



# Effects of a Cognitive Rehearsal Program on Interpersonal Relationships, Workplace Bullying, Symptom Experience, and Turnover Intention among Nurses: A Randomized Controlled Trial

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**Purpose:** This research aimed to investigate the effects of a cognitive rehearsal program (CRP) on workplace bullying among nurses. **Methods:** A randomized controlled trial was performed. Participants were 40 nurses working in different university hospitals in B city, South Korea. The experimental group was provided with a 20-hour CRP comprising scenarios on bullying situations, standard communication, and role-playing. To evaluate effects of the CRP, we measured interpersonal relationships, workplace bullying, symptom experience, and turnover intention at pre- and post-intervention. Follow-up effect was measured in the experimental group only at 4 weeks after the intervention. **Results:** After the intervention, there were significant differences in interpersonal relationships ( $F=6.21, p=.022$ ) and turnover intention ( $F=5.55, p=.024$ ) between experimental and wait-list groups. However, there was no significant difference in workplace bullying or symptom experience between the 2 groups. The beneficial effects on interpersonal relationships and turnover intention lasted at least up to 4 weeks after CRP. **Conclusion:** The CRP for workplace bullying improves interpersonal relationships and decreases turnover intention. So it can be utilized as one of the personal coping strategies to reduce the the turnover among nurses. Further studies on the effects of unit- or hospital-based CRP and on the long-term effects of CRP are necessary.

**Key words:** Workplace; Bullying; Nurses; Cognitive therapy; Role playing

## INTRODUCTION

The nursing profession has a problematic turnover rate—even among medical personnel—likely due to its characteristic physical and psychological stress. The turnover rate of nurses in South Korea is a staggering 16.8% compared to the average of 2.2% among healthcare workers in general. Furthermore, while there were 320,000 licensed nurses in South Korea as of 2014, only 45.5% of them were working in medical institutions [1]. This

problem is expected to worsen, prompting scholars to devise measures aimed at encouraging nurses to continue working. One line of research in this regard has concerned workplace bullying among nurses.

Workplace bullying refers to verbal, emotional, and physical behaviors related to disrespecting and harming colleagues as a means of controlling them. Bullying behaviors among nurses specifically include ignoring, ostracizing, humiliating, yelling, swearing, throwing things, and disturbing performance of a task

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[2]. Although rates are highly contingent on assessment standards and tools, an estimated 19.0~86.5% of nurses have experienced workplace bullying [3,4]. Workplace bullying leads to psychological symptoms of depression, anxiety, and post-traumatic stress disorder, and physical symptoms such as palpitations, headache, chronic fatigue, and insomnia [2]. It can also increase burnout and turnover intention [5], consequently increasing the burden on medical institutions and society [6]. Thus, it would be necessary to devise measures of reducing workplace bullying among nurses.

A typical intervention for reducing workplace bullying among nurses is raising awareness, for which research has found some support [7]. Nevertheless, considering that workplace bullying is entrenched in the interpersonal relationships among colleagues [8], more elaborated and active strategies to improve these interpersonal relationships, and hence reduce bullying, are required. Indeed, Vessey et al. [9] concluded that developing interpersonal relationship skills could help in handling bullying situations.

Cognitive rehearsal (CR) is a behavioral technique often used in cognitive behavioral therapies wherein individuals rehearse specific situations to practice a suitable interaction or a positive coping process in relation to such situations. It can be applied as a coping method for bullying [10]—indeed, only 3 studies, to our knowledge, have investigated CR as a workplace bullying intervention among nurses. Griffin [11] trained new nurses in skills to handle lateral violence situations through CR, and reported nurses' turnover rate decreased. Stagg et al. [12] provided CR of 10 scenarios on workplace bullying situations to nurses, which led to increased knowledge and awareness of workplace bullying, as well as confidence in managing conflict situations. In a later study, they followed up over 6 months, and reported turnover intention decreased [13]. However, none of these studies used a control group and all of them provided a onetime, short-term intervention. Thus, stricter, randomized controlled trials are needed, which prompted the design of the present study with CR program (CRP).

The first step for CRP is creating scripts and communication standards for each bullying situation [10]. We established communication standards using the technique of nonviolent communication. Nonviolent communication is an empathizing conversa-

tion technique aimed at enhancing communication through compassion and empathy for others and oneself, and it essentially takes the form of "observation-feeling-need requests" [14]. Nonviolent communication has been reported to be effective for improving communication among doctors [15], nursing students [16], undergraduate students [17].

The aim of this study was to investigate the effect of CRP on the interpersonal relationships, workplace bullying, symptom experience, and turnover intention of nurses. The study hypotheses are as follows:

Hypothesis 1: The interpersonal relationships those who participated in CRP (experimental group) will differ from those of who did not participate in CRP (wait-list group).

Hypothesis 2: The workplace bullying in the experimental group will differ from that of the wait-list group.

Hypothesis 3: The symptom experience in the experimental group will differ from that of the wait-list group.

Hypothesis 4: The turnover intention in the experimental group will differ from that of the wait-list group.

Hypothesis 5: There will be differences in main variables pre-, post- and 4 weeks after the CRP in the experimental group.

## METHODS

### 1. Design

This study was a randomized controlled trial (KCT0002135) aimed at investigating the effect of CRP on the interpersonal relationships, workplace bullying, symptom experience, and turnover intention of nurses.

### 2. Sample

Subjects were nurses who had worked for over 6 months at a few university hospitals in B city, South Korea. Since the questionnaire of workplace bullying in this study was designed to measure negative behaviors within the last 6 months [18], we excluded nurses who had been employed for less than 6 months. We also excluded nurses who received communication training within a year of the study because this may have obscured the intervention effect. Since CRP was composed of role plays in a virtual situation, we did not consider nurse's position or past bullying experience.

Subjects were publicly recruited from university hospitals and bulletin board of B city nurses association. The recruitment announcement was composed of the purpose of the study, the content and process of the program, the conditions and benefits of the subjects. Identification numbers were distributed consecutively to every subject. They were allocated to the experimental or wait-list group using the random allocation table for 2 groups from Research Randomizer, a program for random selection and allocation. A research assistant performed this group allocation. After completing this process, subjects were given information on time schedules.

Before recruitment, we performed a power analysis using the program G\*power 3.1.5. For repeated-measures analysis of variance (ANOVA) of the one group to test the hypothesis 5, the minimum number of subjects required was 20 when considering an effect size ( $f$ ) of 0.3 [13], a significance level ( $\alpha$ ) of .05, a test

power ( $1-\beta$ ) of .80; and the need for 3 repetitions. Furthermore, considering a 10% of possible dropout, a total of 44 subjects were recruited, with 22 each being allocated to the experimental and wait-list groups. Three subjects (1 in experimental group and 2 in wait-list group) withdrew their consent after the pre-intervention measurement, and one subject (in experimental group) who missed the last 2 sessions. As a result, we analyzed the data of 40 in both groups. We also conducted a follow-up measurement at 4<sup>th</sup> weeks after intervention in the experimental group, the data from 19 subjects responded were analyzed (Figure 1).

### 3. Intervention: cognitive rehearsal program

The CRP on workplace bullying was developed using the 4 stages of CR composition suggested by Smith [10] and the non-violent communication technique by Rosenberg & Chopra [14]. In the first CRP stage, “developing scenarios”, we created scenarios

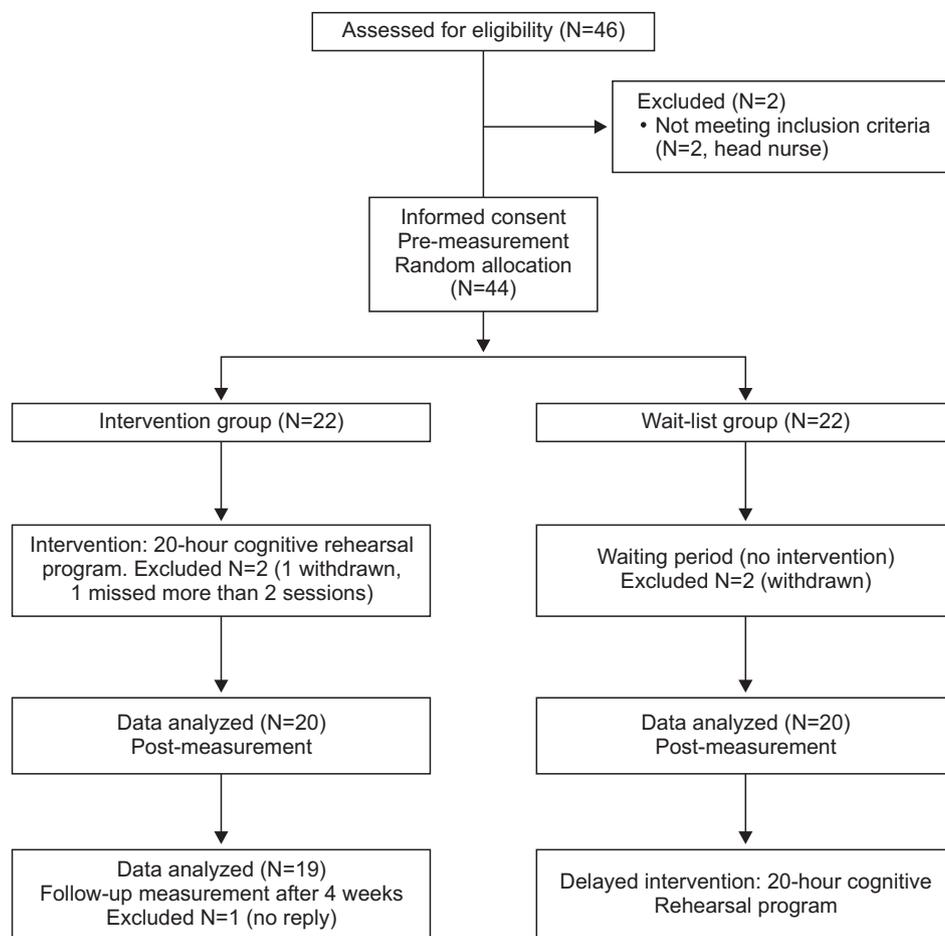


Figure 1. Flow diagram of the study.

of 9 types of workplace bullying situations based on previous studies [2,11] and nurse interviews. At this stage, several times of meetings for consultation were performed with an expert group to determine whether these scenarios were valid. Expert group comprised 3 staff nurses, 2 head nurses, 2 nursing professors, and 2 communication experts. The following CR stages—“role-playing”, “creating communication standards”, “re-role-playing” and “feedback and evaluation”—were performed together with the study subjects in the actual program.

“Creating communication standards” involved designating what constitutes desirable communication for the scenarios. The non-violent communication technique could be utilized throughout the CRP. For this, we encouraged subjects to employ 4 components of Rosenberg’s nonviolent communication technique: “observation”, “feeling”, “need”, and “request”. Such components can be delivered in the modes of “expressing an opinion honestly” and “listening with empathy” which can aid in successfully forging empathizing conversation and relationships with solid ties [14].

In “role-playing”, subjects act out the 9 situations in a safe environment, which helps them express and handle the anger and suppression that the subject experienced before. This stage encourages healing the psychological trauma caused by interpersonal conflicts. It further resolves anger and suppression and prevents the vicious circle of bullying other colleagues. After revising “communication standards” based on the nonviolent communication techniques they learned, “re-role-playing” was performed to practice them. “Re-role-playing” helps with the cognitive training of possible ways to cope with problems that can be employed in similar situations in the future. Therefore, this stage was designed to make subjects work on the designated communication standards themselves to manage bullying situations (e.g., verbal affront, incitement) and to train individuals cognitively on standards through re-role-playing.

“Feedback and evaluation” of the final stage, was performed in every session. Subjects complemented and modified the communication standards that they had prepared, and shared their opinions on CR participation. The final version of the communication standards was printed out and distributed to the subjects for their daily use after the CRP ended. The contents and activities of each session of the program are depicted in Table 1.

In this study CRP comprised 10 sessions in a total of 20 hours

for 5 weeks. Each session took 2 hours. Two sessions were performed in a single day on a weekly basis. The CR was performed from 4:00–8:00 pm in a seminar room of the university in which one of the researchers worked. An administrator specialized in counseling and certified by the nonviolent communication center presided over each CR session. Two nurses who had completed basic and intermediate nonviolent communication courses assisted the CRP.

## 4. Measurements

### 1) Interpersonal relationships

Interpersonal relationships were measured with the tool adapted into Korean by Moon [19] from the Relationship Change Scale developed by Schlein & Guerney [20]. This tool comprises 25 items in subscales of satisfaction (3 items), communication (4), sense of trust (3), friendliness (3), sensitivity (2), openness (5), and understanding (4). The items were measured using a 5-point Likert-type scale ranging from 1 (not at all) to 5 (always true). We calculated the mean of total items, and higher scores indicate more positive perception on interpersonal relationships. The Cronbach’s alphas were .92 in Moon’s study [19], and .90 in this study.

### 2) Workplace bullying

Workplace bullying was measured using Korean version of the Negative Acts Questionnaire-Revised [18]. It measures 3 types of negative behaviors (person-related, work-related, and intimidation-related) for a total of 22. Each negative behavior was rated in terms of frequency on a 5-point scale: 1=for none at all; 2=for less than once a month; 3=for about once a month; 4=for once a week; and 5=for almost every day. The higher scores indicate having more frequent experience of negative behaviors. While the original tool assesses these experiences within the last 6 months, we modified the period into “since the last measurement” for the post- and follow-up measurements, as they were performed less than 6 months from the pre-measurement. The Cronbach’s alphas were .92 by Nam et al. [18], and .90 in this study.

### 3) Symptom experience

Symptom experience was measured using Korean version of

**Table 1.** Cognitive Rehearsal Program Contents

Session	Topics	Scenario	Activities
1	Nonviolent communication	Orientation on cognitive rehearsal Introduction to nonviolent communication 4 components: Observation, Feeling, Need, Request.	Lecture Nonviolent communication card game
2	Withholding information	Reporting nurse is not giving important information on patient care to the following shift nurse.	Presentation of scenario Role playing Making standard communication Re-role playing Feedback and evaluation
3	Backbiting	Colleague nurses are speaking ill of someone who is not present.	Presentation of scenario Role playing Making standard communication Re-role playing Feedback and evaluation
4	Sabotage	A new graduate nurse is really tied up with her post-op patient. Her colleague nurses refuse to answer the call bell from the new nurse's patient.	Presentation of scenario Role playing Making standard communication Re-role playing Feedback and evaluation
5	Disgracing	A preceptor nurse takes down every mistake that a new nurse has made in the shift notes.	Presentation of scenario Role playing Making standard communication Re-role playing Feedback and evaluation
6	Undermining activities	A head nurse says to the staff nurse who keeps making mistakes, "I do not think you are fit for nursing."	Presentation of scenario Role playing Making standard communication Re-role playing Feedback and evaluation
7	Failure to respect privacy	Nurses A and B meet at the hospital lobby by chance. Nurse A says to nurse B, "You had better study more, if you have time to get dolled up."	Presentation of scenario Role playing Making standard communication Re-role playing Debriefing
8	Physical aggression	A nurse is screaming and throwing alcohol sponges at another nurse who made a mistake.	Presentation of scenario Role playing Making standard communication Re-role playing Feedback and evaluation
9	Verbal affront	A preceptor nurse makes sarcastic remarks to a new nurse, "I wonder how you could pass the license exam."	Presentation of scenario Role playing Making standard communication Re-role playing Debriefing
10	Self-empathy	A recently graduated nurse is asking the preceptor nurse how to hang dialysis fluid. She already explained many times before.	Presentation of scenario Role playing Making standard communication Re-role playing Feedback and evaluation

the Brief Symptom Inventory–18 [21]. This tool comprises 18 items in 4 subscales: somatization (5-items), depression (6-items), anxiety (4-items), and panic (3-items). A 5-point Likert scale was used to rate items in terms of degree of suffering in the last 7 days, and ranged from 0 (not at all) and 4 (very serious). We calculated the mean of total items, and higher scores indicated more severe negative symptoms. The Cronbach's alphas were .91 [22], and .93 in this study.

#### 4) Turnover intention

Turnover intention was measured using Yun [22]'s nurse turnover intention tool. This 5 item-tool employs a 5-point Likert scale ranging from 1 (not at all) to 5 (strongly agree), with higher scores indicating stronger turnover intention. We calculated the mean of total items. The Cronbach's alphas were .82 [22] and .88 in this study.

#### 5) Procedure

The study protocol has been registered and approved by the Clinical Research Information Service (KCT0002135). The participants were recruited and allocated from October 12th to 30th 2015. Once they signed on consent form for participation, we collected data on the dependent variables for pre-measurement. Both groups received the same intervention on different schedules, and were informed of their schedules beforehand. The experimental group received the CRP from November 16th to December 14th 2015, while the wait-list group received it from December 21st 2015 to January 18th 2016. We collected post-measurement data on December 14th 2015 in both experimental and wait-list groups. And the follow-up data were collected after 4 weeks later (January 11th to 15th 2016) in experimental group only.

#### 6) Data analysis

The data were analyzed using IBM SPSS Statistics 22.0 (IBM Corp., Armonk, NY). Subjects' general characteristics and dependent variables were analyzed using descriptive statistics. The homogeneity of the two groups was tested through independent t-tests, Mann-Whitney U test, and  $\chi^2$  tests. All dependent variables were normally distributed except symptom experience of the experimental group. But, the range of skewness and kurtosis

of this variable was 0.06~1.19. In addition the dots were distributed around the 45 degree line on the quantile-quantile plots. Hypothesis testing of the effect of CRP was performed using repeated measure ANOVA and linear mixed model.

#### 7) Ethical consideration

This study was approved by the institutional review board (2-104709-AB-N-01-201509HR-035-02) in D university. We explained about the study and participation and obtained an informed consent from all subjects. Participants were also informed they could stop anytime without any disadvantages. For reliable data collection, the wait-list group underwent all measurements at the same time as that for the experimental group except the follow-up measurements. The wait-list group also received the same CRP after the post-measurement for equal benefit.

## RESULTS

### 1. Characteristics of the subjects and homogeneity testing

As noted above, each group contained 20 subjects in the experimental and in wait-list group. The homogeneity test revealed no significant difference between experimental and control group subjects in general characteristics. We also ran a homogeneity test on dependent variables at pre-intervention, which similarly yielded no significant differences (Table 2).

### 2. Hypothesis testing

#### 1) Interpersonal relationships

The mean score of interpersonal relationships at the pre-intervention was  $3.38 \pm 0.50$ , and was increased to  $3.54 \pm 0.54$  at post-intervention in the experimental group. In contrast, the score in the wait-list group was  $3.41 \pm 0.36$  and  $3.24 \pm 0.48$ , respectively. We observed a significant interaction effect ( $F=6.21$ ,  $p=.022$ ), but there was no significance between group effect ( $F=0.30$ ,  $p=.587$ ) or within group effect ( $F=2.17$ ,  $p=.149$ ). Thus, hypothesis 1 was supported (Table 3).

#### 2) Workplace bullying

The mean workplace bullying scores were  $1.73 \pm 0.47$  and  $1.75 \pm 0.56$  in the experimental group at pre- and post-intervention,

**Table 2.** Homogeneity Tests between Experimental and Wait-List Groups (N=40)

Variables	Characteristics	Exp. (n=20)	Wait. (n=20)	$\chi^2$ or t or U	<i>p</i>
		n (%), Median (IQR) or M±SD	n (%), Median (IQR) or M±SD		
Gender	Female	18 (90.0)	19 (95.0)	0.36	.548
	Male	2 (10.0)	1 (5.0)		
Age (years)		32.25±8.48	31.25±8.03	0.38	.704
Marital status	Single	14 (70.0)	15 (75.0)	0.13	.723
	Married	6 (30.0)	5 (25.0)		
Religion	Yes	6 (30.0)	8 (40.0)	0.44	.507
	No	14 (70.0)	12 (60.0)		
Education	Bachelor	12 (60.0)	15 (75.0)	1.03	.311
	≥Master	8 (40.0)	5 (25.0)		
Length of time (months) worked as a nurse		83.50 (183.25)	101.50 (162.00)	179.50*	.583
Length of time (months) worked at current site		31.50 (86.25)	34.00 (141.75)	151.00*	.192
Department	Inpatient unit	4 (20.0)	8 (40.0)	7.53	.184
	ICU	12 (60.0)	9 (45.0)		
	Operating room	3 (15.0)	1 (5.0)		
	Emergency room	1 (5.0)	2 (10.0)		
Position	Staff nurse	15 (75.0)	17 (85.0)	0.63	.429
	Charge nurse	5 (25.0)	3 (15.0)		
Workplace bullying		1.73±0.47	1.50±0.41	1.62	.113
Interpersonal relationships		3.38±0.50	3.41±0.36	0.20	.841
Symptom experience		1.74±0.70	1.60±0.47	0.72	.475
Turnover intention		3.24±0.94	3.03±0.97	0.70	.486

Exp.=Experimental group; Wait.=Wait-list group; IQR=Interquartile range; ICU=Intensive care units.

\*Mann-Whitney U test.

**Table 3.** Differences of Interpersonal Relationships, Workplace Bullying, Symptom Experience, and Turnover Intention between Experimental and Wait-List Groups (N=40)

Variables	Groups	Pre-intervention	Post-intervention	Sources	F	<i>p</i>
		M±SD	M±SD			
Interpersonal relationships	Exp. (n=20)	3.38±0.50	3.54±0.54	Group	0.30	.587
	Wait. (n=20)	3.41±0.36	3.24±0.48	Time	2.17	.149
				G × T	6.21	.022
Workplace bullying	Exp. (n=20)	1.73±0.47	1.75±0.56	Group	2.68	.110
	Wait. (n=20)	1.50±0.41	1.53±0.38	Time	0.32	.576
				G × T	0.01	.917
Symptom experience	Exp. (n=20)	1.74±0.70	1.70±0.70	Group	0.39	.537
	Wait. (n=20)	1.60±0.47	1.60±0.71	Time	0.11	.762
				G × T	0.11	.762
Turnover intention	Exp. (n=20)	3.24±0.94	2.91±1.08	Group	0.01	.932
	Wait. (n=20)	3.03±0.97	3.18±0.91	Time	0.75	.391
				G × T	5.55	.024

Exp.=Experimental group; Wait.=Wait-list group; G × T=Group × Time.

respectively; in contrast, these means were 1.50±0.41 and 1.53±0.38 in wait-list group. There was no significance between group effect (F=2.68, *p*=.110), within group effect (F=0.32, *p*=.576) or interaction effect (F=0.01, *p*=.917). Thus, hypothesis 2 was re-

jected (Table 3).

### 3) Symptom experience

The mean scores of symptom experience at pre- and post-in-

intervention in the experimental group were  $1.74 \pm 0.70$  and  $1.70 \pm 0.70$ , respectively, while those of the wait-list group were  $1.60 \pm 0.47$  and  $1.60 \pm 0.71$ . There was no significance between group effect ( $F=0.39, p=.537$ ), within group effect ( $F=0.11, p=.762$ ) or interaction effect ( $F=0.11, p=.762$ ). Thus, hypothesis 3 was rejected (Table 3).

#### 4) Turnover intention

The mean scores of turnover intention in the experimental group were  $3.24 \pm 0.94$  and  $2.91 \pm 1.08$  at pre- and post-intervention, respectively; in the wait-list group, the means were  $3.03 \pm 0.97$  and  $3.18 \pm 0.91$ . We observed a significant interaction effect ( $F=5.55, p=.024$ ), but there was no significant difference between group effect ( $F=0.01, p=.932$ ) and within group effect ( $F=0.75, p=.391$ ). Thus, hypothesis 4 was supported (Table 3).

#### 5) Follow-up effect of the CRP

We tested the follow-up effect of the CRP in the experimental group using the linear mixed model. The interpersonal relationships of was 3.40 (95% CI 3.27~3.54) at pre-intervention, which increased to 3.55 (95% CI 3.42~3.68) at post-intervention and was maintained 3.56 (95% CI 3.42~3.69) in 4th weeks after intervention. The mean difference by measurement time was statistically significant ( $F=3.61, p=.037$ ). The workplace bullying score was 1.73 (95% CI 1.53~1.94) at pre-intervention and 1.75 (95% CI 1.54~1.96) at post-intervention. While it had decreased to 1.57 (95% CI 1.36~1.78) at the follow-up period, though the difference was not significant ( $F=2.05, p=.144$ ). The symptom experience score was 1.74 (95% CI 1.54~1.94) at pre-intervention and 1.71 (95% CI 1.51~1.90) at post-intervention, but it slightly decreased to 1.65 (95% CI 1.45~1.85) at the follow-up measurement. However, this difference was not significant either ( $F=0.50, p=.609$ ). Turnover intention had a mean score of 3.20

(95% CI 2.83~3.56) at pre-intervention and 2.80 (95% CI 2.44~3.17) at post-intervention. It increased to 2.83 (95% CI 2.47~3.19) at the follow-up measurement from post-intervention, and this difference was close to statistical significance ( $F=3.17, p=.054$ ). Taken together, these results partially support hypothesis 5 (Table 4).

## DISCUSSION

Workplace bullying causes negative effects not only psychophysical symptoms but also burn out or turnover intention and makes professional nurses leave their workplace. Interpersonal relationship has been reported as a key strategy to prevent workplace bullying [2–5]. In this study, we developed the CRP using nonviolent communication based on improving interpersonal relationship, and evaluated the effect of the CRP on interpersonal relationship, workplace bullying, symptom experience, and turnover intention.

First, the CRP was helpful for improving participants' interpersonal relationships. The CRP that we administered to subjects included communication training based on nonviolent communication for bullying situations. These results confirmed those of previous studies [15–17], wherein nonviolent communication improved individuals' communication and interpersonal relationship skills. Nonviolent communication is a communication technique that emphasizes the importance of empathy for the self and others, and it seeks to promote connection to others through empathizing. In this way, it helps in the development of positive interpersonal relationships [14]. We designed the present intervention based on the premise that bullying is preceded by problems in communication and interpersonal relationships [2]. However, it may also be that bullying causes problems in communication and interpersonal relationships: one study indicated that 55.8% of

**Table 4.** Follow-Up Effects of Cognitive Rehearsal Program in Experimental Group

Variables	Pre-intervention (n=20)	Post-intervention (n=20)	Follow-up effects (n=19)	F	p
	Mean (95% CI)	Mean (95% CI)	Mean (95% CI)		
Interpersonal relationships	3.40 (3.27~3.54)	3.55 (3.42~3.68)	3.56 (3.42~3.69)	3.61	.037
Workplace bullying	1.73 (1.53~1.94)	1.75 (1.54~1.96)	1.57 (1.36~1.78)	2.05	.144
Symptom experience	1.74 (1.54~1.94)	1.71 (1.51~1.90)	1.65 (1.45~1.85)	0.50	.609
Turnover intention	3.20 (2.83~3.56)	2.80 (2.44~3.17)	2.83 (2.47~3.19)	3.17	.054

nurses who had experienced actual bullying eventually had problems in communicating with their colleagues and could not freely express their opinions [23]. Additionally, Taylor [24] argued that dysfunctional nurse-nurse relationships manifest as bullying and have a negative influence on subsequent professional relationships, suggesting that such problems can be resolved through obtaining skills in direct communication and coping techniques related to bullying.

The CRP we used relied on prepared scenarios of bullying situations, role-playing, appropriate communication standards, and re-role-playing, and was helpful to train individuals in coping with workplace bullying. One research demonstrated similar effects for a technique called participatory theatre, which involved the use of scenarios to reduce workplace bullying among Canadian health care workers. This participatory theatre helped subjects in “rehearsing for reality,” and led the majority of study subjects to understand the complexity of workplace bullying and have hope in finding a solution for such situations, should they arise [25]. Another one argued the CR not only increases awareness of bullying, but also provides a safe environment for learning about and training on how to respond to bullying behaviors [12]. These behavioral interventions help identify problems and their solutions, which can then be applied for similar behavioral problems occurring in the future [26]. We suggest that the study subjects might help in identifying the true nature of bullying in their workplaces and reacting in an appropriate manner through their role-playing. In short, it can be concluded that the CRP for bullying situations can help both nurses who have not yet experienced bullying and those who have already experienced it.

It is important to note, however, that the CRP was ineffective in reducing workplace bullying and symptom experience among nurses in this study. We propose two main reasons for this. First, while the determinants of workplace bullying do include nurses’ individual characteristics, such as their personality, the majority comprise organizational factors such as the culture, atmosphere, and leadership of the organization [27]. The CRP of this study only targets individual nurses and is not considered an organizational-level intervention; as such, it likely had no organizational effects. Regarding organizational interventions, Ceravolo et al. [28] aimed at enhancing awareness of bullying and self-assertive communication training with all of the nursing staff from 5 dif-

ferent hospitals in the US over 3 years. Nurses who took part in these workshops found that they could communicate within the nursing organization more openly, and an organizational culture of mutual respect was created. This also significantly reduced incidents of verbal affronts among nurses. Because Ceravolo et al. [28]’s intervention targeted all nursing staff working at hospitals, it seems possible that the effect of bullying reduction was achieved through changes in the atmosphere and organizational culture. Overall, it may be necessary to modify CRP to reflect various influencing factors and provide it at the level of the unit or entire hospital and examine its effect on both the organization and individual levels in follow-up studies.

The second main reason for the lack of effect on bullying is that the variable measurements took place too early after the intervention. Some evidence for this comes from Stagg et al. [13] who provided 2 hours of CR and then measured bullying experience after 6 months—they found that workplace bullying incidents had decreased by around 40% compared to before the CR intervention. However, Stagg et al. [13]’s study had only 10 subjects, had no control group, and measured bullying experience with a single question rather than a standardized tool. Therefore, it would be necessary to perform a stricter experimental study that varies the schedule for examining the effects of CRP on bullying and symptom experience.

The 5 weeks of CRP did help reduce turnover intention in this study. Turnover intention is not an actual behavior, but rather a cognition. This may underlie why this short-term CRP helped bring about changes in the turnover intention but not workplace bullying or symptom experience. Additionally, it is possible that the turnover intention was decreased because of the improved interpersonal relationships after the CRP. Turnover intention among nurses is an important variable predicting actual turnover [29]. According to a study on the workplace bullying experiences and turnover of Danish health care workers conducted over 2 years, nurses who experienced frequent bullying had 2.9 times the odds of turnover intention and 3.1 times the odds of actual turnover compared to those who had not experienced bullying [30]. Nurses’ turnover entails new employment and training costs, thus making it a negative influence on both the organization and society. Turnover intention is a variable influenced by a variety of complex factors, and is sensitive to changes in the

policies and procedures of the organization. Accordingly, one avenue for reducing turnover intention would be to develop policies and procedures based on the CRP.

The importance of this study lies in that it used a randomized controlled trial to examine the effect of the 20-hours CRP on the interpersonal relationships and turnover intention of nurses. Therefore, we suggest that this CRP be actively utilized in nursing education and management as a coping strategy for workplace bullying. Nevertheless, it has several limitations. First, the sample size of this study might be underestimated, we estimated the sample size based on the one group repeated measure ANOVA that we had considered to be of main interest of this study. However, when considering the perspective of the controlled trial, we might have had to estimate it based on 2 group comparison. Second, the intervention was confined to targeting the individual-level factors related to workplace bullying, and it was not considered the influence of organization factors. The lack of an organizational approach, which was a limitation of CRP in this study, needs to be complemented by the development of unit or hospital based programs. Third, the duration of the CRP was long, 10 sessions for 20 hours, and all participants had to gather at the designated site. This can be a burden for nurses, so the length and mode of CRP need to be modified to a more practical form in terms of time and cost. Finally, we did not plan trial registration beforehand, and the trial was registered after the completion of the study.

## CONCLUSION

In this study, we examined the effect of CRP on workplace bullying through a randomized controlled trial. Altogether, the results indicated that the intervention helped improve the interpersonal relationships of nurses and reduced their turnover intention. However, it did not reduce the workplace bullying or symptom experience of nurses. The likely reason for the CRP's lack effect on the latter two variables is the intervention's restriction to individual-level factors; thus, the influence of organizational factors on workplace bullying was not controlled. Furthermore, the evolution of workplace bullying and symptom experience may take some time. Therefore, we suggest providing the CRP on the unit level and examining its effects with a larger

sample over a long period in future studies.

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## CONFLICTS OF INTEREST

The authors declared no conflict of interest.

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