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Development and Application of Violence Prevention and Coping Program for Nurses in Emergency Department

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This study aims to develop a violence prevention and coping program for emergency department nurses and to validate its effect on their experience of violence and their attitudes to violence The study design was a non-equivalent control group pre-post design. The study period was from April 2021 to October 2022. The experimental group consisted of 38 emergency department nurses from C Advanced General Hospital located in G Metropolitan, and the control group consisted of 38 emergency department nurses from J Advanced General Hospital. After conducting a pre-test of 76 subjects, we identified the educational needs of the subjects was identified, and a team of experts was organized to create the educational content. The Violence Prevention and Coping Program for Emergency Department Nurses was developed for online learning (50 minutes and 20 seconds) and portable mode (10 minutes and 18 seconds) so that the educational content could be applied in a flipped learning manner. The experimental group then participated in an offline class after preliminary study using the online learning content. The offline class applied the program with discussion (2 hours), practice (1 hour), counseling and healing intervention (2 hours), and self-reflection time (1 hour). Compared with the control group, the experimental group had a significant decrease in experience of violence (p=0.040) and a significant improvement in attitude of violence (p=0.025). Therefore, it was confirmed that "The Violence Prevention and Coping Program for Emergency Department Nurse" developed in this study was effective in preventing and coping with violence in the emergency department that nurses experience.

Keywords: Nurse, Emergency department, Experience of violence, Attitude to violence, Flipped learning

1. Introduction

Violence against emergency department medical personnel is a prevalent problem not only in Korea but also in the medical community around the world (Darawad et al., 2015; Ramacciati et al., 2016). According to a domestic study, 72.1% of emergency department nurses were found to be violently assaulted by patients or guardians (Ju et al., 2018). Nurses who experienced violence in the emergency department caused interpersonal disorders such as a

sense of crisis, psychological atrophy, fear, constant threat, and shame, anxiety such as hostility and fear, and various physical symptoms such as headaches, anorexia, and sleep disorders (Stowell et al., 2016; Jeong, 2015). Experience of violence leads to job stress and burnout to emergency department nurses, and has been studied to have a significant effect on intention to leave (Kim et al., 2017; Hwang & Han, 2018). Accordingly, in Korea, in April 2019, the Medical Personnel Assault Prevention Act was legislated to punish up to seven years of imprisonment in case of injury, and imprisonment for life or more than five years in case of medical personnel's death. The Ministry of Health and Welfare has established various measures for hospital-level medical institutions with 100 or more beds, such as installing emergency bells in connection with the National Police Agency, deploying security personnel, mandating medical personnel education, and compliance with safety treatment guidelines and training in medical institution evaluation and certification item (Oh, & Lee, 2021).

However, despite the establishment of legal and institutional devices, violence against medical personnel in emergency departments continues to occur, so emergency department nurses must predict violent patients at an early stage, to preemptively prevent them, and to learn how to properly deal with the occurrence of violence. Looking at previous foreign studies on educational programs that can reduce violence in emergency departments, various short- and long-term policies and educational materials are being developed and applied (Darawad et al., 2015; Ramacciati et al., 2016). However, in Korea, research on the development of emergency department nurses' violence prevention and coping programs remains insignificant (Lee & Sung, 2017; Yang & Kim, (2020), and the results of the studies are inadequate, so follow-up research is urgently needed.

Efficient education methods for emergency department violence prevention require periodic education rather than one-off and formal education, and case-based education applicable to the practical field, not education at the level of principles and guidelines (Darawad et al., 2015; Kim & Kim, (2021). In addition, a violence prevention program operating for emergency department nurses, counseling with experts, and emotional support and empathy from colleagues or superiors should be made multidimensional according to the type of response to violence (Jeong, 2015; Yang & Kim, 2020). Also, a differentiated program that considers the response type to flipped learning, which is effective for the clinical judgment and coping ability of emergency department nurses, is needed (Kang et al., 2021). According to recent research results applying flipped learning, flipped learning is an effective innovative learning method for learning satisfaction, creativity, problem-solving ability, critical thinking, cooperation, and communication (Kang et al., 2021).

The flipped learning method breaks away from the lecture-based class system and combines online and offline learning centered on the learner. In the flipped learning method, learners who receive learners who receive video content online study in advance on their initiative, participate in offline classes to confirm learning contents through interaction and discussion, and supplement and deepen learning. Emergency department nurses have irregular working hours and vary in response to learning, so the flipped learning method is an appropriate teaching method.

In this regard, this study attempted to help emergency department nurses prevent violence through the developed educational program, which includes videos for preventing and coping

with violence by emergency department nurses. The program was administered using the flipped learning method to identify the effect of reducing experience of violence and improving the attitude toward violence.

2. Research Method

2.1. Research Design

This study employed a non-equivalent control group pre-post design to develop and apply the Violence Prevention and Coping Program for nurses in the emergency department and to verify its effect on nurses' experience of violence and their attitude toward violence.

2.2 Recruitment of Subjects

The subjects of the study were nurses recruited in the emergency departments of C and G advanced general hospitals located in G metropolitan, who were willing to participate in the Violence Prevention and Coping Program for nurses in the emergency department and who had experienced violence from patients and caregivers. A total of 70 subjects were needed for the study based on a repeated measures ANOVA using the G*power 3.1 program with a significance level of α=0.05, number of groups=2 (u=1), effect size of .4, and power of .95. However, considering the dropout rate, 38 emergency department nurses from C and G hospitals were recruited, and 76 subjects were used for the final analysis because there was no dropout rate after one year.

2.3. Research Instrument

2.3.1. Experience of Violence

The tool for measuring the experience of violence of emergency department nurses was used after verifying the experience tool by type of violence (Kim & Cho, 2022; Lee & Kim, 2018; Kim & Kyung Hwa, 2019) used in the study of Kim and Cho (2022) through exploratory factor analysis. The tool consisted of 16 questions that categorized the types of violence perpetrated by patients and caregivers into three subareas (verbal abuse, physical threat, and physical attack). Verbal abuse is listed every week, physical threats every month, and physical attacks every year.

In this study, a factor analysis was also conducted to explore instrument validity, and it was found that the number of items for each subtype was 4 (eigenvalue 3.05) for verbal abuse, 5 (eigenvalue 1.53) for physical threat, and 7 (eigenvalue 2.2) for physical attack.

2.3.2. Attitude to Violence

Attitudes to violence among emergency department nurses were measured using the instrument of Cho and Ha, 2017. The questionnaire had a total of 14 questions and consisted of four areas: awareness, response, reaction, and result. In the Awareness area, the higher the score, the higher the notion that any behavior that goes against one's feelings is considered violence.

In the Response area, higher scores indicate a greater likelihood of expressing mental, physical, and social symptoms. In the Reaction area, higher scores indicate a higher possibility

of blaming organizations and institutions for violence, seeing it solely as a matter of institutional policy. In the Result area, higher scores are associated with decreased self-esteem, nursing professionalism, and job satisfaction, and lower scores are interpreted as having the right attitudes to violence.

The reliability of the instrument was 0.87 Cronbach's alpha at the time of development and 0.86 in this study. In terms of reliability per area, for awareness, Cronbach's α=.78, for response, Cronbach's α=.90, for reaction, Cronbach's α=.84, and for result Cronbach's α=.79.

2.4. Research Process

The research progress is shown in Table 1.

Table 1: The Research Progress

Step	Progress	Main contents by Step	Research period
1st	Research approval	▉ Passed the Institutional Review Board(IRB No: 2-7008161 – A-N-01(CNC) 2019-04-03) ▉ Research approval from C & J advanced general hospital of G metropolitan	From April to May, 2021
2nd	Recruitment of Subjects & Pre-test	▉ Recruitment of 76 emergency department nurses at C & J advanced general hospital of G metropolitan ▉ Cadvanced general hospital is placed in the experimental group, and G advanced general hospital is placed in the control group ▉ **Pre-test** : General variable, Experience of violence, Attitude to violence	June 2021
3rd	Development	▉ Needs assessment to develop educational content of Violence Prevent and Coping Program for in Emergency department ▉ Production of educational contents: Making a prototype with educational videos → Verification of content validity by experts → Modification and supplementation → Development of the final version (videos for online classes and personal use)	From July to September, 2021
4th	Application	▉ Application of Violence Prevent and Coping Program for Nurse in Emergency department using the flipped learning method : Online education contents (50 minutes and 20 seconds) are provided to the 38 experimental group so that they can learn in advance→ Face to face class (Discussion, Practice, Counseling, and healing intervention ; total 5 hours/team) → Satisfaction survey after training & self-reflection time	From October 1 to October 29, 2021 Every Friday from 1 pm to 6 pm
5th	Post-test	▉ **Post-test** : Experience of violence, Attitude to violences	October 2022

2.4.1. Development of Emergency Department Nurse Violence Prevention and Coping Program

The development period of the Violence Prevention and Coping Program for nurses in the emergency department was from April 1 to September 29, 2021.

The first step was carried out after the approval of the Institutional Research Board (IRB) of C University. To develop and apply the Violence Prevention and Coping Program for nurses in the emergency department, the cooperation from nursing managers at C and J Advanced General Hospital in G metropolitan was received.

In the second step, participants were recruited and a pre-test was conducted. A total of 76 participants were recruited. Participants were asked to identify training needs for developing the Violence Prevention and Coping Program for nurses in the emergency department. As a result of surveying the educational requirements of emergency department nurses, flipped learning was preferred as the teaching method. For class content, case-based classes and educational content that aroused interest were preferred. It was hoped that the classes would be run by experts in the field.

In the third step, the research team has formed an eight-person educational content team to develop educational content. The team comprised two nursing managers, one emergency nurse, one physical education professor, one emergency department doctor, one psychiatric nursing professor, one patient with an emergency department visit, and one digital content producer. The content development team carefully reviewed domestic and foreign emergency department violence coping manuals, hospital policies and procedures, and medical laws to derive countermeasures. The experience of violence in emergency department nurses is not limited to the individual level but is linked to the system or policy at the hospital organization and national level.

The individual contents were composed of educational content that improved the ability to recognize violence and improved communication methods. Specific details dealt with violence prevention and coping methods such as how to use cushion language (a term to calm anger), explain questions in detail, sympathize with patients or guardians' complaints or pain, learn self-defence techniques, empathizing, leading to visible place of closed circuit (CCTV) in case of crisis and mentioning that it is being recorded during abusive speech.

The health and medical teams' contents consisted of educational content to exchange social support from superiors or colleagues at work with violence prevention and coping methods such as defining responsibilities and roles for preventing violence among emergency department nurses in each hospital, developing a response manual after abusive language and assault situations, attaching warning signs for verbal abuse and assault throughout the emergency department, establishing a hotline (emergency contact facility) between the emergency department and the police, installing CCTV, deploying security guards, and bringing self-defence spray.

The institutional contents provided information on laws and support policies for the prevention of violence toward emergency department medical staff. The contents were composed of information at the national level and beyond the hospital organization. The specific contents included management regulations for medical personnel, strengthening punishment for assault by emergency medical workers, mandatory deployment of 24-hour dedicated security personnel such as police officers and security guards in all emergency departments nationwide, and social awareness conversion and publicity plans.

The specific training content of the Violence Prevention and Coping Program for nurses in the emergency department was validated by five experts (one emergency department doctor, two emergency department nurses, one patient, and a caregiver with experience in the emergency department.) on a scale of 1 to 10. The content validity of the prototype version of the Violence Prevention and Coping Program for nurses in the emergency department had an average of over 0.80.

The Violence Prevention and Coping Program for nurses in the emergency department used for education was developed as an online version (50 minutes 20 seconds) for pre-learning by modifying and supplementing the initial version and including pleasant reviews. In addition, a personal portable version edited with a video of 10 minutes and 18 seconds (54.8 MB) that can be transmitted via a Social Networking Service (KakaoTalk) was developed to enable continuous learning (Figure 1).

Figure 1: The Violence Prevention and Coping Contents for Emergency Department Nurse

2.4.2. Application of the Violence Prevention and Coping Program for Nurses in the emergency department

To apply to the Violence Prevention and Coping Program for nurses in the emergency department, the researchers must hold a license as an emergency advanced practice nurse, a certificate as a flipped learning coaching instructor, and worked as a prevention education instructor for the four major types of violence (sexual harassment, prostitution, sexual violence, and domestic violence). The implementation of the Violence Prevention and Coping content for nurses in the emergency department content to the experimental group was from October 1 to October 29, 2021.

2.4.2.1. Pre -Test

The prep test on general characteristics, experience of violence, and attitudes to violence was conducted to 76 participants from July 19 to July 30, 2021.

2.4.2.2 Experimental Treatment

The experimental group was given 50 minutes and 20 seconds of online content to work with and learn from for seven days from October 1 to October 7, 2021.

The 38 nurses in the experimental group were divided into four teams due to the nature of the emergency department shifts. The research team applied the same program once to each of the four teams from October 8 to October 29, 2021. Face-to-face classes were held every Friday from 1 to 6 p.m. in the lecture hall of College C, with the following order: discussion, practice,

and psychological counseling.

The first section (two hours) was a discussion class, which was conducted by the researcher. The topics of the discussion class were “Talking about my experience of violence”, “What were your psychological, social, and physical symptoms after experiencing violence, and are you okay now”, “What could I have done to prevent the violence that happened to me that day”, “What stories or information would you like to share with me that day”, “What were the feelings of the patient and guardian who perpetrated the violence?”, “What can I do to prevent violence from happening in the future”, “What are my roles and responsibilities if violence happens to a colleague in the future”, “What would you like to see from hospital administrators and emergency department colleagues to prevent violence”, and so on.

The second section (one hour) was led by a physical education professor. Students learned how to recognize violence, how to communicate effectively with agitated patients and their caregivers, and self-defense techniques to deal with violence. A physical education professor and teaching assistant demonstrated in front of them how to respond to violence. The experimental group then practiced how to defend themselves in the event of an assault by playing the role of a patient and a nurse.

The third section (two hours) was devoted to training on psychological counseling and healing intervention, conducted by a professional psychological counselor and a researcher. The experimental group was divided into three teams according to their reaction type to the violence, and tailored counseling and healing interventions were provided. Type 1, the "emotional-physical reaction type," received psychological counseling and supportive healing interventions from a professional counselor to improve self-esteem because they had a strong desire to leave due to the violence. Type 2, the "problem-solving type," received healing interventions because they may not recognize the seriousness of the violence or may use rationalization defense mechanisms. The third type, "emotionally reactive," received a combination of counseling and healing interventions to help them move away from an emotional attitude and professionally treat the patient.

After participating in the Violence Prevention and Coping Program for nurses in the emergency department, the experimental group spent time on education satisfaction and self-reflection. The average satisfaction score was 4.8 points/5 points.

“As I analyzed the root cause of the violence I experienced while working in the emergency department and came up with a solution for the task, I was able to recognize that violence is not an individual problem, but an organizational and social problem.”

“During team learning, we deeply sympathized with the seriousness of violence in the emergency department, and shared ways to deal with it while communicating candidly about our experiences of violence.”

“While receiving education, I experienced the joy of naturally healing the wounds that I had buried in my unconscious due to violence.”

The experimental group was asked not to provide information about educational content to the control group until the post-test one year later, and a personal portable version of online educational content for repeated learning was provided. In addition, the contents of the educational satisfaction survey of the experimental group were shared with the nursing

department of the C Advanced General Hospital, and a hospital-level response plan was proposed.

2.4.2.3 Post -test

The post-test period for the experimental and control groups was from October 4, 2022, to October 28, 2022. Post-test questionnaires measured experiences of violence and attitudes to violence. The control group received the same intervention program after study completion.

2.5 Data Analysis

The collected data was analyzed using Jamovi 1.2.12 version, an open-source statistical analysis program. The general characteristics of the subject were in real numbers and percentage, and the homogeneity test according to the general characteristics was conducted using $\chi 2$ -test and Fisher exact test. Independent sample t-test, ANOVA analysis, and Duncan test were conducted in case of alternative hypotheses for differences in experiences of violence and attitudes to of violence and attitude to violence according to general characteristics. Differences in experiences of violence and attitudes toward violence between the experimental group and the control group were verified for significance within the range of significance level 0.05 using a paired t-test.

3. Results

3.1 Homogeneity Verification of Experimental group and Control Group According to General Characteristics

Table 2 shows the results of preliminary homogeneity verification of general characteristics and measurement variables of the experimental group and the control group. As a result of verifying the homogeneity according to sex, age, marital status, education, clinical experience, career in the emergency department, and position of the experimental group and the control group before applying the Violence Prevention and Coping Program for nurses in the emergency department, there was no statistically significant difference between the two groups, so they were validated as the same group ($p>.05$).

Table 2: Homogeneity Verification of Experimental group and Control group according to General Characteristics

General Characteristics		**Experimental group(n=38)**	**Control group(n=38)**	$\chi^2(p)$
		N (%)	**N (%)**	
Gender	Male	5(71.4)	2(28.6	2.69*(.430)*
	Female	33(47.8)	36(52.2	
Age	≦ 26	9(42.9)	12(57.1)	4.34*(.114)*
	27~32	15(42.9)	20(57.1)	
	≧ 33	14(70.0)	6(30.0)	
Marital status	Not married	29(46.8)	33(53.2)	1.493*(.375)*
	Married	9(64.3)	5(35.7)	
Level of	3-year Bachelor	5(71.4)	2(28.6)	1.43*(.490)*

education	Bachelor	30(47.6)	33(52.4)	
	≧ Master	3(50.0)	3(50.0)	
Clinical Experience	〈 3years	18(43.9)	23(56.1)	2.22*(.529)*
	3~6years	5(45.5)	6(54.5)	
	6~8years	3(60.0)	2(40.0)	
	〉 9years	12(63.2	7(36.8)	
Career in the emergency department	〈 2years	21(55.3)	17(44.7	4.78*(.092)*
	2~3years	5(27.8)	13(72.2)	
	〉 4years	12(60.0)	8(40.0)	
Position	General Nurse	33(49.3)	34(50.7)	.215(.898)
	Charge nurse	3(60.0)	2(40.0)	
	Head Nurse	2(50.0)	2(50.0)	

3.2 Verification of Differences in Experiences of Violence and Attitudes to Violence ACCORDING to General Characteristics

Differences in experiences of violence and attitudes to violence according to the general characteristics are shown in Table 3. When compared by gender, women experienced more violence than men (t=2.31, p=.024), and there was no statistically significant difference in attitudes to violence (t=1.08, p=.283). When compared by age, those aged 33 and older experienced more violence than those under 33 (F=4.99, p=.011), and those aged 26 and younger had less favorable attitudes to violence than those aged 27 and older (F=3.26, p=.048). When compared by marital status, the married group experienced more violence than the unmarried group (t=4.49, p=.001), and there was no statistically significant difference in attitudes to violence between the two groups (t=.42, p=.673). When compared by education, the master's degree holder and above group had more experience of violence than the bachelor's degree holder and below group (F=8.92, p=.007), and attitudes to violence were not statistically different across the three groups (F=.39, p=.689). When compared by education, the master's degree holder and above group had more experience with violence than the bachelor's degree holder and below group (F=8.92, p=.007), and attitudes to violence were not statistically different across the three groups (F=.39, p=.689). When compared by clinical experience, those with more than three years of clinical experience had more experience of violence than those with less than three years (F=7.56, p=.006), and attitudes to violence did not differ statistically among the three groups. When compared by years of career in the emergency department, those with more than two years had a statistically significant higher experience of violence than those with less than two years (F=5.87, p=.006), and there was no statistically significant difference in attitudes to violence between the three groups (F=1.25, p=.298). When compared by position, there were no statistically significant differences in experiences of violence (F=1.67, p=.273) and attitudes to violence (F=.44, p=.661).

Table 3: Verification of differences in Experiences of Violence and Attitudes to Violence according to General Characteristics

General Characteristics		Experience of violence(n=76)		Attitude to violence(n=76)	
		M±SD	t/F(*p*)	M±SD	t/F(*p*)
Gender	Male	1.29±.306	2.31*(.024)* **	3.26±.232	1.08*(.283)*
	Female	1.66±.412		3.14±.295	
Age	≦26	1.51±.358[a]	4.99*(.011)*) **	3.29±.312[a]	3.26*(.048)* **
	27~32	1.56±.399[a]		3.10±.273[b]	
	≧33	1.87±.417[b]		3.09±.257[b]	
Marital status	Not married	1.54±.363	4.49*(.001)* **	3.16±.291	.42*(.673)*
	Married	2.03±.404		3.12±.300	
Level of education	3-year bachelor	1.85±.524[a]	8.92*(.007)* **	3.09±.159	.39*(.687)*
	Bachelor	1.56±.382[a]		3.16±.302	
	≧Master	2.08±.276[b]		3.13±.318	
Clinical Experience	〈 3years	1.44±.340[a]	7.56*(.002)* **	3.21±.274	2.38*(.111)*
	3~6years	1.75±.479[b]		2.98±.235	
	6~8years	1.73±.252[b]		3.15±.378	
	〉 9years	1.92±.377[b]		3.12±.310	
Career in the emergency department	〈 2years	1.47±.382[a]	5.87*(.006)* **	3.20±.293	1.25*(.298)*
	2~3years	1.80±.045[b]		3.08±.298	
	〉 4years	1.76±.350[b]		3.11±.275	
Position	General Nurse	1.60±.416	1.67*(.273)*	3.14±.288	.44*(.661)*
	Charge nurse	1.89±.373		3.28±.416	
	Head Nurse	1.81±.369		3.09±.147	

*p<0.05

3.3 Effects of the Violence Prevention and Coping Program for Emergency Department Nurses on Experience of Violence

Table 4 shows the effects of the Violence Prevention and Coping Program on nurses in the emergency department nurses on experience of violence. The score of experience of violence of …for nurses in the emergency department the experimental group decreased by 0.69 points from 1.54±.468 points before the experimental treatment to 0.85±.531 points after the experimental treatment, showing a statistically significant difference (t=3.92, p=0.04).

Looking at the scores for each subdomain of the experience of violence in the experimental group, the experience of verbal abuse decreased by 0.83 points in post-test (1.25±.988 points) than pre-test (2.08±1.198 points), showing the largest decrease in the subtypes. A significant difference was shown (t=7.48, p=0.022). Physical threat and physical attack experiences decreased from 1.85±.770 and 0.71±.288 in the pre-test to 1.10±.823 and 0.21±.237 in the post-test, respectively, showing a statistically significant difference p<0.05).

The score of experience of violence in the control group decreased by 0.05 points from 1.56±.348 points in the pre-test to 1.51±.362 points in the post-test, but there was no statistically significant difference (t=.94, p=.352).

Table 4: Effects of the Violence Prevention and Coping Program for Emergency Department Nurse on Experience of Violence

	Experimental group(n=38)			Control group(n=38)		
	Pre -test (M±SD)	Post -test (M±SD)	t(*p*)	Pre -test (M±SD)	Post -test (M±SD)	t(*p*)
Experience of Violence	1.54±.468	0.85±.531	3.92*(.041)**	1.56±.348	1.51±.362	.94*(.352)*
Verbal abuse (week)	2.08±1.198	1.25±.988	7.48*(.022)**	2.08±.733	2.04±.863	.39*(.172)*
Physical threat (month)	1.85±.770	1.10±.823	5.01*(.030)**	1.91±.606	1.58±.551	1.15*(.255)*
Physical attack (year)	0.71±.288	0.21±.237	3.35*(.048)**	0.69±.156	0.69±.317	.57*(.571)*

* $p<0.05$

3.4. Effect of the Violence Prevention and Coping Program for Emergency Department Nurses on Attitudes to Violence

Table 5 shows the effect of the Violence Prevention and Coping Program on nurses in the emergency department on attitude to violence. The score of attitudes to violence of the experimental group decreased by 0.74 points from 3.29±.252 points in the pre-test to 2.55±.243 points in the post-test, showing a statistically significant difference (t=5.60, p=.025). Looking at the scores of the violence attitude subdomains of the experimental group, the Response area significantly decreased by 0.83 points from 2.75±.637 points in the pre-test to 1.92±.804 points in the post-test (t=5.29, p=.013). The Result area significantly decreased by 1.53 points from the pre-test 3.07±.591 points to the post-test 1.54±.619 points (t=9.70, p=.002), whereas, there was no significant difference in the Awareness and Reaction areas (p>.05).

On the other hand, the attitude to violence of the control group decreased by 0.05 points from 3.25±.308 points in the pre-test to 3.24±.654 points in the post-test, but there was no statistically significant difference (t=.77, p=.444). The four subareas of violent attitudes also showed no statistically significant differences between the pre - and post-test(p>.05).

Table 5: Effect of the Violence Prevention and Coping Program for Emergency Department Nurse on Attitudes to Violence

	Experimental group(n=38)			Control group(n=38)		
	Pre -test (M±SD)	Post -test (M±SD)	t(*p*)	Pre -test (M±SD)	Post -test (M±SD)	t(*p*)
Attitude to violence	3.29±.252	2.55±.243	5.60*(.025)**	3.25±.308	3.24±.654	.77*(.444)*
Awareness	3.88±.466	3.33±.484	1.40*(.054)*	3.47±.450	3.51±.470	.12*(.269)*
Response	2.75±.637	1.92±.804	5.29*(.013)***	2.89±.803	2.76±.869	1.82*(.062)*
Reaction	3.44±.694	3.41±.695	1.00*(.324)*	3.78±.496	3.87±.513	1.63*(.091)*
Result	3.07±.591	1.54±.619	9.70(.002)**	2.89±.855	2.83±.931	1.08*(.083)*

* $p<0.05$, ** $p<0.01$

4. Discussion

This study attempted to develop the Violence Prevention and Coping Program for nurses in the emergency department and to apply its effectiveness to experiences of violence and attitudes to violence. The research team developed the said program with case-based, multidimensional content that has not been seen in previous studies and applied it as a flipped learning method. Previous studies on violence prevention and coping programs for healthcare workers in Korea have provided training on how to respond to violence at the individual level, such as laughter therapy, anger management, and medical communication (Lee & Sung, 2017). In this study, online content was developed to facilitate learning on how to respond to violence at the individual, interpersonal, and institutional levels. As a result, the experience of violence of emergency department nurses decreased and the attitude toward violence increased.

Based on the results of this study, in terms of experience of violence, it was found that emergency department nurses with more overall clinical experience or emergency department experience had experienced more violence and exhibited negative attitudes toward violence.

This is consistent with previous domestic research reporting that emergency department nurses with more than five years of experience had experienced more violence compared to those with less than five years of experience (Kim et al., 2017). However, it contrasts with the results of previous overseas studies indicating that new nurses had a higher level of experience with violence than experienced nurses (Ramacciati et al., 2016). Therefore, further research is needed to understand this discrepancy.

The higher level of experience of violence among experienced nurses in this study can be interpreted as an accumulation of personal experience more personal experience of violence due to the duration of their emergency department experience, leading to a higher negative attitude toward violence or assuming a leadership role in the team, which exposes them to more violence opportunities. Furthermore, it is believed that experienced nurses are more likely to perceive various situations in the emergency department as involving violence due to the accumulated experience. However, interpreting the results of emergency department experience of violence based solely on the number of occurrences has its limitations, and it should be interpreted in conjunction with attitudes to violence. Additionally, organizations need to recognize the severity of violence exposure among emergency department nurses and actively implement coping strategies to reduce violence exposure opportunities.

In addition, verbal abuse was the most common type of violence experienced by emergency department nurses, followed by physical threats and attacks, which was similar to the results of other studies in Korea (Kim & Cho, 2022). These results reaffirmed that emergency department nurses frequently experience verbal abuse and physical threats during their work. Therefore, when developing a violence prevention and coping program for emergency department nurses, this study increased the proportion of learning content on communication and behavioral tips to avoid violence in the context of Korean advanced general hospitals. When looking at attitudes to violence in this study, the variable that showed a difference in attitudes to violence based on general characteristics was age. In a study by Ju et al. 2018, there were differences in attitudes to violence according to gender, highest level of education, clinical experience, emergency department experience, position, size of hospital, and type of emergency department as well as age of emergency department nurses, which was somewhat

different from this study. It is necessary to compare the general characteristics and violent attitudes by considering the emergency department nurse's violent response type and the hospital's environmental characteristics.

After applying the emergency department nurse violence prevention and coping program, the experience of violence of the experimental group showed a significant difference in the pre-post scores ($p=.041$). In particular, among the three types of violence, experience of verbal abuse was statistically significantly reduced ($p<0.001$). These results differ from the study by Lee and Sung, 2017, which found no significant reduction in experience of violence measured four weeks after implementing violence prevention and management programs for nurses who had experienced violence. There is a limit to the discussion due to insufficient research on experience of violence in violence prevention and coping programs, but it is necessary to provide educational contents for self-directed learning or to conduct periodic training so that the educational effect does not decrease over time.

In this study, the attitude to violence in the experimental group was 3.29 points before applying the emergency department nurse violence prevention and coping program and 2.55 points after education, showing a positive attitude change, supporting the results of previous studies (Lee and Sung, 2017). However, in 2020 Yang & Kim, it was found that the violence prevention and coping program did not have a positive effect on the attitude toward violence of clinical nurses. Although there are limitations in discussion due to the lack of experimental research on violence prevention and coping programs, the reason why the results of this study had a positive effect on the attitude to violence in the experimental group is that the researcher's suggestions based on previous studies were reflected as faithfully as possible. In particular, the flipped learning method, which has never been tried in Korea, was applied to the emergency department nurse violence prevention and response program to induce the attitude toward violence in a desirable direction. The experimental group was able to efficiently utilize classroom time because they had sufficiently learned the Emergency Department Nurse Violence Prevention and Coping Program before the face-to-face class. The experimental group participating in the face-to-face class was divided into three teams according to the type of reaction to violence, and each team was provided with customized counselling and healing interventions. The experimental group actively participated in the class. Participants were encouraged to return for another class if they wished. After the implementation of the Emergency Department Nurse Violence Prevention and Coping Program, the satisfaction rate of the class was 4.8 out of 5, indicating that the flipped learning class was effective. In addition, it was inferred that the attitude to violence score measured after one year was improved because it was possible to repeat learning through the educational contents of the personal portable version.

Although the "Reaction" subarea of attitudes to violence did not show a statistically significant difference from the Pre-test to the post-test, the Emergency Department Nurse Violence Prevention and Coping program showed an improvement in attitudes to violence through training on how to awareness violence in patients and caregivers in advance and how to respond appropriately.

The limitations of this study are as follows. First, because it was developed for the emergency department nurse in an advanced general hospital in G Metropolitan, some modifications are

needed to apply it as it is educational content for emergency medical workers. Second, the time interval between the pre-test and post-test was designed to be one year due to the violence experience measured in this study. This makes it difficult to control exogenous variables such as the maturity of the experimental group, which may lead to limitations in generalization. Third, given the COVID-19 situation during the study period, there was a high preference for flipped learning teaching methods, so a repeat study is needed to generalize the findings.

5. Conclusion

This study applied a violence prevention and coping program to nurses exposed to the threat of violence from patients and guardians in the emergency department and verified the positive effects on experience of violence and attitude to violence.

The clinical significance of developing a violence prevention and response program for emergency department nurses is threefold. First, the case-based, multidimensional approach enhanced learning interest and focus; Second,, the research team created a 50-minute, 20-second pre-learning video as well as 10 minutes 18 seconds of core educational content for repeated learning; and Third, this is the first study in Korea to apply the flipped learning method to a violence prevention and coping program for emergency department nurses, considering the characteristics of adult learners.

Because the emergency department nurses learned the violence prevention and coping program developed through flipped learning in advance, classroom time was saved and it became a participatory class.

Through this study, the following suggestions are made. First, a highly valid standardized tool that can simply measure the attitude of emergency medical workers to violence in the emergency department is needed. Second, hospital administrators should respond sensitively to the violent situation of emergency department nurses and provide effective educational programs continuously.

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