (-0.11, 0.21)	0.56
Adopting different points of view	0.20 (0.06)	0.12 (0.06)	0.09 (-0.08, 0.26)	0.30
Self-evaluation of communication with subordinates				
Active listening	0.00 (0.18)	-0.20 (0.18)	0.20 (-0.29, 0.69)	0.42
Identify positive things in others' performance	0.34 (0.19)	-0.07 (0.19)	0.41 (-0.12, 0.93)	0.13
Think together to solve problems	0.13 (0.19)	-0.04 (0.19)	0.17 (-0.34, 0.67)	0.52
Awareness of differences in communication style	0.17 (0.21)	-0.33 (0.21)	0.51 (-0.06, 1.08)	0.08

ITT, intention to treat; SE, standard error; CI, confidence interval

Baseline data

Table 2 displays participant attributes prior to the intervention. Our response rate at time of baseline measurement was 61 participants in the intervention group and 61 participants in the control group (100%). All the participants were male. Average age was 49.4 years (intervention: 49.3 years, control: 49.5 years). We found no significant between-group differences for age, average years of management experience, hours of overtime worked per month, sleep habits, alcohol consumption habits, exercise habits, or K6 scores. Table 3 shows baseline scores for each group; no significant differences between the groups were observed.

Effects of coaching skills training by occupational health staff

Table 4 shows the results of the ITT analysis. On the "rapport building" item from the SWB, we observed a 0.07-point increase at 10 months post-intervention in the intervention group versus a 0.08-point decrease in the control; this difference was determined to be statistically significant (0.15; 95% confidence interval [CI]: 0.03, 0.26).

Table 5 displays the results of the subgroup analysis on the lowest tertile in regard to the GCS baseline. Specifically, we observed the following statistically significant differences at 10 months post-intervention in comparison with baseline: regarding the GCS, a 4.01-point increase in the intervention group versus a 1.53-point increase in the control group (2.48; 95% CI: 0.05, 4.92). In regard to the "active listening" item on the self-evaluation of communication with subordinates there was a 0.80-point increase in the intervention group versus a 0.99-point decrease in the control group (1.79; 95% CI: 0.76, 2.81). Regarding the "think together to solve problems" item, there was a 0.78-increase in the intervention group versus a 0.26-point decrease in the control group (1.04; 95% CI: 0.03, 2.05). Furthermore, while it was not determined to be statistically significant, we observed an overall trend toward improvements in "identify positive things in others' work performance" and "awareness of differences in communication style."

Discussion

We observed improvement in some wellness behaviors through coaching skills training carried out by occupational health staff to educate managers working in general business fields. In particular, we found significant improvement in GCS scores and certain parts of the self-evaluation of communication with subordinates among managers who had initially demonstrated poor basic communication skills. This observation may imply that Japanese society provides few opportunities for systematic acquisition of basic knowledge and skills related to communication, and that it is relatively easy to effect considerable improvements through training for individuals who are unskilled at communication from the outset.[32,33] The training program in this study made use of coaching skills[14,26,27] and was developed with an emphasis on forming high-quality relationships with subordinates (rapport building). This may have been the reason for the more pronounced effect we observed regarding the "active listening" and "think together to

Table 5. Effects of coaching skills training by occupational health staff (subgroup analysis)

Variable	Mean change (SE)		Difference (95% CI)	P value
	Intervention (n = 21)	Conrtol (n = 16)		
General communication skills	4.01 (0.82)	1.53 (0.92)	2.48 (0.05, 4.92)	<0.05
Scale of wellness behaviors				
Rapport building	0.17 (0.08)	-0.09 (0.09)	0.26 (0.03, 0.49)	0.03
Accepting others as they are	0.16 (0.11)	0.01 (0.12)	0.15 (-0.17, 0.47)	0.36
Adopting different points of view	0.16 (0.16)	0.25 (0.10)	-0.09 (-0.35, 0.16)	0.48
Self-evaluation of communication with subordinates				
Active listening	0.80 (0.34)	-0.99 (0.39)	1.79 (0.76, 2.81)	<0.01
Identify positive things in others' performance	0.68 (0.39)	-0.20 (0.44)	0.88 (-0.29, 2.04)	0.14
Think together to solve problems	0.78 (0.34)	-0.26 (0.38)	1.04 (0.03, 2.05)	0.04
Awareness of differences in communication style	0.27 (0.35)	0.04 (0.39)	0.23 (-0.82, 1.27)	0.67

SE, standard error; CI, confidence interval

solve problems" behaviors among managers who experienced particular difficulty in communicating with subordinates.

Because this research studied managers living in various locations across Japan, we found it necessary to consider the varied locales and working conditions of our participants, and the feasibility of executing our study had to be thoroughly assessed. Among existing research in this vein, there is a wide variety in the number of coaching sessions implemented following the initial informational component, from just a few sessions to as many as 50; the most commonly observed trend was to conduct approximately 10 sessions,[19] which is equivalent to the intervention of this study.

We measured the effectiveness of this intervention at 10 months following the completion of the 8-week online training component. We chose this timeframe for the follow-up because the participants' working schedules entered a particularly busy period (including preparations related to a corporate merger) immediately following completion of the intervention. This busy period lasted for approximately 10 months, and the participating business requested that we refrain from measurements of our study's effectiveness during that time. It is possible that this relatively long period between the intervention and follow-up measurements negatively impacted the study's results. The corporate merger, especially, seemed to exert extraordinary job related stress, which likely had a negative influence on some outcomes ("adopting different points of view," "accepting others as they are," "identify positive things in others' work performance," and so on) rather than the outcomes which seemed to be more practical ("rapport building," "active listening," "think together to solve problems," and so on). However, the fact that we observed significant effects in some areas even after so much time had passed, with this additional stress, may itself prove to be a meaningful factor. There is research that has demonstrated significant improvements in individual wellness among members of the general public through coaching program interventions utilizing a 1-day workshop followed by a series of 9, 1-hour group meetings once a week. The effects of such training reportedly continued for at least 30 weeks.[35] These results suggests that coaching skills education may have a meaningful and long-lasting impact.

Coaching skills training includes not only active listening methods,[3-6] which have already become widely utilized in Japan, but also a variety of skills necessary for communication with subordinates in practical work situations. This study only measured effects on managers, but improvement of managers' coaching skills may affect not only those individuals, but also the well-being, workplace satisfaction, and performance of their subordinates.[36-38] Therefore, future studies should attempt to determine the effects of managerial coaching skills training on subordinates and organizations in general.

The coaching skills training in the present study was carried out by occupational health staff. Training delivered in this way is likely to be practical and sustainable for workplaces in terms of both cost and time management. Moreover, full-time occupational health staff doctors and nurses are usually familiar to workers and may provide some opportunities for workers to reinforce their training in their regular work such as conducting health interviews or other meetings. Furthermore, the fact that our training program improved managers' communication skills partially suggests that the program could be further developed and employed in a variety of workplaces for wide-scale contribution to the improvement of communication skills among managers, the promotion of high-quality relationships between managers and their subordinates, the creation of better working environments, and the betterment of mental health in the workplace.

However, there is room for improvement in the training program. To further improve the effectiveness of educational efforts, it will be necessary to carefully consider the optimal amount of time required for training (including follow-up training for further improvement) and the specific elements to include in the programs. Finally, to ascertain the validity of this study's results, it will be necessary to perform a wide range of additional randomized controlled trials examining a broad spectrum of professions and working conditions.

All the participants in this study were male managers creating a potential bias in terms of participants. Because participants in the intervention and control groups worked at the same workplace, it is likely that some information about the training content was shared across groups during the experiment. Furthermore, the survey administered contained original content that was developed as a part of this study, the reliability and validity of which has not been sufficiently established. Evaluations according to these survey items should therefore be considered subjective until demonstrated otherwise.

These results suggest that coaching skills training carried out by occupational health staff within the workplace is somewhat effective at improving managers' communication skills and behaviors. To our knowledge, experiments in which this type of training was given by occupational health staff have not previously been conducted. However, these results suggest that

educational interventions executed by occupational health staff offer major benefits in terms of cost and practicality. Furthermore, as coaching skills training programs continue to be improved and take on more effective forms, they stand to provide a significant boon toward the betterment of mental health within the workplace.

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