Evaluation of Aggression Management Training for Nursing Students: A Quasi-Experimental Study

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Nurse Practitioners, Student, Aggression Management.

ABSTRACT

Background: Aggression is a significant problem for nurses in clinical settings. Purpose: To determine the effects of the education given to nursing students on the management of aggressive individuals.Method: This quasi-experimental study was carried out using a nonrandomized, controlled pretest/posttest design with a 3-month follow-up. The study sample comprised 180 students who volunteered to participate in the study. The experimental group participated in an aggression management training program. The Perception of Aggression Scale (PAS) and knowledge of aggression management tests were applied before and after the intervention (immediately and at 3 months). Results: Most of the participants in the experimental group (65.2%) and the control group (54.1%) were aged 19-21 years and most were female. Nearly all of the participants in the experimental group (96.6%) and most of the control group (83.6%) reported having cared for aggressive patients; 49.4% of the participants in the experimental group and 39.3% of those in the control group stated that they had difficulty caring for aggressive patients due to lack of relevant information. The mean post-test PAS functional subscale score was significantly higher in the experimental group than in the control group ($p < .05$). The training significantly improved aggression management knowledge test scores in the experimental group ($p < .05$). Conclusion: Aggression management training helped nursing students perceive aggression as a more acceptable response and increase their knowledge of aggression management. However, training alone was not effective in changing how students would intervene in aggression, their ability to recognize signs of aggression, and their perceptions of aggression as dysfunctional/unacceptable.

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INTRODUCTION

Violence and aggression have increased in healthcare settings in recent years and impact both healthcare personnel and students who share the same working environment (Hopkins et al., 2018). Nursing students are exposed to the aggressive behavior of patients and their relatives during clinical practice. For example, Hallet et al. (2021) investigated nursing students' experiences of violence and aggression and reported that most nursing students experienced non-physical aggression in the past year (81%), over half had experienced physical aggression (56%), and more than one in three had experienced sexual harassment (40%). Many students do not know what to do when confronted with aggression (Nau et al., 2009; Keser Özcan et al., 2014). To avoid the potential adverse physical and psychological effects of these experiences, nursing students must develop their aggression management skills (Keser Özcan et al., 2014; Bilgin et al., 2016; Hallet et al. 2021). In the literature, there are limited studies on improving students' ability to manage aggression in the clinical setting. Addressing this problem early may help prevent burnout, quitting, and physical and mental traumas that may occur during nurses' professional lives (Ridley and Leitch, 2019). Therefore, in this study we aimed to determine whether an aggression management training program would be effective in improving Turkish nursing students' perception of aggression, level of knowledge on aggression management, and aggression management skills.

Illness and hospitalization disrupt an individual's life, removing them from their roles and thus reducing their self-esteem. Problems such as dependence, pain, body alteration, loss of autonomy, separation from family, being in a foreign and often mechanical environment, and disconnection from daily life are threats to the patient's biological, psychological, and social well-being. The perception of this threat can lead to feelings of anger in the patient and their close relatives, and anger that is not appropriately expressed can result in aggressive behavior (Machingura and Lloyd, 2019; Heckemann et al., 2015). This behavior can manifest indirectly (e.g., harming one's possessions) or directly as physical (e.g., punching) or psychological (e.g., verbal insults) aggression (Kazdin, 2000). Studies on health professions have indicated that nurses are at especially high risk in terms of anger and aggression (Magnavita and Heponiemi, 2012; Spector et al., 2014). Nursing students in clinical practice, who spend nearly as much time with patients and their relatives as nurses, are also exposed to this anger and aggression (Taylor, 2000; Beech, 2008; Nau et al., 2007; Keser Özcan et al., 2014; Hallet et al. 2021).

Numerous studies on this issue have clearly demonstrated the scale of this problem for nursing students. Zeller et al. (2006) reported that 26% of student nurses were exposed to aggressive behaviors once a week, 37% felt threatened one or more times, 27% had encountered aggressive patient behavior, and 87% had been subjected to verbal attacks by patients. A study evaluating aggression management among nursing students trained at different clinics in Germany also showed that students experienced stress and had difficulty managing aggressive behaviors when confronted with them (Nau et al., 2007). In a study investigating nursing students' experiences of violence during clinical practice, Tee et al. (2016) determined that the students felt worried, angry, inadequate, humiliated, and embarrassed after these experiences. Magnavita and Heponiemi (2011) found that verbal violence experienced by nursing students leads to psychological problems such as anger, anxiety, irritation, humiliation, helplessness, and dissatisfaction. Budden et al. (2017) found that anxiety and depression were experienced by 71.5% and 53.6% of students, respectively after exposure to such events. In the same study, 32.8% of the students reported a lower quality of care and said they were reluctant to provide care and considered leaving the profession. The results obtained from these studies clearly show that exposure to aggressive behavior from patients and their relatives is not only a problem for nurses working in clinics. In addition to leading to feelings of anger, anxiety, fear, and self-blame and increasing the risk of problems such as depression and post-traumatic stress disorder, somatic and mental health problems in nurses and students exposed to aggressive and angry behavior are directly reflected in patient care due to nurse exhaustion, decreased performance, and reduced quality of care (Needham, Abderhalden, Halfens, et al., 2005; Tee et al., 2016). This may contribute to burnout syndrome and cause new nurses to become alienated from the profession (de Looff et al., 2019).

It has been emphasized in numerous studies that nurses' aggression management skills should be improved to prevent adverse effects both in patients and nurses (Keser Özcan et al., 2014; Bilgin et al., 2016; Hallet et al. 2021). Participation in aggression management training to increase theoretical and practical knowledge both improves knowledge and leads to changes in attitudes toward aggression (Calabro et al., 2002, Beech, 2008). Aggression management training programs have been shown to be effective in promoting positive attitudes towards patient aggression (Jansen et al., 2005; Hahn et al., 2006), and several groups have suggested that skills to manage aggressive individuals should be developed during nursing education (Nau et al., 2007; Heckemann et al., 2015; Hallet et al., 2021).

MATERIALS AND METHODS

Design

This quasi-experimental study was carried out using a nonrandomized, controlled pretest/posttest design with 3-month follow-up.

Setting and sample

The population of the study consisted of 128 second-year students, 121 third-year students, and 83 fourth-year students enrolled in the undergraduate nursing program in the Faculty of Health Sciences at a state university located in the Black Sea region of Turkey. The study sample comprised 180 students who volunteered to participate in the study. Inclusion criteria were being an undergraduate nursing student and volunteering to participate in the study. Exclusion criteria were not being employed in health care, presence of any chronic mental illness, and failure to complete the training and all assessments.

After performing the pretest assessment, the students were assigned to the experimental (n = 90) and control (n = 90) groups by matching for age, gender, and pretest scores. The experimental group then participated in the aggression management training program. The post-test was performed 3 months later.

One of the students in the experimental group was excluded because they did not attend all training program sessions (n = 89) and 29 students in the control group were excluded because they did not fully complete the assessments (n = 61). In addition, the fourth-year students could not be included in the 3-month follow-up because they graduated. Therefore, the study was completed with 64 students in the experimental group and 42 students in the control group.

Ethical considerations

Written approval to conduct this study was obtained from the School of Nursing and from the ethics committee. The purpose of the study was explained to the students and their verbal and written consent was obtained. Students were informed that they had the right to choose not to participate and were free to withdraw from the study at any point, even after the training program had started.

Data collection tools

Personal information form: We prepared this form based on the relevant literature and it consists of questions including the nurse's age, year of study, whether they had encountered angry or aggressive behavior, and the effects they experienced.

Perception of Aggression Scale (PAS): Jansen et al. developed this tool in 1997 and the Turkish psychometric evaluation was conducted by Bilgin, Tülek, and Özcan. The scale includes 29 items with a 5-point Likert-type rating system from strongly disagree (1) to strongly agree (5). The items are divided into two subgroups, functional (acceptable/healthy reaction) and dysfunctional (unacceptable/undesirable aggressiveness) reactions. The average of the item scores is calculated for each subscale. A higher functional subscale score indicates that aggression is perceived as functional/acceptable, while a higher dysfunctional subscale score indicates that aggression is perceived as dysfunctional/unacceptable. In our study, the Cronbach's alpha coefficient of reliability for the scale in the pretest was 0.70 in the experimental group and 0.74 in the control group.

Knowledge of aggression management test: Authors prepared this test based on a review of the literature. The test consists of 10 multiple-choice questions, each with five response options. The questions are related to definitions and types of aggressive behavior, mental illnesses related to aggression, the characteristics of aggressive individuals, theories explaining the etiology of aggression, communicating with aggressive individuals, the approach to patients who pose a risk of violence towards others, the approach to aggressive patients, and nursing diagnoses. In order to understand whether the prepared test is a valid and reliable measurement tool, opinions about the measurement tool were taken from three nursing department teachers who are experts in this field. The test was finalized in line with the feedback received. Afterwards, a pilot study was conducted with 10 students to evaluate whether the questions were understandable. Incomprehensible expressions were rearranged and the test was given its final form.

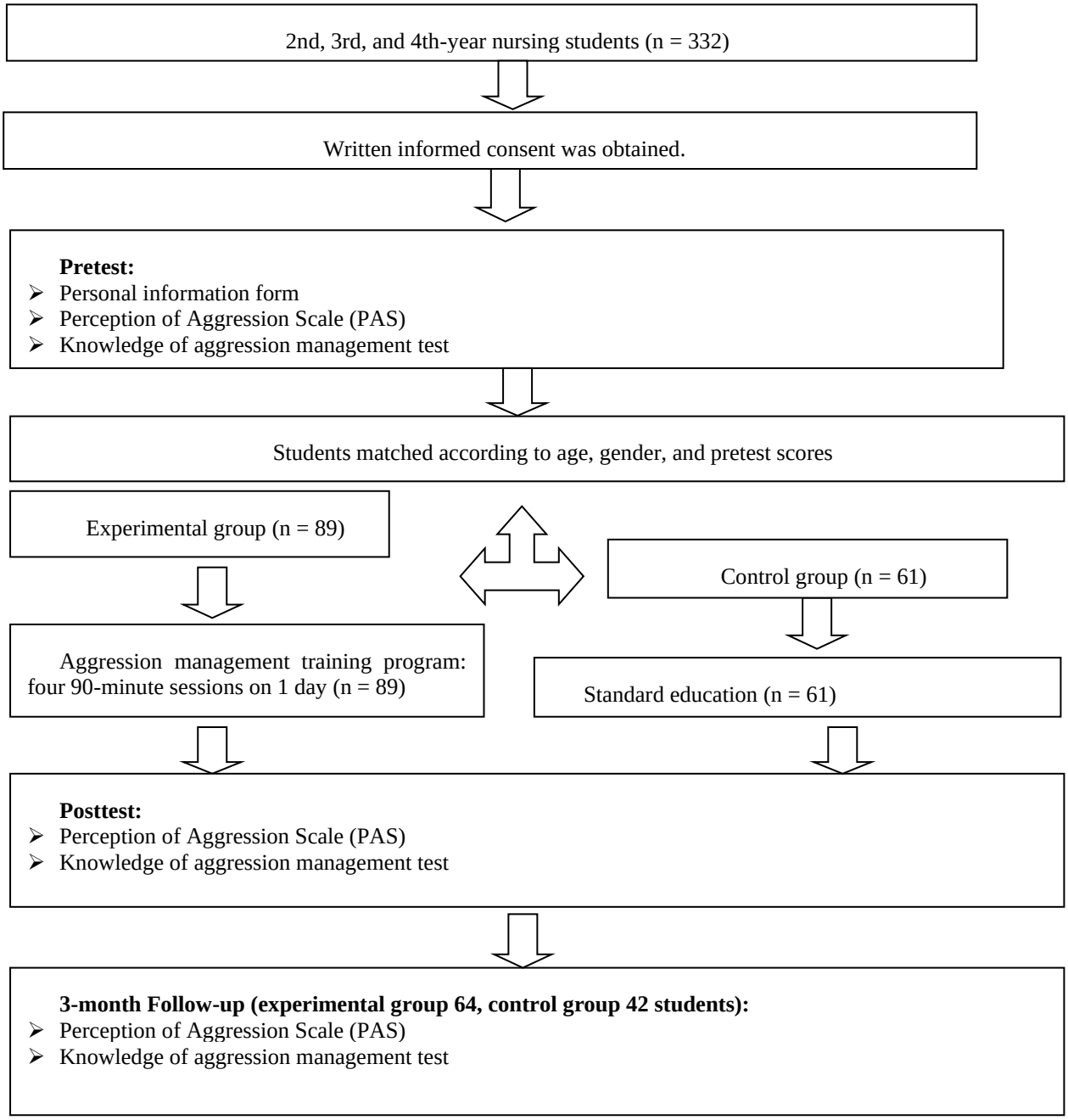

Figure 1. Study process flowchart

Data collection and intervention

The pretest was conducted with all participants. The participants were then assigned to the experimental (n = 90) and control (n = 90) groups by matching for age, gender, and pretest scores (Fig. 1). The aggression management training program was presented to the participants in the experimental group in four 90-minute sessions held on the same day. The training program was presented in the classroom setting and was repeated with groups limited to 30 students per group to encourage student participation in the sessions. Students who completed the training program received a certificate of participation. Posttests were performed with participants in both the experimental and control groups immediately after the intervention and again after 3 months.

The contents of the training program were determined in light of the relevant literature and are described in detail in Figure 2.

Contents of the aggression management training program

Contents	Methods	Objectives
Session 1		
The concepts of anger and aggression Theories explaining the concept of anger and aggression Symptoms of anger and aggression	Instruction Question and answer Brainstorming Discussion Game	Participants will be able to: 1. explain the concept of anger 2. explain the concept of aggression 3. recognize the signs of anger and aggression 4. recognize that anger is a normal reaction
Session 2		
Causes of anger and aggression, Development stages of anger and aggression Approaches according to the development stage of anger and aggression	Instruction Question and answer Brainstorming Discussion Game	Participants will be able to: 1. explain the factors that cause anger and aggression 2. recognize the stages anger and aggression development 3. explain interventions appropriate for different stages of anger and aggression
Session 3		
Evaluation of risk of anger and aggression Nursing diagnoses related to anger and aggression Nurses' approaches when faced with anger and aggression	Instruction Question and answer Discussion Case study Group study Role-play	Participants will be able to: 1. evaluate the risk of anger and aggression 2. identify nursing diagnoses for individuals displaying aggression 3. explain the approach to take when confronted with anger and aggression
Session 4		
Anger and aggression intervention strategies Anger and aggression prevention strategies Evaluation of sessions	Instruction Question and answer Brainstorming Discussion Role-play Game	Participants will be able to: 1. identify interventions that can prevent anger and aggression 2. explain the importance of strategies to prevent the emergence of anger and aggression 3. list anger and aggression intervention strategies

Figure 2. Contents of the aggression management training program

Data analysis

The study data were analyzed using SPSS (Statistical Package for Social Sciences) version 16.0 package program. P value < 0.05 was accepted as statistically significant in all statistical tests. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used in the analysis of sociodemographic characteristics. Normally distributed data were analyzed using analysis of variance (ANOVA) and paired-samples t-test for repeated measures. For non-normally distributed data, the Mann-Whitney U test, Friedman test, and Wilcoxon test were used for analyses and one-way ANOVA with Bonferroni correction was used for repeated measures.

RESULTS

Table 1. Socio-demographic characteristics of students

	Experimental group (n=89)		Control group (n=61)		
	N	%	N	%	Test
Age					
19-21	58	65,2	33	54,1	x^2=1,559
22-24	31	34,8	28	45,9	p=0,212
Gender					
Female	78	87,6	56	91,8	x^2=0,658
Male	11	12,4	5	8,2	p=0,417
Family type					
Nuclear Family	74	83,2	52	85,2	
Extended family	13	14,6	8	13,1	x^2=0,143
Fragmented family	2	2,2	1	1,6	p=0,931
Year					
2. Year	34	38,2	19	31,1	
3. Year	30	33,7	23	37,7	x^2=0,789
4. Year	25	28,1	19	31,1	p=0,674
Income status					
Income equals expense	71	79,8	54	88,5	
Income less than expenses	9	10,1	4	6,6	x^2=2,081
Income more than expenses	9	10,1	3	4,9	p=0,353
Living place					
Province	39	43,8	31	50,8	
Town	34	38,2	15	24,6	x^2=3,199
Village	16	18,0	15	24,6	p=0,202

Most of the participants in the experimental group (65.2%) and the control group (54.1%) were aged 19 to 21 years and most were female (87.6% and 91.8%, respectively). The distribution of second-, third-, and fourth-year students was 38.2%, 33.7%, and 28.1% in the experimental group and 37.7%, 31.1%, and 31.1% in the control group. The participants in both groups were similar in terms of sociodemographic variables ($p > 0.05$) (Table 1).

Table 2. Comparison of mean PAS functional and dysfunctional subscale scores in the experimental and control groups

		Pretest	Posttest	Follow-up		
Group	**n**	**Mean ± SD**	**Mean ± SD**	**n**	**Mean ± SD**	**Test**
Functional						
Experimental	89	3.13 ± 0.59	3.19 ± 0.67	64	2.94 ± 0.70	F = 2.381 p = 0.097
Control	61	2.96 ± 0.52	2.81 ± 0.69	42	2.89 ± 0.54	F = 1.987 p = 0.144
Test		t = 1.726 p = 0.086	t = 3.325 p = **0.001**		t = 0.452 p = 0.652	
Dysfunctional						
Experimental	89	2.61 ± 0.72	3.72 ± 0.44	64	3.61 ± 0.48	F = 50.438 p < **0.001**
Control	61	2.53 ± 0.65	3.68 ± 0.53	42	3.49 ± 0.52	F = 46.814 p < **0.001**
Test		t = 0.681 p = 0.497	t = 0.499 p = 0.619		t = 1.214 p = 0.228	

Nearly all the participants in the experimental group (96.6%) and most of the control group (83.6%) reported having cared for aggressive patients, and smaller proportions (7.9% and 6.6%, respectively) reported being exposed to anger from patients or their relatives. In addition, 49.4% of the participants in the experimental group and 39.3% of those in the control group stated that they had difficulty caring for aggressive patients due to a lack of relevant information.

A comparison of pretest, post-test, and follow-up PAS functional and dysfunctional subscale scores in the experimental group revealed a statistically significant change in dysfunctional subscale scores ($p < 0.05$). Post-hoc comparisons indicated that the posttest and follow-up scores were significantly higher than the

pretest score ($p < 0.001$ for both). There was also a significant difference in pretest, posttest, and follow-up PAS dysfunctional subscale scores in the control group ($p < 0.05$). Similarly, posthoc comparisons showed a significant increase from pretest to posttest ($p < 0.001$) and pre-test to follow-up score ($p = 0.006$) (Table 2).

Table 3. Comparison of total scores on the knowledge of aggression management test in the experimental and control groups

		Pretest	**Posttest**	**Follow-up**		
Group	**n**	**Mean ± SD**	**Mean ± SD**	**n**	**Mean ± SD**	**Test**
Experimental	89	5.97 ± 1.44	7.34 ± 1.21	64	6.78 ± 1.25	F = 20.600 p < **0.001**
Control	61	5.72 ± 1.77	5.55 ± 2.28	42	6.07 ± 1.55	F = 6.898 p = 0.032
Test		MU = 2.537 p = 0.488	MU = 1.097 p < **0.001**		MU = 999.50 p = **0.022**	

The comparison of pretest, posttest and follow-up scores on the knowledge of aggression management test in the experimental and control groups is shown in Table 3. Pretest scores were similar between the groups ($p = 0.488$). In the experimental group, this score increased significantly from pretest to posttest ($p < 0.001$) and decreased significantly between posttest and 3-month follow-up ($p = 0.020$) but remained significantly higher at 3-month follow-up compared to the pretest ($p = 0.003$). In the control group, there was a significant increase from posttest to follow-up ($p = 0.006$). The experimental group had significantly higher scores in the post-test and at the 3-month follow-up when compared with the control group ($p < 0.001$ and $p = 0.022$, respectively).

DISCUSSION

Nursing students spend their practice hours in the hospital and often witness or themselves are involved in aggression toward nurses. Many students do not know how to intervene in such situations and express feelings of helplessness. To address this gap in knowledge, in this study we aimed to evaluate the effectiveness of an anger and aggression management training program for undergraduate nursing students. In our study, 7.9% of the students in the experimental group and 6.6% of the students in the control group stated that they were exposed to anger from patients or relatives. In many studies, nursing students reported experiencing violence and aggression during clinical practice but often did not report it and were affected negatively by these events (Hopkins et al. 2014; Çelebioğlu et al. 2010; Bilgin et al. 2016; Magnavita and Heponiemi, 2011; Hallet et al. 2021).

When the mean PAS functional subscale scores of the students in the experimental group were compared before, after, and 3 months after training, the difference between them was found to be statistically insignificant ($p > 0.05$). The reason for this may stem from the training provided to the students in the experimental group, which involved more theoretical information, the difficulty in transferring theoretical knowledge into practice, and the lack of a mentor in the field. Studies on anger/aggression management suggest that theoretical knowledge alone is insufficient to change perceptions and that seeing examples of good practice is also necessary (Nau et al., 2010; Needham, Abderhalden, Halfens, et al., 2005). It can be said that the training program in our study may have helped students perceive aggression as an acceptable response but was not enough to completely change their perceptions. Similar to our study, Needham et al. (2005) found that there was no significant difference between the experimental group and the control group with respect to aggression management and although the mean score for the PAS functional subscale significantly increased in the experimental group, there was no significant difference compared with the control group. The reason proposed for this was that the scale used lacked sensitivity to measure the change in perception (Needham, Abderhalden, Zeller, et al., 2005).

In our study, PAS functional subscale scores did not differ significantly between the experimental and control groups at pretest or follow-up ($p > 0.05$) but was significantly higher in the experimental group in the posttest ($p < 0.05$). This finding suggests that education on anger and aggression management may not be sufficient to improve positive perceptions of aggression and there may be other factors affecting perception. Indeed, similar results were reported in other studies on nurses' management of aggressive patients. Follow-up tests conducted at different times after training have demonstrated problems in perceptions of aggression, attitudes toward aggression, and emotional coping with aggression, suggesting that training alone was not effective in the long-term improvement of these areas (Heckemann et al., 2015; Needham, Abderhalden, Zeller, et al., 2005). In their

study, Heckenmann et al. (2016) emphasized that providing theoretical knowledge alone is not enough and that learning should be transformed into practice. They also recommended including students' attitudes toward aggressive patient behavior, management of emotions toward aggressive behavior, and skills to cope with aggression in the content of aggression management training programs. In another study of nursing students, Nau et al. (2009) reported that after theoretical and practical training, the students felt competent in dealing with physical aggression from patients but did not feel adequately able to identify the potential for aggression in patients, address psychological aggression, limit aggressive patient behavior, determine methods to use to limit aggressive patients, determine the needs of an aggressive patient, and physically protect themselves from aggressive behavior.

In our study, both the experimental and control groups showed significant increases in mean PAS dysfunctional subscale scores, although there was no significant difference between the groups in any of the tests. The parallel increase in both the experimental and control group may have been due to repeated measurements increasing the students' awareness of this issue and leading to a negative perception of this situation. Similar to our study, Price et al. (2015) conducted a systematic review of 38 studies evaluating the effectiveness of aggression management training and found that training did not have an impact on the development of positive attitudes toward aggression or aggressive patients, that the studies were not adequately strong, and that methods other than education were needed to establish attitude change. Gerdtz et al. (2013) found that aggression management training provided to health workers was effective in providing theoretical information but that staff members were still indecisive regarding patient management after the training. In an intervention study, nursing students were found to have reduced respect for their patients and belief in patients' rights despite anti-aggression training (Beech, 2008).

In our study, nursing students in the experimental group demonstrated improved knowledge of aggression management after training compared to the control group. This finding supports previous studies showing that training on aggression increased nurses' knowledge of aggression management (Heckemann et al., 2015, Heckemann et al., 2016, Nau et al., 2009, Needham, Abderhalden, Zeller, et al., 2005). However, comparison of mean scores in the aggression management interventions test showed that the students in the experimental group had increased knowledge of signs of aggression and intervention skills after training but their scores were not significantly higher than those in the control group. This may be because knowledge alone is not sufficient for skill development. It has been emphasized in many studies that practicing anger/aggression management is necessary to develop these skills (Beech, 2008; Price et al., 2015; Ramacciati et al., 2016). It is encouraging that the students in the experimental group showed improved knowledge regarding intervening with aggressive individuals and recognizing the signs of aggression after the training. A possible explanation for the similar improvement observed in the control group is that the students in the control and experimental groups share the same school environment and may have shared information on this topic. Another possibility is that re-administration of the tests may have led to heightened interest in and research on the subject and increased recall in students in the control group. The results of a review study indicated that the evidence obtained from studies on this subject is weak and that it is necessary to organize the training content, implement interventions with a high level of evidence, and create a safe working environment in order for training to be more effective (Ramacciati et al., 2016). In another similar study, there was a very weak relationship between aggression management training and nurses' sense of competence in managing and coping with aggressive behavior (Hills, 2014).

CONCLUSION AND RECOMMENDATIONS

Training on the management of aggressive individuals helped nursing students perceive aggression as a more acceptable response and increase their knowledge of aggression management. However, training alone was not effective in changing how students would intervene in aggression, their ability to recognize signs of aggression, and their perceptions of aggression as dysfunctional/unacceptable. More comprehensive training programs including both theoretical information and opportunities to practice learned knowledge are needed to influence students' perceptions of aggression and develop their skills in recognizing the signs of aggression and intervening when faced with aggressive behavior.

Violence has become an important problem for the health sector in recent years. It is very important for nursing education institutions to graduate students with the ability to manage violence that they may encounter in their professional lives. In this sense, it is important to teach students the skills of managing aggression. Thus, a possible aggression situation can both be prevented and nurses who encounter these events are not harmed.

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Conflict of Interest:

The authors declare that they have no conflict of interest.

Ethical Approval (Must be answered):

Written approvals from the management of Giresun University Faculty of Health Sciences, Nursing Department, and the Clinical Research Ethics Committee of XX University were received. By the Declaration of Helsinki, participants were informed about the aim of the study, and the study included participants who gave written, informed consent, and they were also informed that they could leave the study at any time.

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