

## 論文の内容の要旨

論文題目 The effects of the Civility, Respect, and Engagement in the Workplace (CREW) program on work engagement among Japanese employees: a Cluster-Randomized Controlled Trial  
(日本人労働者を対象とした CREW プログラムのワーク・エンゲイジメントに対する介入効果：クラスター無作為化比較試験)

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**INTRODUCTION:** Workers' mental health support is a very important challenge. Worker absences and unemployment due to mental health problems that may have been avoided with support result in serious social impacts and economic losses. Therefore evidence-based intervention programs are needed to support workers' mental health.

When considering workers' mental health, positive concepts such as work engagement have attracted research interest. Work engagement is defined as a positive, fulfilling work-related state of mind. High work engagement predicts positive work-related outcomes (e.g., work performance and presenteeism) and related worker physical and mental health. Increasing worker work engagement is beneficial for both individuals and organizations. Since the late 2000s, there has been increasing intervention research to improve work engagement. Previous intervention studies to improve work engagement suggest the following: include both individuals and group interventions, bottom-up style, manager support, and increased job resources.

The Civility, Respect, and Engagement in the Workplace (CREW) program has shown benefit as a workplace intervention with a significant improvement in civility level at the workplace and work-related outcomes (e.g., job satisfaction, resource, and workplace incivility). It was first developed and used in U.S. Veterans Hospital Administration settings in 2005. CREW is an accumulation of sessions in line with a topic over six months led by trained facilitators, aimed at improving workplace climate through civil and respectful interactions, communication, and teamwork. CREW is extremely flexible and can be adjusted for a particular workplace, and is a bottom-up initiative in its specific activities. This study examined the effectiveness of implementing the CREW program modified for this study to increase work engagement among workers in a workplace utilizing a cluster randomized controlled trial (cRCT) that included an intervention group and a control group. The author expected the CREW program to increase the civility of workers who participated in the CREW session, and for "civility spiral" to increase the civility of workers who are working in the same workplace even the ones who do not participate in the CREW session. And then, job resources, such as social support, at the workplace would increase, and would lead to improved work engagement of workers who work at the workplace that the CREW program was implemented.

**METHODS:** The current study was the cluster randomized controlled trial that examined the

effectiveness of implementing the modified CREW program. The CREW program was modified for this study based on the literature review and pilot study. While the purpose of improving workplace culture through civility is the same, there was a major difference in particular in implementation duration that was about half shorter than in the general CREW program.

A total of 12 facilities located in Japan were approached through snowball sampling methods. There were no inclusion or exclusion criteria; any interested Japanese facility considering a real implementation could participate in the study. Randomization was conducted at the workplace level in each facility after a baseline survey. Workplaces were randomly assigned to an intervention or a control group in a 1:1 ratio in each facility. The participants were workers in a participating workplace.

CREW requires a facilitator that works where the program will be implemented. Workers outside the control group and interested in facilitating were invited to facilitator training in each facility. The research team provided three hours of facilitator training, and the author subsequently supported their CREW implementation throughout the program. The main feature of the CREW is flexibility, however, in the present study all intervention groups shared some core qualities: (a) they all had similar session structures of about 10 to 12 times for three months with a session time of 15 minutes; (b) the overall messages were identical (e.g., Getting to know each other, Thinking about mutual respect and civility, and dialogue around civility/respects issues at their workplace); and so on. More specific contents of civil workplace behaviors were defined locally and thus varied across workplaces. CREW was conducted at each workplace over three months, and weekly or biweekly, on average nine times, and the average execution time was 19 minutes (min 15 to max 30 min). In all workplaces, the sessions were conducted during work hours. The facilitator and session participants selected and implemented a topic corresponding to each part, and topics about the details for discussion were flexibly adjusted to suit the workplace.

Self-administered questionnaires at three-time points (Baseline survey = T1, after the CREW program = T2, and three months after the T2 survey = T3) evaluated the effects of the CREW program implementation in both the intervention and control groups. All workplace workers were asked to respond to the survey only if they agreed, regardless of their participation in the CREW sessions. CREW is intended to change the workplace culture, and the hope is to improve conditions for all who work in the workplaces, not only those who attend the sessions. The questionnaire included an assessment of individual work engagement, civility levels, work-related outcomes (i.e., work performance, job satisfaction, psychological distress, job resources, and job demands). Demographic characteristics were also collected.

Sample size was calculated using statistical power analysis with G\*Power, and the required sample size was 338 workers in each arm; thus, the total number of participants should be recruited from 38 workplaces. Intention to treat (ITT) analysis included all workers who completed the baseline survey by estimating missing values. A three-level linear mixed model provided analysis and included group (intervention and control) \*time (T1, T2, and T3) interaction as an indicator of

the intervention effect. Random intercepts at both the individual- and workplace-level, and random slopes for time at both the individual-and workplace-level were estimated. Subgroup analysis was also conducted to check the effect of worker participation rates in sessions on effects. The two-tailed alpha level for significance testing was set as a  $p$  of 0.05 or less. All data analyses used R statistical software, version 3.6.1.

The University of Tokyo Ethical Committee approved this study (No. 2018064NI).

**RESULTS:** Recruitment and baseline surveys were from November 2018 to May 2019. Among the approached twelve facilities, six facilities, including four companies and two hospitals agreed to participate. Finally, 30 workplaces agreed to participate, and 452 workers were belonging. A total of 342 workers (75.7%) were sampled and completed the baseline survey. After randomization, 15 workplaces and 148 workers were allocated to the intervention group and 15 workplaces and 194 workers to the control group.

There was no significant difference between intervention and control in work engagement ( $p = 0.20$ ). Similarly, CREW had a non-significant effect on civility level and work-related outcomes. The effect sizes (Cohen's  $d$ ) for work engagement were 0.03 (95% CI: -0.19 to 0.14) at T2 and 0.18 (95% CI: -0.04 to 0.39) at T3. Similarly, at T3, the effect sizes were 0.17 (95% CI: -0.01 to 0.42) and 0.03 (95% CI: -0.18 to 0.25), for civility and job resources, respectively.

For subgroup analysis, there were no statistically significant effects observed in any of the analyses. Among workers who work in the workplaces with high worker participation rates in CREW sessions, the effect size for work engagement, civility, and job resources was  $d = 0.05$ ,  $d = -0.03$ , and  $d = -0.06$ , respectively, at T2. Among workers who work in the workplaces with low worker participation rates in CREW sessions, the effect size for work engagement, civility, and job resources was  $d = 0.04$ ,  $d = 0.07$ , and  $d = -0.27$ , respectively, at T2.

**DISCUSSION:** The findings suggest that the CREW program in this study may not have been sufficient to increase work engagement. In the current study, the minimal effect of the modified CREW program may be in part attributable to five points as follows: the implementation duration was short, the specified number of sessions and the methods applied for introduction led to a decrease in workers' work resources and insufficient session content. The survey period may have been too early to detect the change of scores, and did not measure intermediate variables in effect. Although we expected that civility created by the implemented CREW would increase resources and increase work engagement, the pathway of civility, resources, and work engagement may have been more distant and complicated than expected.

The important finding is that more participation in the CREW sessions may maintain worker job resources. Job resources decreased among workers who work in the workplaces with low worker participation rates in CREW sessions and workers with low session participation rates. On the other hand, job resources were maintained among workers who work in the workplaces with high worker

participation rates in CREW sessions and workers with high session participation rates. It is suggested that the long-term implementation of the modified CREW program in the workplace and an increased number of worker participation times in the CREW sessions may improve worker job resources and subsequently increase work engagement.

The low acceptance rate was a limitation of this study.

Notwithstanding these results, most workplaces completed the CREW program. Workers may have felt and expect to see effects that were not measured in this study, and CREW may have some meaning for workers. Future research can investigate what makes various approaches effective (i.e., easy to accept and implement), the organization that implements the CREW program, appropriate strength (e.g., lengthen the duration, and less frequent), and satisfaction with CREW.

Considering that diversity, civility, and mutual respect are important aspects of contemporary workplace challenges in Japan, intervention programs that can simultaneously consider work engagement, diversity, and civility are expected to become increasingly important in the future. If workers consider approaches to change the climate/norm/environment in the workplace in terms of civility or diversity, the CREW program might be an appropriate option. To create an effective CREW program for Japanese workers, it is necessary to clarify in detail the mechanisms behind how the modified CREW program affects a workplace and workers working in that workplace and to pursue further modifications based on such findings.

**CONCLUSION:** This modified CREW program applied in a cluster RCT design did not yield improvements in work engagement and other outcomes among Japanese workers. However, implementing the modified CREW program for at least six months and increasing worker participation in sessions or having more workers participate may improve worker job resources and increase work engagement. Future research can work to further clarify what constitutes an effective program. In particular, it is necessary to investigate more carefully the pathways and the mechanism of change and how effects propagate in a modified CREW program aimed at improving work engagement.

**TRIAL REGISTRATION:** UMIN Clinical Trials Registry (ID = UMIN000034760)