

論文の内容の要旨

論文題目 Effects of a job crafting intervention program on work engagement among Japanese employees: a randomized controlled trial

(日本人労働者を対象としたジョブ・クラフティング介入プログラムのワーク・エンゲイジメントに対する効果：無作為化比較試験)

氏名 櫻谷 あすか

Introduction

Job crafting, which is the employee-initiated design/redesign of work characteristics, may be a promising intervention to improve work engagement. The aim of the current study was to investigate the effect of job crafting intervention on work engagement (a primary outcome) among Japanese employees at three- and six-months follow-ups using a randomized controlled trial (RCT) design. The intervention effects on psychological distress, work performance, and job crafting (secondary outcomes) were also examined. In a subgroup analysis, the intervention effect on work engagement was also investigated separately among participants with high and low scores of work engagement. Furthermore, group differences in the intervention effect were exploratory investigated by other characteristics of participants, i.e., gender, age groups, high and low scores of job crafting at baseline, occupation (manager/non-manager, teacher/non-teacher, clerical, and sales), and employment style (regular/non-regular).

Methods

Trial design: This study design was a RCT. The allocation ratio of the intervention group to the control group was 1: 1. The protocol was registered at the UMIN Clinical Trials Registry (UMIN-CTR) (ID = UMIN000026668).

Participants: Six workplaces (five companies A-E and one elementary school F) participated in the current study. All workers in company A (N = 1812), B (N = 1328), C (N = 1914), D (head office: n = 200, Branch office: n = 20), and E (head office: n = 45, Branch office: n = 26), and all workers in elementary school F (N = 58) were recruited by a contact person in their own company or elementary school using an invitation e-mail or letter. Inclusion criteria for participants were 1) currently employed and 2) could be participant in the intervention (two workshops). No exclusion criteria were specified in the current study.

Interventions: In the current study, the author modified the original-version of the program, which was previously developed and examined the effect in pretest-posttest study. The modified version consisted of two 120-min sessions conducted by the author at monthly intervals. In the first session, following the introduction of the concept of job crafting, the participants learned the idea of job crafting from a case study (30 min), shared their personal job crafting stories in their own working lives (30 min), and created their own individual job crafting plans for the next four weeks (30 min). In the second session, each participant reviewed his/her own job crafting plan individually (15 min). The participants then shared their reflections

in a group (30 min), discussed job crafting that would be sustainable and feasible in practice (30 min), and finally made a modified job crafting plan (30 min). After each session, the author sent e-mail or letter that included the reflection of the contents of the session and work to review their job crafting plan.

Outcomes: Work engagement (UWES) was measured as primary outcome. Psychological distress (BJSQ), Work performance (HPQ), and Job crafting were assessed as secondary outcomes. Demographic characteristics such as age, gender, marital status, occupation, education, and employment were also collected.

Randomization: Participants who met the inclusion criteria were randomly assigned to an intervention or a control group (n = 138 for intervention group, n = 143 for control group). Stratified permuted-block randomization was conducted. Participants were stratified into eight strata according to one factor: office to which they belonged (company A or B or C, or head office or branch office of company D or E respectively, or elementary school F).

Statistical methods: A mixed-model for repeated measures conditional growth model analyses was conducted using a group (intervention and control) * time (baseline, three-months, and six-months follow-up) interaction as an indicator of intervention effect. Intention-to-treat analysis (ITT) was used. As a sensitivity analysis, a mixed model for repeated measures analysis of variance model analysis was conducted. Additionally, the effect sizes and the 95 % confidence intervals (95 % CIs) were calculated using Cohen's *d* only among those who completed the questionnaire at three-months and six-months follow-ups. The subgroup analysis was conducted separately for respondents who had high scores (higher than 3) and low scores (3 or less) of work engagement. Furthermore, to explore other subgroup differences, similar analyses were done based on the demographic and other characteristics, such as age group (older (37 years of age or older) and younger (36 years of age or younger)), high scores (higher than 5) and low scores (5 or less score) of job crafting at baseline, gender (males and females), occupation (manager/non-manager, teacher/non-teacher, clerical, and sales), and employment style (regular/ non-regular).

Results

Participant recruitment: Recruitment and the baseline survey were conducted from April to May 2017. The intervention and control groups were assessed at approximately three months (from July to August 2017) and six months (from October to November 2017) after the baseline survey. Participants were collected from six workplaces (five companies A-E and one elementary school F) (N = 5403), and 281 (5.2%) of them completed a baseline survey. All of them were randomly allocated to an intervention or control group (n = 138 for intervention group, n = 143 for control group). At three-months follow-up, 118 (85.5%) participants in the intervention group and 131 (91.6%) in the control group completed the survey. At six-months follow-up, 99 (71.7%) participants in the intervention group and 124 (86.7%) in the control group completed the survey.

Baseline data: In both groups, most participants were male, and most participants completed university or higher education and held regular employment. Most frequent occupations were professionals, sales,

clerical, and managers.

Effects of the job crafting intervention program on each outcome variable: The job crafting intervention program did not show a significant effect on work engagement in the total sample. The effect sizes for work engagement were small, with values of 0.15 at three-months follow-up and 0.03 at six-months follow-up. The job crafting intervention program did not have a significant effect on any of the secondary outcomes (i.e., psychological distress, work performance, or job crafting). The effect sizes for those outcomes were also small.

Subgroup analysis: In lower work engagement subgroup, the job crafting intervention program showed a marginally significant effect on work engagement at three-months follow-up ($t = 1.88, p = 0.06, d = 0.34$), although, the effect was not sustained at the six-month follow-up ($t = -0.31, p = 0.76, d = -0.11$).

Other group differences: In younger subgroup (under 36 years old), the job crafting intervention program showed a significant pooled intervention effect on work performance ($t = 2.14, p = 0.03$). A sensitivity analysis revealed that the job crafting intervention program had a significant intervention effect on work performance at six-months follow-up ($t = 2.23, p = 0.03$) with small effect size ($d = 0.36$). In addition, the job crafting intervention program had a significant effect on the total score of job crafting at three-months follow-up ($t = 1.99, p = 0.048$), although the effect size was small ($d = 0.32$). For subscale, the job crafting intervention program had significant pooled effect on task crafting ($t = 2.11, p = 0.04$). In a sensitivity analysis, it also had significant effect at six-months follow-up ($t = 2.04, p = 0.04$), although the effect size was small ($d = 0.27$). Additionally, cognitive crafting increased significantly at three-months follow-up in the intervention group compared with the control group ($t = 2.19, p = 0.03$), and the effect size was small ($d = 0.39$). As marginally significant results, pooled effect on job crafting ($t = 1.72, p = 0.09$), effect on task crafting at three-months follow-up ($t = 1.75, p = 0.08$), as well as pooled ($t = 1.74, p = 0.08$) and at six-months follow-up ($t = 1.86, p = 0.07$) effects on cognitive crafting were also showed. In lower job crafting subgroup, a significant effect on work engagement at three-months follow-up ($t = 2.02, p = 0.04$) was shown, although the effect size was small ($d = 0.33$). As marginally significant results, work performance increased at three-months follow-up in the intervention group compared with the control group ($t = 1.72, p = 0.09$). The high job crafting subgroup also showed a marginally significant effect on work performance at six-months follow-up ($t = 1.37, p = 0.08$). For managers, work engagement decreased marginally significantly at six-months follow-up ($t = -1.82, p = 0.08$); for teachers and clerical, work engagement increased marginally significantly at three-months follow-up ($t = 1.92, p = 0.06$; and $t = 1.72, p = 0.09$, respectively) in the intervention group compared with the control group.

Discussion

To my knowledge, this is the first study to investigate the effect of the job crafting intervention program on work engagement and other work-related outcomes in RCT design. In the total sample, the job crafting intervention program had a non-significant effect on work engagement at both three-months and six-months follow-ups. Other outcomes, such as psychological distress, work performance, and job crafting, did not

improve significantly in the intervention group compared to the control group. These results are inconsistent with previous studies in a non-RCT and a pretest-posttest study. Some possible reasons may be the lack of the number of group sessions, the lack of the exercise to reflect past job crafting experiences, and low participation rate in the second session.

Among workers low on work engagement, work engagement increased marginally significantly in the intervention group compared to the control group ($p = 0.06$). Concerning higher work engagement subgroup, this trend was not shown. The finding was similar to a previous study. The ceiling effect might have contributed to this finding, as the current job crafting intervention program might not have been intense enough to improve work engagement among workers who already had higher work engagement.

For younger workers, overall job crafting, task and cognitive crafting, as well as work performance, increased significantly in the intervention group compared with the control group while relational crafting did not. The effect sizes were small ($d = 0.22-0.39$). It may indicate that younger workers could increase job crafting, which would improve work performance in the intervention group compared to the control group. According to previous study, younger workers have greater growth motive regarding their work; thus, they may be more interested in learning new things, such as job crafting behavior. Besides, they could also have more cognitive flexibility compared to older workers, which would help them practice job crafting behavior, especially cognitive crafting after the intervention.

For workers with low job crafting, work engagement increased significantly at three-months follow-up in the intervention group compared with the control group, although the effect size was small ($d = 0.33$). It would be because they were motivated by the group session, in which they reflected recent their work style and discussed how they could work more positively among other members. For workers with low job crafting, reflecting upon their work style and thinking about the ways to work more positively may be new experience; thus, such group session could be more interesting for them.

Limitation: First, this study did not utilize a stratified permuted-block randomization into the older or younger, lower or higher levels of job crafting, and work engagement subgroups at baseline. Instead, participants were separated into two groups by a simple randomization, which could have led to the biased assignment of the participants into the intervention and the control groups. Second, participants were recruited from six worksites (five companies and one elementary school) in Japan. Most participants had higher education levels, which might have helped them learn the contents of the job crafting intervention program more easily. Therefore, generalization of the present findings to the working population was limited. Third, the sample size of this study ($N = 281$) was modest compared to the estimated number of 352 needed to detect an effect size of 0.3 or greater for work engagement. Thus, the study had lower statistical power.

Conclusion: The job crafting intervention may not be sufficiently effective to improve work engagement and other outcomes for the entire sample of participants. However, it may be effective for workers lower on work engagement or job crafting, or younger.