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ORIGINAL ARTICLE

Effectiveness of a Short Program to Improve Emotional Management of Nurse Managers in Japan

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ABSTRACT

The purpose of this study was to develop a short program to improve emotional management abilities of nurse managers and verify its effectiveness. We conducted an interview survey of nurse managers (n = 11) and clarified the challenges perceived by them. We, then, developed a short program to improve emotional management abilities based on findings from the qualitative analysis of the interview survey responses and emotional intelligence, which is a measure of emotional management abilities. This program was tested on 78 nurse managers working in medical institutions in Japan, and its effectiveness was evaluated based on statistical analysis of scores of the emotional intelligence scale (EQS), Anger Arousal and Lengthiness Scale (AALS), and Japanese version of the Five Facet Mindfulness Questionnaire (J-FFMQ) scores measured before, immediately after, and 1 month after the intervention. A total of 38 participants completed the questionnaire surveys at all the three time points. The "Situational" domain score of the EQS ($p < 0.01$), the "AALS total" score ($p < 0.01$), and the AALS "anger lengthiness" subscale score ($p < 0.01$) immediately after the intervention significantly differed from the respective scores before the intervention. The J-FFMQ scores showed significant improvements immediately after the intervention ($p < 0.01$) and 1 month after the intervention ($p < 0.01$). The findings of this study demonstrated the effectiveness of our program in improving mindfulness skills, which are crucial for effective emotional management, and prevent the persistence of anger in nurse managers in Japan, thereby indicating that it can be considered a practical program.

I. Introduction

Nurse managers (NMs) are expected to play an important role in improving nursing care, improving patient satisfaction, fostering a healthy work environment, reducing the turnover rate of nurses[1-5], and contributing to achieve the best results for organizations and patients[5]. However, complex challenges and expectations, such as shift work, long working hours, harassment, low wages, personnel downsizing, and technological stress, have doubled the role of NMs in the past 10 years, consequently exposing NMs to substantial stress related to the occupational responsibilities[2,4,6-8]. Furthermore, the stress experienced by NMs is related to conflicts associated with their position at a level between staff nurses and upper-level management positions[9], inadequate social support[7], loneliness, and conflicts among medical care teams[2].

NMs must appropriately manage emotions to attenuate their stress, improve their mood, and improve the work environment. Emotional intelligence (EI) has garnered attention as a measure of emotional management abilities[10]. EI is defined as the ability to recognize one's own and others' emotions, control one's own emotions, and build appropriate relationships with other individuals[11]. Emotional management is the most important element of healthcare leadership[8,12], and increasing EI of NMs is expected to improve chronic issues in medical settings[13]. Studies have suggested that NMs need to better understand their own emotions and improve their ability to manage negative emotions such as anger to demonstrate effective leadership[8,14,15]. Shirey et al. (2008) reported that NMs with unresolved stress have negative emotions such as anger, guilt, and frustration, among which a feeling of anger has particularly diverse effects ranging from insomnia to physical health troubles such as shortness of breath and muscle tightness[1]. Persistent exposure to work stress and inadequate stress management during work can cause burnout syndrome[7,10]. NMs with burnout syndrome have negative effects on the morale of organizations, nurses' satisfaction with work, retention rate of nurses, and patient outcome, which together adversely affect organizations[16].

EI is an intellectual capacity that can be increased through learning[11]. EI has been associated with subjective happiness, business performance, mental and physical health, development of healthy relationships, anger control, problem-solving skills, and effective leadership[17-19]. Training programs based on the EI theory have been examined in the fields of education, business, and sports to improve EI[20]. In the field of medicine, multiple programs to improve EI have been developed. Specific examples include programs for physicians[21-24], nursing students[25-29], nurses[30], and NMs[31]; however, studies on programs for NMs are considerably fewer than that on the others. Among these programs, an EI education program for nursing students with the validated effectiveness requires student participation for 8 months[29]. Sharif et al. conducted a randomized controlled study on effects of EI education on health status in 25 ICU nurses. They evaluated participants' EI scores and general health conditions before, immediately after, and 1 month after a 2-day

workshop based on a characteristics model of the EI theory and demonstrated the effectiveness of the workshop through improved EI scores and general health conditions immediately and 1 month after the intervention[30]. Previously, Frias et al[31]. Provided a 2-hour training program session to 45 NMs. In this session, EI experts delivered lectures on EI and instructed the participants on how to develop action plans to incorporate acquired skills into daily operations. Furthermore, e-mails were sent by researchers for 4 months to ensure that EI is effectively established. The result showed that although there was a tendency for the EI score to increase after the intervention, the difference was not statistically significant. This finding indicated that the 2-hour EI program for NMs was not sufficiently effective.

To summarize, strategies to improve EI of healthcare professionals have been studied; however, concrete strategies to improve emotional management abilities of NMs including EI require further elucidation. Furthermore, the previously reported programs to improve EI required healthcare professionals to attend multiple sessions over several days to weeks. When taking the work conditions of NMs into consideration, it is conceivable that NMs find it difficult to complete a program requiring participation for a long term. Therefore, a program to achieve the desired effects in the shortest time possible needs to be developed.

In the present study, we report the development of a short program to improve emotional management abilities of NMs and verification of its effectiveness. A short program effective to improve emotional management abilities of NMs is expected to contribute not only to stress relief and prevention of burnout syndrome in NMs but also to quality improvement of nursing through improved work environment and staff nurse performance.

In the present study, we aimed to develop a short program (the program) to improve emotional management abilities of NMs and verify its effectiveness.

II. Methods

[Phase 1: Development of the program]
1. Theoretical foundation of the program

The theoretical foundation of the program was the EI theory most commonly examined in a literature review on EI education of nursing students[26]. As part of the theoretical framework, we adopted a mixed model of Goleman et al., which was used for the programs proven effective for improving EI as described above[21,24,32,33]. According to Goleman, EI includes the following four domains: "self-awareness," "self-management," "social awareness," and "relationship management" [11]. "Self-awareness" involves identifying and understanding the emotion experienced by an individual, thereby forming the foundation of EI[32]. "Self-management" involves the control of destructive impulses and moods[34], and

emotional control is the core of EI. "Social awareness" refers to consider others' emotions, understand others' perspectives, and show an active interest in others' situations[34]. The "self-awareness," "self-management," and "social awareness" domains are prerequisites for the remaining "relationship management" domain[34]. Therefore, these four domains were adopted to form the framework of the program.

2．Identification of challenges in emotional management that NMs are aware of

To draft the program, we planned to develop an effective program by first clarifying emotional management-related challenges perceived by NMs and then developing a program reflecting such challenges. After making a request for cooperation at an annual conference of The Japan Academy of Nursing Administration and Policies, an event where many NMs had gathered, we recruited the study participants through the snowball sampling method. A total of 11 NMs working in general hospitals, psychiatric hospitals, and geriatric facilities subsequently consented to participate in the study. We conducted an interview survey of 11 NMs. Questions in the survey included "What challenges do you see in handling emotions, such as anger, while working?" We identified challenges associated with emotional management from the verbatim transcript, and the challenges were then coded and categorized. The identified challenges in emotional management for NMs while working were categorized as follows: [misunderstanding emotions, inappropriate handling of emotions, and lack of skills to express emotions appropriately] [15]. Therefore, we included contents beneficial for solving these problems in the program.

3．Preparation of the program and its details

We designed the program components to encompass the Goleman's theory, educational contents in previous studies on EI programs, and all challenges clarified in the interview survey. The program contents were reviewed repeatedly through expert meetings conducted by a researcher with extensive experience as an anger management instructor and in the field of nursing management education, a researcher specializing in psychiatric nursing and occupational health nursing, and a researcher experienced in program development. The final draft of the program, which included the abovementioned four modules, was prepared through lectures and group work, and it was estimated to take 6 hours to complete (Table 1).

Module 1 is the program introduction. In continuing education, participants are assumed to be aware of the necessity of learning to effectively fulfill a role in a workplace[35]. The interview survey showed that NMs processed emotions inappropriately, such as "impulsively expressing emotions"[15]. Therefore, Module 1 included emotion-related challenges in medical settings, the reasons for NMs to control their emotions, and harmful effects of impulsively expressing emotions that aided in completing the program.

The theme of Module 2 is "self-awareness." In emotional management, it is important to know characteristics of perception and expression of emotions of oneself. "Self-awareness"

is the first stage of the four components of EI and is useful to effectively connect emotions, behavior, and reaction of nurses[32]. Although suppressing negative emotions was considered a virtue[36], suppression of negative emotions is related to rumination, in which unpleasant events are recalled repetitively, ultimately causing symptoms of depression and anxiety[37]. A typical example of negative emotion is anger, which is an emotion experienced by nurses frequently[38]. The interview survey of NMs identified expression and management of anger as a challenge[15]. Therefore, Module 2 was designed to help participants understand negative emotions including anger, learn processes through which emotions are evoked and irrational cognition that can cause negative emotions, and explore characteristics of self-perception. Module 2 also included group work, in which all participants had opportunities to discuss their experiences with work-related negative emotions and their cognitive characteristics.

The theme of Module 3 was "self-management," which is a core component of EI to control one's own emotions[10]. Challenges related to emotional control experienced by NMs include inappropriate handling of emotions, such as impulsive expression of emotions, deflecting attention from issues, and dwelling on emotions[15]. Therefore, Module 3 was composed of a lecture on mindfulness[39], cognitive transformation[40], and stress management[29], which appeared to be effective for emotional control and avoidance of impulsive reactions. This was followed by group work to share emotions. In particular, mindfulness is considered an important skill for the overall EI beyond "self-management"; this attributable to the fact that mindfulness is related to awareness of emotional states, emotional stability such as the ability to concentrate, and adjustment of emotions[41].

The themes of Module 4 were "social awareness" and "relationship management." NMs are professionally required to possess skills to understand their own emotions and others' emotions, clearly convey intent, and handle negotiations well[34]. Although these skills are essential for NMs to demonstrate their leadership, the interview survey revealed an emotion management-related issue. NMs were confused regarding this issue owing to the fact that they did not know how to express emotions appropriately[15]. Thus, we introduced assertiveness communication to help participants acquire skills to avoid impulsive behavior and appropriately express intents instead of suppressing emotions[42].

<Table 1> Overall outline of the short program to improve emotional management abilities.

Module	EI domain	Goal	Contents	Previous studies	Misunderstanding about emotions	Inappropriate processing of emotions	Lack of skills to express appropriately emotions	Teaching method (time)
1	Introduction	To understand the significance of NMs and emotional control	· Emotion-related challenges in medical settings (Harmful effects of impulsively expressing emotions)	· Reference 35) · Reference 8)	○	○		Lecture (20 minutes)
2	"Self-awareness"	1. To understand emotions that form the foundation of communications	· Role of negative emotions including anger · Process through which emotions are evoked	· Reference 38) · Reference 32)	○	○		Lecture/practice (120 minutes)
		2. To know characteristics of perception and expression of emotions of oneself	· Irrational cognition and one's own tendencies (Sharing negative emotions experienced during work)	· Reference 37)				
3	"Self-management"	1. To be aware of changes in one's own thinking, emotions, and body	· Basic knowledge and practice of Mindfulness	· Reference 39)		○	○	Lecture/practice/group work (180 minutes)
		2. To change one's own irrational cognition	· Cognitive transformation (Sharing cognitive transformation)	· Reference 40)				
		3. To expand the range of stress management strategies	· Significance of stress management and strategy review	· Reference 29)				
4	"Social awareness" "Relationship management"	To acquire skills to appropriately express emotions	· Basic knowledge and practice of assertiveness communication (Avoidance of impulsiveness and non-suppressive communication)	· Reference 34)			○	Lecture/practice/group work (40 minutes)

Rationale for the contents of the program / Issues identified in Phase 1. Reference 15)

[Phase 2: Program implementation]

1. Study design

Uncontrolled before–after study design.

2. Participants

In the present study, NMs were defined as those in positions to supervise staff nurses, such as the director of nursing as an administrative position, head nurse, and chief nurse. After making a request for cooperation at an annual conference of The Japan Academy of Nursing Administration and Policies where many NMs had gathered, we recruited participants in this study using the snowball sampling method. A total of 78 NMs working in medical institutions and nursing care facilities consented to participate and were included in the study.

G*Power[43] was used to calculate the sample size, assuming the use of one-way analysis of variance (for repeated measures), an effect size of 0.25, a significance level of 5%, and a power of 0.8; the resulting sample size was 28.

3. Summary of the EI improvement program implementation

Between June 2016 and February 2017, we conducted anonymous, self-administered questionnaire surveys before the program (baseline) and immediately and one month after the program. Three sets of the survey forms were distributed at the time of the baseline survey. The responses immediately after the intervention were collected via the leaving method at the program venue. The responses 1 month after the intervention were collected via postal mail.

4. Survey items

1) Participant background

As part of the background of participants, we collected the following pieces of information: sex, age, total years of service as a nurse, total years of experience as an NM, type of facility in which the respondent works and number of beds available therein, and job position.

2) Psychological scales used to measure the program effectiveness

We used the following psychological scales as indices to measure the program effectiveness.

(1) Emotional intelligence scale

To measure EI, we used emotional intelligence scale (EQS) unique to Japan, which was developed by Uchiyama. The EQS was designed according to the EI theory proposed by D. Goleman[44]. In addition to "intrapersonal" and "interpersonal" components, the "situational" component constitutes the concept of EI including social skills to handle

situations appropriately[45] .This scale has a clear definition of the concept and structure, with the confirmed reliability and construct validity. As part of the constructs, the following three domains have been defined: intrapersonal, interpersonal, and situational. The scale has a total of 65 questions, and responses are scored on a 5-point scale from "not true at all (0)" to "very true (4)." A higher score indicated a better understanding of emotional challenges and a higher capacity to act.

(2) Anger Arousal and Lengthiness Scale

We focused on anger which was a negative emotion discussed in the semi-structured interview. This scale has been developed in Japan to measure anger in individuals while considering the characteristics of anger expression by Japanese people[46]. It consists of two factors, proneness to anger arousal and tendency toward persistence of anger. There are 13 questions, and the responses are scored on a five-point scale from "not true at all (1)" to "very true (5)." A higher score indicated that a person is more prone to anger arousal and has a higher tendency to maintain anger.

(3) Japanese version of the Five Facet Mindfulness Questionnaire

As discussed above, mindfulness is an important skill pertinent to the overall EI. Therefore, we included a scale that measures the effect of mindfulness in a panel of scales to measure the effectiveness of the program.

The original version of the Five Facet Mindfulness Questionnaire (FFMQ) was developed by Bear et al. (2006) to measure mindfulness, and its Japanese version (J-FFMQ) was prepared by Sugiura et al. (2012) [47]. The FFMQ is commonly used to measure the effect of mindfulness and consists of the following five factors: observing and describing experiences, acting with awareness, nonjudging attitude, and nonreactive attitude. There are 39 questions, and the responses are scored on a five-point scale from "never true (1)" to "always true (5)." Scores for reverse score questions are reversed before calculation of the total score. A higher score indicates a more mindful state.

5. Analysis methods

Program participants who completed all three surveys (at baseline and immediately after and 1 month after the program) with no missing variables were included in analyses. For the summary of participants, we calculated the basic statistics. The statistical method used was the Shapiro–Wilk test to check whether each variable followed a normal distribution prior to each test. We conducted the non-parametric Friedman tests for EQS, anger arousal and lengthiness scale (AALS), and J-FFMQ scores at three time points: before the intervention, immediately after the intervention, and 1 month after the intervention. The **Bonferroni** procedure was used as a post hoc test. We used IBM SPSS Statistics Ver.28 for the statistical analysis with a statistical significance level of less than 5%.

6.Ethical considerations

The study was approved by the research ethics committee of the facility with which the investigators were affiliated at the time (Approval number: H28-006). Participants provided informed consent after they received an explanation on the objective, methods, voluntary nature of participation, freedom to withdraw at any time, protection of personal information to ensure anonymity of participants, and publication of the findings in writing and verbally. Furthermore, we obtained informal consent to the use of EQS, AALS, and the J-FFMQ in this study from the developers of the respective scales. The program was conducted in a pilot test beforehand to confirm considerations necessary to allow subjects to participate in the program comfortably and ensure the psychological safety of participants.

III.Results

1. Program implementation results

The mean number of participants per program session was 15.6 (range, 4–38), and a total of 78 NMs participated in the program. No one dropped out from a program in progress. A total of 38 participants completed all surveys at the baseline, immediately after the program, and 1 month after the program (valid response rate, 48.7%).

2. Participant background

The mean (± SD) number of years of service as a nurse was 23.89 (±6.18) years, whereas the mean number of years of NM experience was 5.97 (±5.01) years. There was only one male participant, and the remaining 37 participants were female (97.4%). The most common age range was 41–50 years (n = 18; 47.4%), the largest number of participants was working in general hospitals and private hospitals (n = 28; 73.7%), and the number of beds available was most commonly in a range of 201–500 (n = 26; 68.4%). The most common job position was the assistant head nurse (n = 17; 44.7%), followed by the head nurse (n = 15; 39.5%) (Table 2).

3. Changes in the scores of the evaluation scales in the program participants

We calculated Cronbach's α values to determine the reliability of the three scales used in the surveys. The alpha was 0.895–0.947 for the EQS, 0.765–0.799 for the AALS, and 0.779–0.862 for the J-FFMQ, showing sufficient levels of reliability.

(1) Changes in the EQS score

The comparisons among the EQS scores at the baseline, immediately after the program, and 1 month after the program showed that scores for factors corresponding to the interpersonal domain, "empathy" ($p < 0.01$) and "altruism" ($p < 0.01$), 1 month after the

program were significantly lower than the respective scores immediately after the program. For the situational domain, the "situational total" score ($p < 0.01$), "situational awareness" ($p < 0.05$), and "flexibility" ($p < 0.001$) scores immediately after the program were significantly higher than the respective baseline scores. For the "situational awareness" ($p < 0.01$), the score significantly increased immediately after the program and then significantly decreased 1 month after the program. However, no significant changes were observed in the "EQS total" score and scores for other factors (Table 3).

<Table 2> Summary of study participants

	Mean	SD	Range
Total number of years of experience as a nurse	23.89	6.18	13~39
Total number of years of experience as an NM	5.97	5.01	1~21

	N	%
Sex		
Female	37	97.4
Male	1	2.6
Age		
30 or younger	0	0
31–40	7	18.4
41–50	18	47.4
51–60	12	31.6
61 or older	1	2.6
Type of hospital		
University hospital	4	10.5
General hospital	15	39.6
Private hospital	13	34.2
Specialty hospital	4	10.5
Clinic	1	2.6
Nursing care facility	1	2.6
Number of beds		
200 or less	7	18.4
201 to 500	26	68.4
501 or more	5	13.2
Position		
Director of nursing	6	15.8
Head nurse	15	39.5
Assistant head nurse	17	44.7

(2) Changes in the AALS score

The comparisons among the AALS scores at the baseline, immediately after the program, and 1 month after the program revealed that the "AALS total" score ($p < 0.01$) and the "anger lengthiness" subscale score ($p < 0.01$) immediately after the program were significantly lower than the respective baseline scores. However, there were no significant changes in the "anger arousal" score (Table 3).

Human **S**ervices

<Table 3> Changes in the mean assessment score of program participants

n = 38

	Before the intervention	Immediately after the intervention	One month after the intervention	X^2 [1]		Multiple comparison
	a	b	c			
	Mean (SD)	Mean (SD)	Mean (SD)			
EQS [2]						
Total	134.3 (36.32)	142.5 (39.32)	135.3 (38.10)	4.200		—
Intrapersonal	45.1 (13.01)	47.3 (13.69)	45.5 (13.27)	3.257		—
Self-awareness	13.1 (4.47)	13.4 (4.58)	12.9 (4.05)	4.394		—
Self-motivation	14.1 (4.17)	14.5 (4.39)	14.1 (4.38)	0.127		—
Self-control	17.9 (5.83)	19.4 (5.55)	18.5 (5.87)	4.482		—
Interpersonal	46.0 (12.42)	48.1 (14.26)	45.1 (13.39)	5.096	†	—
Empathy	15.5 (4.17)	15.9 (4.69)	14.8 (4.33)	10.707	**	b>c **
Altruism	13.7 (4.10)	14.5 (4.73)	13.3 (4.44)	9.521	**	b>c **
Interpersonal relatio	16.9 (5.99)	17.7 (6.13)	17.0 (6.19)	3.796		—
Situational	43.2 (15.40)	47.1 (15.45)	44.8 (14.77)	6.584	*	a<b **
Situational awarene	19.5 (6.23)	21.0 (6.25)	19.8 (6.48)	9.434	**	a<b *, b>c **
Leadership	11.5 (5.33)	12.6 (5.18)	12.1 (4.70)	4.563		—
Situational control	12.2 (4.56)	13.6 (4.59)	12.8 (4.33)	12.144	**	a<b **
AALS [3]						
Total	38.1 (7.60)	36.3 (7.49)	37.2 (8.96)	7.141	*	a>b **
Proneness to anger arous	18.6 (4.27)	18.2 (4.16)	18.0 (4.66)	1.376		—
Anger lengthiness	19.5 (4.30)	18.1 (4.22)	19.2 (5.04)	11.245	**	a>b **
J-FFMQ [4]						
Total	122.5 (14.34)	123.3 (15.65)	128.1 (15.06)	7.750	*	a<c **, b<c **
Observing	24.6 (4.24)	25.4 (3.52)	25.3 (4.27)	0.181		—
Nonreactivity	21.7 (3.90)	22.0 (4.09)	22.5 (3.84)	1.358		—
Nonjudging	24.6 (4.51)	24.7 (4.94)	26.7 (5.42)	4.514		—
Describing	23.6 (5.11)	23.6 (5.99)	24.6 (4.99)	4.075		—
Acting with awarene	28.0 (4.60)	27.5 (4.72)	29.0 (4.45)	3.014		—

*** $P<.001$ ** $P<.01$ * $P<.05$ † $P<.1$

Note: 1) Calculated from the Friedman test followed by Bonferroni post-hoc test. 2) EQS: Emotional Intelligence Scale. 3) AALS: Anger Arousal and Lengthiness Scale.
4) FFMQ: Five Facet Mindfulness Questionnaire

(3) Changes in the J-FFMQ score

The comparisons among the J-FFMQ scores at the baseline, immediately after the program, and 1 month after the program showed that the "FFMQ total" score 1 month after the program was significantly higher than the   scores at the baseline (p <0.01) and immediately after the program (p < 0.01). No significant changes were found in scores for the "observing," "nonreactivity," "nonjudging," "describing," and "acting with awareness" subscales (Table 3). There was a gradual but not significant upward trend in scores on the subscales of "observing," "unresponsive," "uncritical," "describing," and "acting consciously" (Table 3).

IV. Discussion

1. EI and anger in NMs

The participants' mean baseline total score of the EQS, which measures EI, was higher than those in previous studies. Specifically, in a survey of 1,566 society members in Japan[45], the mean scores for total EQS and "intrapersonal," "interpersonal," and "situational," subscales were 118.34 (±35.21), 42.1 (±12.26), 39.2 (±12.54), and 36.6 (±13.13), respectively. In a survey of 701 nurses working in general hospitals,[48] the mean scores for "intrapersonal," "interpersonal," and "situational" subscales of the EQS were 38.2 (±10.65), 40.9 (±12.14), and 32.8 (±12.37), respectively, whereas the mean EQS total score was not reported. These differences show that the participants in this study had a higher level of EI as a group than a population comprising university students and working people or a population of nurses working in general hospitals in Japan.

In this study, the participants' score of the AALS, an index of emotional control which measures a person's anger in terms of the proneness to anger arousal and tendency to maintain anger as a negative emotion, was higher, indicating that they maintain their anger over a long term. Specifically, the mean total AALS scores in 94 Japanese university students[49], 446 healthcare professional course university students[50], and 48 society members[46] were 36.16 (±8.35), 36.9 (±9.0), and 36.15 (±6.87), respectively. The higher mean AALS score of the participants in this study than those of the other populations cited above indicated that NMs are more prone to anger arousal and anger lengthiness than university students and working people in Japan.

2. The effectiveness of the program

Immediately after the short program developed in this study to improve emotional management skills of NMs with a focus on the emotional control-related issues identified via the survey of NMs in Phase 1, significant improvements from the baseline were observed in the anger and EQS "situational" domain scores. Furthermore, a significant improvement a month after the program was noted in the FFMQ total score despite the

Human
Services

fact that the participants underwent the short program only once.

The mean total score for the "situational" domain and mean scores for "situational awareness" and "flexibility" of the EQS increased and decreased the most immediately after the program and 1 month after the program, respectively. The "situational" domain of the EQS measures the ability to withstand changes in situations around a group that include self and others, and this ability is an essential skill for group leaders[45]. Negative emotions such as anger have been reported to narrow the ranges of thinking and actions[51]. Certain relevant contents in this program, such as training on skills to manage anger and focused learning on self-awareness and self-management, may have contributed to improvement of situational awareness skills. However, the decrease in the "situational" domain scores 1 month after the program helped elucidate the issues related to persistence of program benefits.

However, the score for the "intrapersonal" domain of the EQS after the program remained unchanged from that before the program. No changes were observed owing to the fact that the baseline intrapersonal score of NMs was higher than that of society members or nurses as described above. It is possible that intrapersonal and self-awareness skills of NMs were improved through experience of working at a management position. It is also possible that our program did not allow for self-reflection sufficiently. A literature review on the EI and leadership of NMs has reported that NMs with less than 2 years of experience were less competent in emotional management than NMs with longer experiences[52]. We need to verify the program effectiveness in novice NMs who have lower scores on these scales.

Among the EQS items, the "empathy" and "altruism" scores in the interpersonal domain one month after the program were decreased compared to those immediately after the program. The "interpersonal" domain is to evaluate skills to maintain appropriate relationships with others based on the awareness of and empathy with others' emotions[45]. Empathy is the ability to empathize with others; for example, one feels happy when others are happy and cannot ignore problems of someone who discussed the problems together. Altruism means considerations and voluntary assistance, such as not wanting to say anything that would hurt others feelings or willing to participate in volunteer activities. This program did not increase scores of these indices; however, the scores appeared to decrease 1 month after the program. This is the biggest issue of the program. In this study, we placed our focus on the emotional control, of anger in particular, based on the interview survey results. We included contents related to assertive communications; however, we might have placed too much focus on contents related to self-awareness and self-management. To improve the program, we need to incorporate contents designed to improve empathy and altruism.

The scores for questions on mindfulness, which affect the overall EI, were significantly increased immediately after the program and were further increased one month after the program. This is the primary strength of this program. Previous studies have

demonstrated that training intervention based on mindfulness was effective to maintain emotional balance, perceive emotions, accept emotions, and control emotional expressions[38, 53]. Our results demonstrated that the AALS total score and the anger lengthiness score were significantly improved immediately after the program and that the improvements were maintained 1 month after the program. In addition to participants' capability of maintaining mindfulness, the incorporation of emotional challenges perceived by NMs based on the results of the interview survey to identify anger-related issues further improved the effectiveness of the program.

The limitations of this study are as follows. First, the program developed in this study was designed for a small number of survey participants, therefore, the results cannot be generalized. Additionally, large number of responses in the survey may have made it burdensome for NMs to return the survey forms.

Second, there was insufficient information on the background of NMs regarding attributes, such as whether they were certified nursing managers or not and what their educational background was.

Finally, the program developed in this study was limited to short-term effects, with follow-up available only up to 1 month after program completion; as reported by Gorgas et al[21], in some cases there were no significant differences immediately after the short-term intervention and significant improvements after 6 months. Future studies should examine longer-term effects.

Based on the results of the present study, it is necessary to improve the program by utilizing online and other means, analyze the results based on the educational background of NM, review the content of the effectiveness measurement, and verify the effectiveness of the program.

V. Conclusions

We developed a short program to improve emotional management skills of NMs and verified its effectiveness. The findings of this study suggested that one-time intervention might be effective in improving mindfulness skills and preventing persistent anger.

Acknowledgments

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CONTENTS

ORIGINAL ARTICLES

SHORT PAPERS