

The Effect of Assertiveness Training on Teamwork Attitudes during Epileptic Seizure Simulation: A Randomized Controlled Study

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Abstract

Objective: This study aims to determine the effect of assertiveness training on teamwork attitudes toward the crisis experienced by a standardized patient during epileptic seizures and on the clinical skills of nursing students.

Methods: This randomized controlled study was conducted following a pre-test–posttest design with an experimental group (n = 15) and a control group (n=14). Data were collected using a personal information form, the Clinical Skills Assessment Form, the Rathus Assertiveness Inventory, and the TeamSTEPPS®-Teamwork Attitude Questionnaire. The study was conducted in 5 stages. In the first stage before training, the personal information form as well as the Rathus Assertiveness Inventory and the TeamSTEPPS®-Teamwork Attitude Questionnaire were administered to both groups. In the second stage, assertiveness training was provided to the experimental group, and in the third stage, training on the management of epileptic seizures was provided to both groups. In the fourth stage, a simulation was done, and the groups' performances were evaluated using the Clinical Skills Assessment Form. Finally, in the last stage, the Rathus Assertiveness Inventory and the TeamSTEPPS®-Teamwork Attitude Questionnaire were re-administered to all groups.

Results: The comparison of the experimental and control groups' pre-test–posttest scores on the Rathus Assertiveness Inventory, the TeamSTEPPS®-Teamwork Attitude Questionnaire, and the subscales of TeamSTEPPS®-Teamwork Attitude Questionnaire indicated that the leadership posttest scores and the Clinical Skills Assessment Form total scores of the experimental group were significantly higher ($P < .05$). The experimental group's Rathus Assertiveness Inventory posttest scores were significantly higher than their pre-test scores ($P < .05$).

Conclusion: It can be concluded that assertiveness training was effective in improving teamwork attitudes, leadership role, and clinical skills based on simulations.

Keywords: Assertiveness, clinical skills, epilepsy, nursing, simulation, teamwork.

INTRODUCTION

Beghi (2020) has emphasized that “Epilepsy is one of the most common neurological diseases which affects people of all ages, races, social classes, and geographical locations.”¹ The indication of the prevalence of epilepsy is shown to be 61.4 per 100 000 person-years,² with a mortality rate of 1.6-3.0 in high-income countries,³ while in developing countries, the annual mortality rate is estimated to be 19.8 (range: 9.7-45.1) deaths per 1000 people.⁴

Sudden unexplained death is most frequently seen in people with generalized tonic-clonic seizures, nocturnal seizures, and drug-refractory epilepsy, while indirect causes of death may include drowning and burns.¹ Development in medical treatment contributes to the decrease in mortality and improvement in prognosis when epilepsy is effectively treated and managed.¹ Management of epileptic seizures, which can cause significant problems affecting an individual's quality of life and causing crisis among teams, requires efficient teamwork. Exhibiting assertive behavior is an essential skill for nurses in a multidisciplinary team for having effective communication with the team.^{5,6} Assertiveness, without being aggressive or withdrawn, means to openly and honestly express feelings, opinions, and beliefs without worrying about or ignoring others' feelings and opinions.^{7,8}

Assertive communication behavior increases nurses' self-confidence, self-esteem, work satisfaction, and performance, enables them to be more independent and better decision-makers, and improves the quality of patient care, interdisciplinary cooperation, and concordance.^{5,9} However, relevant studies show that nurses and nursing students frequently display diffident reactions and do not always show assertive behaviors.^{5,10} Therefore, assertiveness training programs that include behaviorist and cognitive techniques are recommended as a component of team education in healthcare services.¹¹

Assertiveness training is an important strategy for reducing medical errors in healthcare services. When nurses and nursing students believe that something is wrong with a medical procedure or the patient's treatment or clinical status, they should exhibit assertive behaviors to ensure patient

safety rather than avoiding the problem or engaging in other passive behaviors.^{6,12,13} The published reports on patient safety state that medical errors, improper treatments, and delayed treatments occur due to communication problems.^{6,14} Today, about 1 in 20 patients is still exposed to preventable harm in medical care.¹⁵ The causes of these errors include communication problems^{12,16} and inadequate teamwork.¹⁷

As part of patient-centered care, the World Health Organization (WHO) gives importance to teamwork and recognizes inter-professional cooperation as an important element of global health services.^{18,19} The WHO (2017) indicates that team communication is important for the establishment of a safe patient care culture and effective team cooperation.²⁰ Considering that assertiveness is a core communication style during events that threaten patient safety, the WHO indicates that everyone, including students, should speak up for patient safety, behave assertively, and cooperate with team awareness.²¹ If the students' team awareness is improved, they can be enabled to undertake the role of a leader or actively participate in the teamwork under the leadership of the team leader, if necessary. Medical and nursing students are educated as individuals at university; however, when they become employed, they are expected to work as a team in harmony with their own group as well as other occupational groups. Simulation studies are a way for students to acquire team competencies. Wen et al²² stated in their professional team study conducted with students from 4 different occupational groups that simulation training helped improve their cooperation and communication skills and identify their professional roles.

A review of the literature showed studies were devoted to non-technical skills, such as team management, leadership, situation awareness, decision-making, and communication,^{23,24} but there was a lack of studies dealing with the effect of assertiveness training on team management. Acquiring assertiveness skills before graduation is considered to be effective for students to develop team awareness, improve team cooperation, and ensure patient safety. Accordingly, this study aims to determine the effect of assertiveness training on teamwork attitudes toward the crisis experienced by a standardized patient during epileptic seizures and on the clinical skills of nursing students.

METHODS

Population and Sample

This is a randomized control study with an experimental and control group. The population consisted of 60 final-year nursing students who were studying at a university's Faculty of Health Sciences between November and December 2018 and were enrolled in the Internal Diseases Nursing, Surgical Diseases Nursing, and Intensive Care Nursing courses. The sample consisted of 36 students who voluntarily participated in the study and met the inclusion criteria. Experimental and control groups were formed by assigning odd or even numbers to 36 students by a person other than the researchers. The experimental

and control groups were formed by those assigned 18 odd numbers and 18 even numbers, respectively. The study was completed with 29 students since 7 of the students wanted to leave the study (Figure 1). According to PostHoc Power analysis, 14 students in each group were enough for the effect size of the sample with 90% power, 0.05 error rate, and $d = 1.080$ effect size.

Data Collection Tools

The data were collected using a Personal Information Form prepared by the researchers, a Clinical Skill Assessment Form (CSAF), the Rathus Assertiveness Inventory (RAI), and the TeamSTEPS®-Teamwork Attitudes Questionnaire (T-TAQ). The Personal Information Form, RAI, and T-TAQ were filled out by the students. The researcher (responsible author) completed the CSAF form during the simulation sessions.

Personal Information Form

This form was prepared by the researchers and consisted of 12 items regarding the students' personal characteristics and simulation experiences.

Clinical Skills Assessment Form

This 3-point Likert-type form was developed by the researchers.^{25,26} The form (with a total of 12 items) was reviewed by experts who work in the relevant areas in order to check its content and determine whether it covers the target of the study. It includes 12 items concerning the nursing management of epileptic seizures: (1) lifting up bed rails, (2) removing patients' glasses and sharp pencils from their hands, (3) positioning the patients on their left side to facilitate an airway for breathing, (4) checking for the presence of oral secretions, (5) performing oral aspiration, (6) Evaluating oxygen saturation by pulse oximetry, (7) starting nasal oxygen therapy, (8) checking serum glucose value, (9) ensuring good division of labor while managing the seizure, (10) communicating with the doctor, (11) preparing and administering the ordered medications with the correct solutions, and (12) assessing the patient's consciousness and vital signs after the seizure and informing the doctor about them. Items on the form could be answered as sufficient (3 points), partially sufficient (2 points), or needs to be improved (1 point). The lowest and highest total scores on the form were 12 and 66, respectively, and with the higher scores indicating a greater competence.

Rathus Assertiveness Inventory

This 30-item instrument was developed by Rathus²⁷ in 1973 and is used with adolescents and adults. Validity and reliability studies of the RAI were performed in Turkey by Voltan,²⁸ who determined its alpha consistency coefficient as $r = 0.70$ and test-retest reliability as $r = 0.92$. Items 3, 6, 7, 8, 10, 18, 20, 21, 22, 25, 27, 28, and 29 (13 items) defined positive statements, and items 1, 2, 4, 5, 9, 11, 12, 13, 14, 15, 16, 17, 19, 23, 24, 26, and 30 (17 items) defined negative statements. The negative statements were scored from 1 to 6 and the positive statements were scored from 6 to 1. The total score obtained from the positive and negative statements indicated the total score of the inventory. This scale is used to determine the levels of shyness or assertiveness. It has no cut-off score. Higher scale scores (min: 30, max: 180) indicate higher assertiveness levels.²⁸ In our study, the Cronbach's α value of the RAI total score is 0.84.

TeamSTEPS®-Teamwork Attitudes Questionnaire

This questionnaire was developed by Baker et al²⁹ to improve patient safety in healthcare organizations; the questionnaire enables making

MAIN POINTS

- Assertiveness training given in undergraduate education may contribute to team awareness by developing leadership characteristics in students.
- Assertiveness training is effective in developing clinical skills during the simulation.
- Assertiveness should be addressed as a non-technical skill in simulation training.
- It is recommended for future studies to evaluate whether the effect of assertiveness training on team management changes over time.

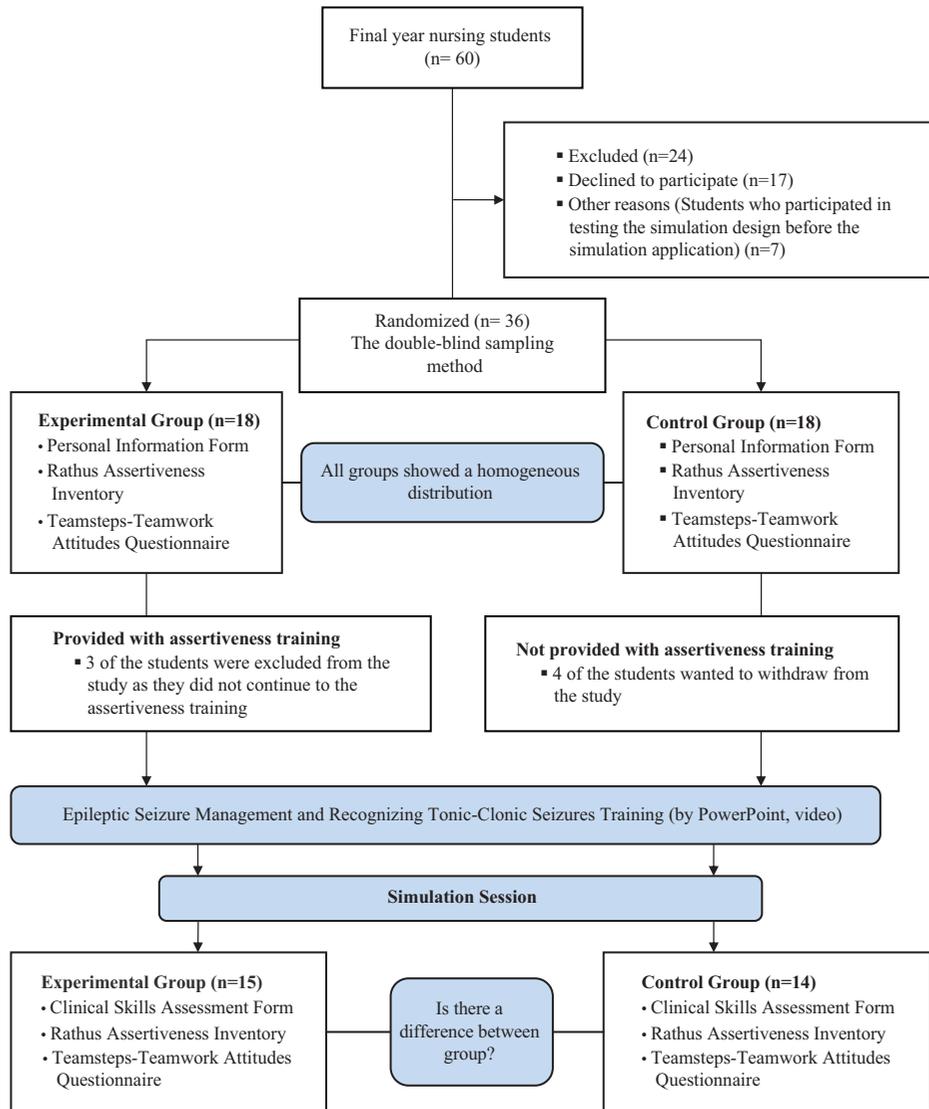


Figure 1. The design of research.

assessments toward teamwork. The questionnaire might also be used following the education provided to develop teamwork to assess the changes in the attitudes of individuals who participated in the training. The original version of the T-TAQ consisted of five 5-point Likert-type subscales with a total of 30 items: team structure (Cronbach's $\alpha = 0.70$), leadership (Cronbach's $\alpha = 0.81$), situation monitoring (Cronbach's $\alpha = 0.83$), mutual support (Cronbach's $\alpha = 0.70$), and communication (Cronbach's $\alpha = 0.74$).²⁹ The scale was scored as follows: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Validity and reliability studies of the T-TAQ were performed in Turkey by Yardımcı et al.³⁰ The Turkish version the T-TAQ scale consisted of five 5-point Likert-type subscales with a total of 28 items: team structure (Cronbach's $\alpha = 0.78$; our study Cronbach's $\alpha = 0.84$), leadership (Cronbach's $\alpha = 0.89$; our study Cronbach's $\alpha = 0.93$), situation monitoring (Cronbach's $\alpha = 0.82$; our study Cronbach's $\alpha = 0.87$), mutual support (Cronbach's $\alpha = 0.70$; our study Cronbach's $\alpha = 0.56$), and communication (Cronbach's $\alpha = 0.79$; our study Cronbach's $\alpha = 0.89$). In our study, the Cronbach's α value of the T-TAQ total score is 0.93. The lowest and highest total scores on this scale were 28 and 140,

respectively. Higher scores on this scale indicated better teamwork attitudes of nurses.³⁰

Ethical Considerations

Institutional permission was obtained from the Dean's Office of the Faculty of Health Sciences (12/28/2017-14), and ethical approval was obtained from the Clinical Studies Ethical Boards (12/28/2017-E.3 1356). Informed written consents were obtained from the participant students. The control group was provided with assertiveness training after the study was completed.

The Research Preparation Phase

Preparation for the Simulation Session

The simulation scenario was formed in line with the International Nursing Association for Clinical Simulation and Learning (INACSL) Standards of Best Practice: SimulationSM Simulation Design (2016) standards.³¹ In the simulation scenario, a 28-year-old patient had been followed in the clinic due to a recent increase in the frequency of seizures uncontrolled by medication. The patient stayed in a two-person

room. When student nurses entered the room to reposition the other patient, they observed that the above-mentioned patient had a newspaper in his hand and was solving puzzles and wearing glasses, and that his bed rails were down. While the student nurses were caring for the other patient, the above-mentioned patient started to have tonic-clonic seizures. The students were expected to remove the patient's glasses and the sharp pencil from his hand, lift up the bed rails, and then position the patient on his left side to facilitate a patient airway, check for the presence of oral secretions, and if necessary, perform oral aspiration, evaluate oxygen saturation, and start oxygen therapy, if needed. Moreover, they were expected to check the blood glucose, check the orders and communicate with the doctor, dilute seizure medication with the correct solutions and administer, assess the patient's consciousness and vital signs after the seizure, and inform the doctor accordingly. Additionally, they were to cooperate and communicate with the team, and one of them was to be a leader and guide the other team members during the scenario.

The simulation design (number of groups, clinical skill field competence, errors unpredictable during the stage of design, material supply, and places) was assessed with 2 groups of 3 and 4 participants. According to the physical conditions of the current simulation laboratory, it was determined that 3-people teams provided a more efficient working environment, a 5-minute scenario was sufficient for managing an epileptic seizure, and there were unforeseen deficiencies in the order of the material and the scenario (such as preparation of medication). The scales were not administered to the students who participated in the pre-application of the simulation where the design was tested, and their clinical skill assessment scores were not included in the study. A confidentiality agreement was made with these students not to share the simulation case content with the other group members.

Execution of the Study and Data Collection

This research was conducted in 5 stages.

Stage I

Before the trainings, the Personal Information Form, RAI, and T-TAQ were administered to both groups.

Stage II—Assertiveness Training

An 8-session assertiveness training was provided to the experimental group in a room with a circular seating arrangement using a group training method for 2 days a week. No experiment was made on the control group. Table 1 shows the content of the assertiveness training and the learning acquisitions of the students (Ustun & Kucuk p.301³²). The training was given by a researcher who was trained in the "Assertiveness Skills Development Group Work Trainer Training." The content of the sessions was beginning, maintaining, and ending communication; verbal and non-verbal messages; effective communication skills; shy, aggressive, and assertive behavior; making and answering requests; being able to say no; making and answering complaints; the language of "I"; expressing positive and negative feelings; expressing similar and different opinions; teamwork; making and accepting compliments; and making acknowledgments and evaluations.

The sessions were composed of 2 separate parts. The first part started with warm-up exercises and an introduction activity. In the following sessions, the previous session and the homework were discussed. The objective of the session and general information about the subject were provided. In the second part of the training, a group study about the subject of the session (doing exercises through role-playing

Table 1. Goals and Achievements of the Assertiveness Training Sessions

| Session | Goal of the Session | Achievements of the Session |
|------------|---|---|
| 1 session | Meeting with participants Introducing the program and explaining its aim Identifying group rules Implementation of pre-tests | Starting, maintaining, and finishing communications Explaining the aim of the group Identifying group rules |
| 2 sessions | Participants being able to identify verbal-non-verbal communication messages and express effective communication skills | Identifying verbal-non-verbal communication messages Expressing effective communication skills |
| 3 sessions | Participants being able to identify timid, assertive, and aggressive behavior | Identifying assertive behavior Recognizing fundamental human rights |
| 4 sessions | Participants being able to make decisions, make assertive requests, and respond to requests, to say no | Making decision Making requests and responding to requests, saying no |
| 5 sessions | Participants being able to express positive and negative emotions with I-language | Using I-language Expressing positive emotions Expressing negative emotions |
| 6 sessions | Participants being able to express agreement or disagreement assertively | Expressing agreement Expressing disagreement without argument |
| 7 sessions | Participants being able to cooperate, compete, praise/compliment, and receive compliment/praise | Cooperating and competing Praising/complimenting and receiving praise/compliment |
| 8 sessions | Participants expressing their opinions about the training, evaluating their assertive behaviors Implementing posttests Giving certificates of participation | Making evaluation |

Source: Ustun and Kucuk.³²

techniques) and closure (planning of the next session and delivery of the homework) were carried out³²

Stage III—Epileptic Seizure Management and Recognition of Tonic-Clonic Seizures Training

The training was provided to the experimental and control groups using PowerPoint and videos about epileptic seizure management and recognizing tonic-clonic seizures. The students were asked to study lecture notes and articles about epileptic seizure management and videos about seizure types before they attended the simulation training. The experimental and control groups were given appointments on the same day for the simulation by a person other than the researchers.

Stage IV—Simulation Session

Without knowing whether they were in the experimental or control group, the researcher (responsible author) who made the clinical skills assessment carried out a standardized patient simulation with the students. The standardized patient role was played by the same person in all simulations. The simulation case study was completed with groups involving 3 participants. The CSAF developed by the researchers was used for the assessment of group case management skills during the simulation applications. After the groups were determined, a simulation case involving a standardized patient was carried out with each group and each simulation was video recorded. Immediately after the simulation, debriefing sessions were carried out separately with each group.

Debriefing Session

The students were asked to leave the patient room and reenter to break their character before they started the debriefing session. The standardized patient gave feedback to the students in line with the feedback techniques and directives provided by the researchers. The debriefing sessions were carried out at a round desk watching the video recordings and took 4 times longer than the simulation. A gathering, analysis, and summarizing (GAS) technique was used for the debriefing, and every group was made to assess themselves. The students were asked the following: “How did you feel during this case?” “What did you do better?” and “What would you do better if you encounter a similar case?” “How do you think you managed the case?” “How was your communication with the team?” “Do you think you were able to give sufficient support to each other during the scenario?” “Did you have a leader during the scenario?” “How do you think your leader managed the case?” “How was your communication with others regarding the changes in the patient status?” and “What were the methods you used to support each other during the simulation?”

Stage V

The RAI and T-TAQ were administered to all groups whose debriefing sessions were completed.

Statistical Analysis

The data were analyzed using the Statistical Package for the Social Sciences software 21 (IBM SPSS Corp.; Armonk, NY, USA) package program. Along with the frequency and percentage distribution, the Mann–Whitney *U* test was used for intergroup comparisons and the Wilcoxon signed-rank test was used for pre-test–posttest comparisons. The significance level was accepted to be 0.05 during the analysis of the results; $P < .05$ referred to a significant difference, while $P > .05$ referred to no significant difference.

RESULTS

The study was completed with 29 final-year nursing students (15 in the experimental and 14 in the control groups). The mean age of the experimental group was 21.80 ± 1.08 years, and 86.7% of the students were female. The mean age of the control group was 21.57 ± 0.85 years, and 78.6% of the students were female (Table 2). Participants were compared according to their age and RAI and T-TAQ pre-test scores, and no significant difference was found between the 2 groups, which were homogeneously distributed ($P > .05$, Table 2). A comparison of the experimental and control groups' pre-test–posttest scores from the T-TAQ and its subscales indicated that the “Leadership” posttest scores of the experimental group were significantly higher than those of the control group ($P < .05$, Table 3). There was no significant difference between the groups in terms of their scores on the T-TAQ or on its subscales ($P > .05$, Table 3). In the control group, the pre-test and posttest scores on the RAI, T-TAQ, and T-TAQ subscales were compared, and no significant difference was found. In addition, no significant difference was found between the RAI total scores of the experimental and control groups ($P > .05$, Table 3); however, the experimental group's RAI posttest scores were significantly higher than their pre-test scores

($P < .05$, Table 3). The CSAF total score of the experimental group was significantly higher than that of the control group after the simulation training ($P < .05$, Table 3).

DISCUSSION

Assertiveness training is important for the development of nurses' and nursing students' autonomy, teamwork, leadership, and assertiveness, to increase the quality of care, to help nurses and nursing students speak up for patient safety, and to prevent medical errors.^{5,6,12} In the present study, the experimental group's assertiveness scores were significantly higher after the assertiveness training. It is reported that assertiveness training given to nursing students is effective in improving assertiveness skills.^{10,33} Nurses need to have assertive behavior to defend the patients' rights, give autonomy to patients, and strengthen patients.³⁴ The integration of assertiveness training into simulation applications will positively contribute to both personal and team cooperation performances of the students. Assertive behavior is very important for the development of nurses' clinical skills and team cooperation.^{6,13}

In this study, the leadership subscale scores and the clinical skill score were higher in the group that received assertiveness training. Developing assertive behaviors in students will be effective in stress management, crisis experiments, making important decisions in a timely manner, and highlighting leadership characteristics within the team. It was stated that simulation training contributes to the improvement of team communication and self-competence. To transfer these skills to the clinical environment, it is important to subject the students systematically and gradually to skill practices including intra-class and internship-based simulations.¹⁸

In a study where multiple patient scenarios were studied, “team condition awareness, team leadership, coordination, and information exchange” were considered as the 4 basic processes required for team performance.³⁵ In the present study, the T-TAQ subscales were team structure, leadership, follow-up, mutual support, and communication. The group that received assertiveness training got a higher post-test score for the mutual support subscale in the present study. Mutual support is defined in the TeamSTEPPS framework as “the ability to anticipate and support team members' needs through accurate knowledge about their responsibilities and workload.”³⁶ Assertive behavior is determined as one of the components of mutual support.³² In the present study, the reason for the experimental group's higher posttest score for the subscale of mutual support may be the fact that assertiveness training also affects that subscale. Since it is important for team performance and patient safety, the mutual support characteristics of nursing students should be supported during nursing education and practices.^{37,38} Leadership is the key to competent nursing teamwork and a catalyst for the sustainability and effectiveness of team training programs.¹⁷ The team leader plays a significant role in supporting healthcare teams' assertive behaviors. Therefore, students' teamwork attitudes, leadership, and assertiveness should be improved by simulation studies and assertiveness training. The clinical skill score of the experimental group was found to be significantly higher than that of

Table 2. Age and Pre-test Score Distributions of Participant Students (N = 29)

| Characteristics | Intervention Group (n = 15) | | Comparison Group (n = 14) | | Mann–Whitney U test | |
|----------------------------------|-----------------------------|---------|---------------------------|---------|---------------------|------|
| | Mean ± SD | Min-Max | Mean ± SD | Min-Max | Z | P |
| Age | 21.80 ± 1.08 | 21-24 | 21.57 ± 0.85 | 20-23 | -0.567 | .571 |
| Rathus Assertiveness Inventory | 121.13 ± 14.21 | 94-141 | 126.43 ± 17.16 | 98-155 | -0.284 | .776 |
| Teamwork Attitudes Questionnaire | 120.53 ± 10.16 | 103-136 | 114.71 ± 20.20 | 56-139 | 94 | .631 |

Table 3. Comparison of the Pre-test and Posttest Scores of the Teamwork Attitude Questionnaire and Its Subscales, the Rathus Assertiveness Inventory, and the Clinical Skill Assessment Form Between Intervention and Comparison Groups (N = 29)

| Questionnaires | | Intervention Group (n = 15) | | Comparison Group (n = 14) | | Mann-Whitney U test | |
|---|----------|-----------------------------|-----------------|---------------------------|----------|---------------------|-------------|
| | | Mean ± SD | Min-Max | Mean ± SD | Min-Max | Z | P |
| Teamwork Attitudes Questionnaire | Pre-test | 120.53 ± 10.16 | 103-136 | 114.71 ± 20.20 | 56-139 | 94 | .631 |
| | Posttest | 119.00 ± 10.64 | 95-131 | 115.64 ± 20.27 | 56-138 | 104.5 | .983 |
| Wilcoxon sign test | | Z = -0.54 | P = .589 | Z = -0.787 | P = .432 | | |
| Team structure | Pre-test | 25.87 ± 3.50 | 15-29 | 24.71 ± 5.03 | 10-30 | 87 | .427 |
| | Posttest | 26.60 ± 2.35 | 23-30 | 25.57 ± 4.82 | 12-30 | 102.5 | .912 |
| Wilcoxon sign test | | Z = -0.191 | P = .848 | Z = -1.671 | P = .095 | | |
| Leadership | Pre-test | 27.13 ± 3.46 | 17-30 | 26.57 ± 5.09 | 11-30 | 103.5 | .947 |
| | Posttest | 29.00 ± 1.77 | 24-30 | 27.07 ± 5.01 | 11-30 | 74 | .149 |
| Wilcoxon sign test | | Z = -2.567 | P = .01 | Z = 1.186 | P = .236 | | |
| Situation monitoring | Pre-test | 27.40 ± 2.50 | 23-30 | 24.86 ± 5.27 | 10-30 | 70.5 | .125 |
| | Posttest | 27.07 ± 2.84 | 23-30 | 25.57 ± 5.47 | 9-30 | 95.5 | .672 |
| Wilcoxon sign test | | Z = -0.447 | P = .655 | Z = -1.398 | P = .162 | | |
| Mutual support | Pre-test | 15.93 ± 3.13 | 11-22 | 16.93 ± 2.95 | 13-25 | 85.5 | .389 |
| | Posttest | 16.47 ± 1.68 | 13-21 | 16.50 ± 3.88 | 11-25 | 93 | .592 |
| Wilcoxon sign test | | Z = -0.698 | P = .485 | Z = -0.851 | P = .395 | | |
| Communication | Pre-test | 22.33 ± 2.58 | 18-25 | 21.14 ± 4.88 | 8-25 | 99 | .789 |
| | Posttest | 21.73 ± 2.58 | 17-25 | 21.43 ± 4.38 | 8-25 | 92 | .565 |
| Wilcoxon sign test | | Z = -0.391 | P = .696 | Z = -0.141 | P = .888 | | |
| Rathus Assertiveness Inventory | Pre-test | 121.13 ± 14.21 | 94-141 | 126.43 ± 17.16 | 98-155 | -0.284 | .776 |
| | Posttest | 131.73 ± 16.23 | 107-163 | 130.14 ± 16.32 | 110-157 | -0.327 | .743 |
| Wilcoxon sign test | | Z = -2.5 | P = .012 | Z = -1.41 | P = .156 | | |
| Clinical Skills Assessment Form | | 49.40 ± 4.37 | 43-56 | 46.21 ± 2.49 | 43-50 | -2.11 | .035 |

P > .05.

the control group. This result can be associated with higher leadership and T-TAQ scores of the group that received the assertiveness training. Several studies suggest that a progressive simulation training program positively affected and increased the knowledge, technical skills, teamwork, and confidence of team members who participated in this program.^{39,40} The WHO suggests simulation practices with different scenarios to improve assertive behaviors of young team members (students), ensure patient safety, and develop their speak-up (assertive) communication skills.²¹ Therefore, academic curricula should be enriched with simulation studies and assertiveness training to develop students' team awareness, leadership, and assertiveness.

Limitations

The study was limited to the year it was conducted and its sample group. Therefore, it cannot be generalized to all students in the nursing department. Although a confidentiality agreement was made with the students, the assertiveness training took a long period, and even with a low probability, the learning outcomes might have been shared among students. As there was no other instructor specialized in the area of simulation, control between the groups was made for the evaluation of clinical skills through the assessment reports of a single person.

CONCLUSION

The assertiveness training in the study contributed to highlighting leadership characteristics. Furthermore, assertiveness training is effective in providing team cooperation and developing clinical skills. Therefore, it is recommended that this issue be supported beginning from the first year of education for students to acquire assertiveness skills early on and to develop these skills in all applied courses and clinical practices. In addition, assertiveness training should be integrated into simulation studies as a non-technical skill. Before admitting the students to the simulation scenarios, they should be provided with assertiveness

training to ensure that they are self-confident, have leadership characteristics, speak up for patient safety, and are good at teamwork. Particularly beginning in the first-year class, prior to skill practices, students' assertiveness levels should be determined, and student groups should be provided with assertiveness training according to their needs. If resources (instructors, training rooms, etc.) are lacking, assertiveness training can be initiated by prioritizing the students who are less assertive. However, merely giving training and administering scales afterward is not sufficient. Assertiveness should also be evaluated in simulation studies, in-class performance, crisis management, and clinical skill practices. In addition, it is recommended that future studies investigate whether the effectiveness of assertiveness training on teamwork attitudes changes over time.

Implications for Nursing Practice

Assertiveness training is an important strategy for reducing medical errors in healthcare services. When nurses and nursing students are not sure of or think that something is wrong with a medical procedure, or the patient's treatment or clinical status, they should exhibit assertive behaviors to ensure patient safety rather than avoiding the problem or engaging in other passive behaviors. Nursing educators may provide assertiveness training to students taking courses on scenario-based simulation training to enhance their preparedness for clinical practice.

Ethics Committee Approval: Institutional permission was obtained from the Dean's Office of the Amasya University Faculty of Health Sciences and ethical approval was obtained from the Amasya University Health Sciences Ethical Boards (Date: 28 December, 2017, Decision No: E.3 1376).

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

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