

Research article

Use of standardized patients in patient education practices of senior nursing students: A mixed-methods study

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ABSTRACT

Background: There is a need for innovative teaching practices in nursing education due to many factors, such as global changes, the rapid development of technology, the increasing number of students, and the recent pandemic.

Objectives: This research was conducted using standardized patients to evaluate the attitudes and skills of senior nursing students toward patient education practices following the implementation of a patient education training program.

Design: Mixed-methods design.

Settings: The study was conducted at a nursing faculty.

Participants: The sample of the study consisted of 47 senior nursing students.

Intervention: The students participating in the study were given a four-hour patient education training that included the preparation of patient education, preparation of materials, and effective presentation.

Methods: A descriptive information form prepared by the researchers, the Patient Education Implementation Scale (PEIS), the Turkish version of the Patient Education Materials Assessment Tool for Printable Materials (PEMAT_{TR-P}), and the presentation skill evaluation form (PSEF) were used to collect quantitative data. Semi-structured interview forms were utilized to collect qualitative data. SPSS for Windows v. 25.0 and MAXQDA20 were used for the data analyses. Results with a *p* value of <0.05 were considered statistically significant.

Results: The post-test mean PEIS scores of the students increased in the total scale and in all subdimensions. A significant difference was found in the understandability and actionability of patient education materials evaluated with PEMAT_{TR-P} (*p* < 0.05). The mean PSEF score of the students was 85.14 ± 9.25 points. Within the scope of the research, two main themes, namely emotions and efficacy, were determined.

Conclusions: This study confirms that structured patient education training, including the use of standardized patients, is important for supporting and developing nursing senior students' attitudes and skills toward patient education.

1. Introduction

Patient education is an integral part of patient-centered care (Forbes and Mandrusiak, 2020). A better understanding of nurses' attitudes toward patient education helps develop strategies to provide effective patient education in clinical practice (Ghorbani et al., 2014). In this context, it is important for nursing students to transfer the educational skills they have gained into nursing practice and use them in their

professional lives by adopting appropriate attitudes concerning these gains. In addition, in today's interdisciplinary and global learning environments, strong presentation skills are invaluable (Smith and Sodano, 2011).

Innovative, efficient, evidence-based pedagogies that empower students to apply their knowledge to patient education skills should be utilized. Accordingly, the use of simulation with standardized patients (SPs) is recommended to improve students' patient education skills,

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clinical knowledge, and communication (Forbes and Mandrusiak, 2020; Sarmasoglu et al., 2016). The use of SPs in nursing education has many advantages, such as providing students with realistic learning opportunities, defining patient needs, reducing anxiety and stress while caring for real patients in clinical practice, and enhancing clinical performance, theoretical knowledge, and self-confidence (Bakan and Azak, 2022; Richard et al., 2018; Sağır Koptaş et al., 2019; Toraman et al., 2023). Studies on patient education training programs have revealed improvements in students' related skills, as well as their academic performance (Forbes et al., 2021; F. Jones and Riazi, 2011), students' knowledge and attitudes (Saba et al., 2014), and self-efficacy and performance (Forbes et al., 2018) in this area.

2. Background

Nurses and nursing students tend to have problems collecting data for the patient education process, setting realistic and achievable goals, preparing and using materials, improving their presentation and teaching skills, and evaluating and recording education (Avşar and Kaşıkçı, 2011; Ghorbani et al., 2014; Gürlek and Yavuz, 2013; Yıldırım et al., 2017). In addition, the inadequate understandability and actionability of the materials used in patient education can have serious consequences by affecting the perception of illness and health-seeking behaviors among patients (Zuzelo, 2019). In addition to these problems, COVID-19 has caused disruption to universities and academic institutions, including schools of nursing, around the world. (Dewart et al., 2020; Lira et al., 2020; Russo et al., 2023). This led to many problems such as practical concerns, reduced learning opportunities, impact on clinical placements, inability to acquire the necessary psychomotor skills through online training, and fundamental doubts about their choice to become a nurse (Kalanlar, 2022; Ulenaers et al., 2021). Therefore, educators must support nursing students in implementing the patient education process. Studies aimed at overcoming these problems have shown the importance of equipping students with the attitudes and skills necessary for patient education through the use of appropriate curricula (Ghorbani et al., 2014). In a systematic review, Forbes et al. (2021), found simulation-based learning to be the most effective among different patient education intervention approaches examined in patient education. A review of the literature reveals many studies on the use of SPs in improving critical thinking (Slater et al., 2016) and therapeutic communication skills (Cahyono et al., 2020; Donovan and Mullen, 2019; Webster, 2014) in undergraduate nursing education and psychiatric nursing education (Conway and Scoloveno, 2022; Donovan and Mullen, 2019; Kameg et al., 2014; Sağır Koptaş et al., 2019; Webster, 2014). However, studies on the use of SPs in improving students' patient education skills are limited (Basak et al., 2019; Coleman and McLaughlin, 2019; Sezer and Orgun, 2019; Torkshavand et al., 2020). In these studies, the patient teaching skills of students for inhaler drug administration (Basak et al., 2019), knowledge, attitudes, and skills concerning elderly patient education (Torkshavand et al., 2020), and patient education knowledge and skills (Sezer and Orgun, 2019) were only examined using quantitative methods. In a study by Coleman and McLaughlin (2019), learning experiences after patient education were evaluated with open-ended questions.

In the current study, a mixed-methods study was conducted using SPs in order to evaluate the attitudes and skills of senior nursing students toward patient education practices after a patient education training program. In this study, students were offered the opportunity to practice their patient education skills with SPs. In contrast to previous studies in the literature, the current research assessed the activities of students regarding patient education in an authentic learning environment created by focusing on multiple dimensions rather than a single skill. In addition, this study is expected to make a valuable contribution to the literature since it is a comprehensive investigation that delved into students' attitudes toward patient education practices, material development and presentation skills, and views and experiences concerning

patient education practices involving SPs.

The hypotheses of the research were as follows:

H_{1.1}. Senior nursing students who have received patient education training have improved attitudes toward patient education.

H_{1.2}. Senior nursing students who have received patient education training have improved material preparation skills.

H_{1.3}. Senior nursing students who have received patient education training have high presentation skills.

The research questions were as follows:

- > What views and experiences do senior nursing students receiving patient education training have concerning the patient education they provide for SPs?
- > What emotions do senior nursing students experience while providing patient education for SPs?

3. Methods

3.1. Design

In this study, the fully mixed, dominant status design, one of the three-dimensional typology types recommended by Leech and Onwuegbuzie (2009) for mixed-methods research, was used. The dominant status design for the study was the quantitative method. The quantitative method employed a quasi-experimental single-group, pre-test-post-test random design to assess senior nursing students' attitudes toward patient education practices and material development skills. The students' presentation skills were evaluated as a single-group, post-test during the SP application after they received patient education training. In the qualitative part of this study, a phenomenological approach was used to explore nursing students' views, experiences and emotions. Focus group interviews were conducted for this purpose.

3.2. Participants and setting

The minimum sample size for the study population was determined by performing a power analysis with the G*Power 3.1.9.7 software. The sample size was calculated as 47 participants based on power $(1-\beta) = 0.91$, type I error $(\alpha) = 0.05$, and Cohen's medium effect size $(d) = 0.50$. Accordingly, the sample of the research consisted of 47 senior students who agreed to participate in the research at a nursing faculty. The 47 students included in the sample participated in both the quantitative and qualitative parts of the research. In the qualitative part of the research, criterion sampling, one of the purposeful sampling methods, was used, and all students who participated in the patient education application were interviewed.

3.3. Intervention

The students participating in the study were given a four-hour patient education training covering the preparation of patient education process, the preparation of patient education materials, and effective presentation. SPs were selected from postgraduate students who had previous SP experience and had taken related courses in their previous education. Each SP was also given a total of four hours of training (Fig. 1). The SPs fulfilled their role in the case scenario and provided feedback for the students at the end of the training program but were not involved in the scoring process.

3.4. Measures

3.4.1. Descriptive information form

This form was prepared by the researchers and consisted of three questions to obtain data on the age, gender, and grade point average of

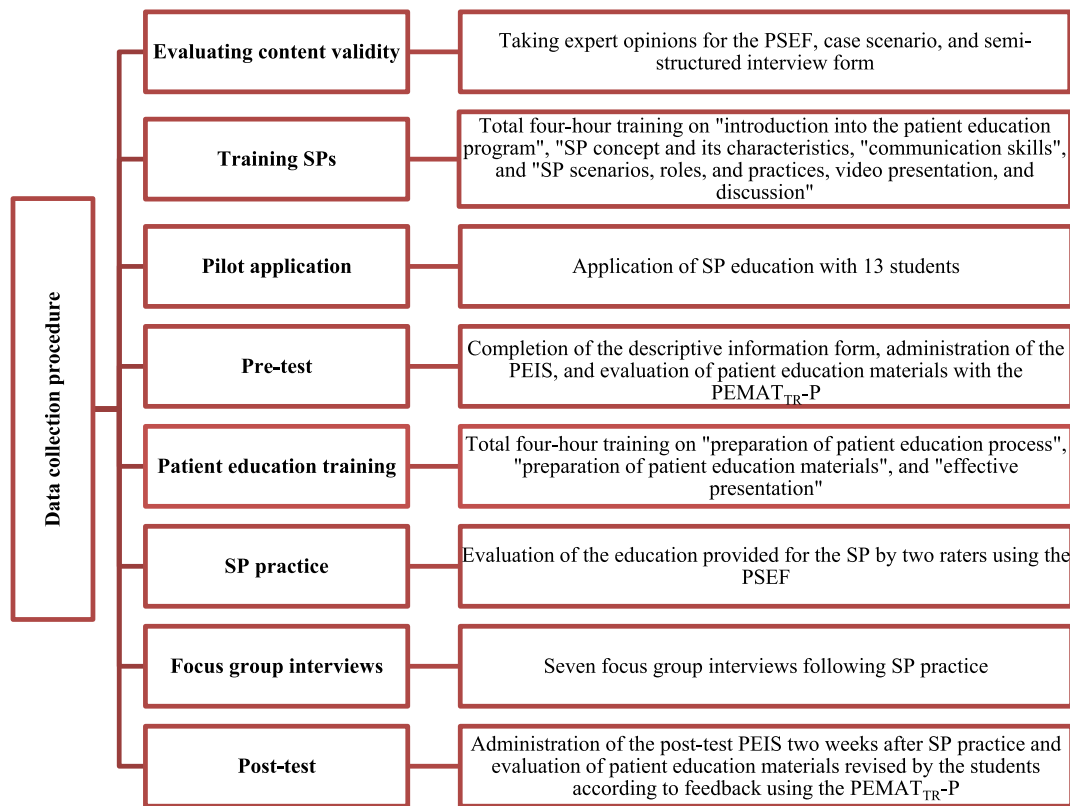


Fig. 1. Data collection procedure.

the student nurses.

3.4.2. Patient Education Implementation Scale (PEIS)

Developed by Şenyuva et al. (2020), the PEIS is a five-point Likert-type scale with 42 items and four subdimensions. The lowest score that can be obtained from the scale is 42, and the highest score is 210. A higher score on the scale shows that nurses carry out patient education activities in line with an effective patient education process Cronbach's alpha coefficient was reported to be in the range of 0.78–0.95 for the subdimensions and 0.97 for the overall scale (Şenyuva et al., 2020). In the current study, the pre- and post-test reliability of the total scale was found to be 0.96.

3.4.3. Turkish version of the Patient Education Materials Assessment Tool for Printable Materials (PEMAT_{TR-P})

The PEMAT was developed by Shoemaker et al. (2014) to evaluate the understandability and actionability of printable and audio-visual patient education materials and adapted to Turkish by Paylan Akkoç and Orgun (2023). In the current study, the Turkish version of the PEMAT for Printable Materials (PEMAT_{TR-P}) was used. The scale consists of two domains: understandability (17 items) and actionability (7 items). In this instrument, each material is evaluated separately out of 100 points in terms of understandability and actionability. The higher the score obtained from the scale, the more understandable or actionable the material is for the patient (Paylan Akkoç and Orgun, 2023).

3.4.4. Presentation skills evaluation form (PSEF)

The PSEF focused on the implementation stage of education and was prepared by the researchers in light of the literature (Bastable, 2021; Demirel, 2017; Forbes et al., 2018; Sönmez, 2017) to evaluate students' patient education presentation skills. This form consisted of 20 items and was evaluated by five experts in terms of the scope, language suitability, clarity, and intelligibility of the items. The content validity indexes of the scale were calculated (Yeşilyurt and Çapraz, 2018) and

found to be 1.00 for all items. The PSEF was evaluated by two raters out of 100 points based on a five-point rating system.

3.4.5. Case scenario

The scenario used in the study was created by the researchers in line with the literature (Çevik, 2021; Karadokovan and Eti Aslan, 2020; Potter and Perry, 2019) and the Healthcare Simulation Standards of Best Practices (Watts et al., 2021). The scenario developed to maximize conceptual suitability was presented to five expert faculty members for evaluation of whether it aligned with the expected student goals, was realistic, logical, consistent, and appropriate for the learning level of the target audience, and provided an adequate level of information. The scenario was finalized after receiving opinions from five faculty members who are experts in their fields. Using the final scenario, a pilot study was conducted with 13 senior nursing students who provided patient education for SPs (Fig. 1). The student feedback received during the pilot study indicated that the scenario was realistic, the information provided was sufficient, and the scenario created the opportunity to practice patient education.

3.4.6. Semi-structured interview form

In line with the purpose of the research, a semi-structured interview form was prepared by the researchers based on the theoretical structure with five expert opinions to be used during focus group interviews. A pilot study was undertaken to assess the clarity and comprehensibility of the interview questions and to determine the mean duration of the interviews. The focus group interview, conducted with the same group of students immediately after the SP pilot study, lasted 15 min. In addition to the three open-ended semi-structured questions, we included three drilling questions: "How did you feel during the patient education you trained for the SPs?", "How would you describe the standardized patient education experience you participated in?", "What are your opinions about the patient education you provide to SPs?" (the semi-structured questions), "Can you explain a little more?", "Why do you think

Table 1
Comparison of the pre-test and post-test PEIS and PEMAT_{TR-P} scores of the students (n = 47).

Scale	Subdimensions	Item no	Min	Max	Pre-test X ± SD	Post-test X ± SD	Z**	p
PEIS	Determining educational needs	4	4	20	17.78 ± 1.71	18.14 ± 1.84	-1.586	0.113
	Assessment and planning	16	16	80	71.55 ± 6.83	74.31 ± 6.12	-2.599	0.009*
	Implementation	14	14	70	63.29 ± 5.59	65.89 ± 5.18	-3.046	0.002*
	Evaluation and documentation	8	8	40	34.55 ± 4.56	36.57 ± 3.82	-3.121	0.002*
	Total	42	42	210	187.19 ± 16.53	194 ± 93 ± 15.47	-3.351	0.002*
PEMAT _{TR-P}	Understandability	17	0	100	80.10 ± 10.29	88.38 ± 8.17	-4.987	0.000*
	Actionability	7	0	100	65.95 ± 17.15	74.04 ± 12.09	-3.839	0.000*

PEIS: Patient Education Implementation Scale; PEMAT_{TR-P}: Turkish version of the Patient Education Materials Assessment Tool for Printable Materials; X ± SD: mean ± standard deviation.

* p < 0.05.

** Wilcoxon signed-rank test.

Table 2
Inter-rater agreement of PEMAT_{TR-P} and PSEF.

PEMAT _{TR-P} domains	r	p
Pre-test for understandability	0.765	0.000*
Pre-test for actionability	0.569	0.000*
Post-test for understandability	0.732	0.000*
Post-test for actionability	0.611	0.000*
PSEF	r	p
PSEF score	0.881	0.001*

r = correlation coefficient.

* p < 0.05.

that?”, and “Is there anything else you want to add?” (the drilling questions).

3.5. Data collection

The research was carried out in the spring term of the 2021–2022 academic year. The detailed data collection process for the research is presented in Fig. 1. Students who prepared printed materials in line with the case scenario and attended the SP application were informed again about the scenario goals. A safe and comfortable environment was provided in the simulation laboratory, in which each student gave the SP

an average of eight to 10 min of patient education individually in line with the scenario.

The qualitative data for the research were collected by focus group interviews held immediately after the SP application. These interviews were held face-to-face in the simulation debriefing room of the faculty of nursing, where the intervention was conducted. The duration of the seven focus group interviews (focus group (fg)1 n = 4; fg2 n = 6; fg3 n = 6; fg4 n = 7; fg5 n = 8; fg6 n = 8; fg7 n = 8) ranged from approximately 13 min to 20 min maximum, totaling 112 min. All interviews were audio-recorded with the permission of the participants. Two researchers were involved in each interview and took notes of their own observations.

3.6. Data analysis

3.6.1. Analysis of quantitative data

For the quantitative data obtained from the data collection tools, descriptive statistics, such as frequency, percentage, and mean values, were obtained using SPSS for Windows v. 25.0. The Wilcoxon signed-rank test was applied to quantitative data that did not show a normal distribution according to the results of the Kolmogorov-Smirnov test. The Spearman correlation analysis was performed to examine inter-rater agreement. Results with a p value of <0.05 were considered statistically

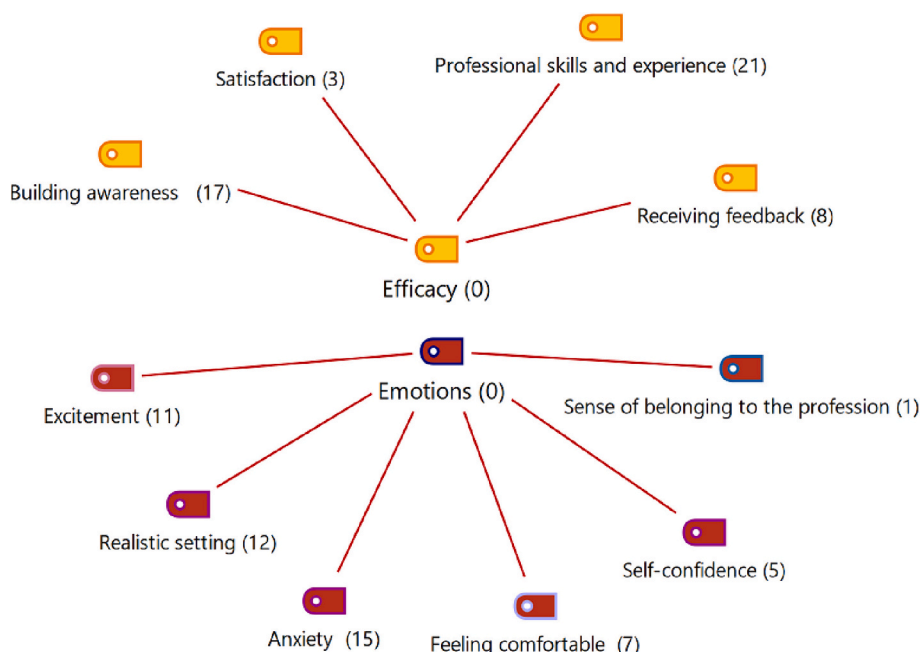


Fig. 2. The themes and the subthemes of the study.

significant.

3.6.2. Analysis of qualitative data

The collected data were analyzed by two different researchers at different times using MAXQDA20, a computer-assisted qualitative data analysis program. In order to ensure the reliability of the qualitative part of the research, sufficient time was allocated for the participants to describe their experiences and feelings during the focus group interviews, taking into account the pilot study. All individuals participating in the study were included in the qualitative part of the research to ensure data saturation. The results were thoroughly assessed by employing identical questions in all interviews. To ensure consistency, the entire audio recording was transcribed. The interviews were independently examined by two researchers, and the transcriptions were cross-checked and analyzed. The themes and sub-themes created by the two researchers were compared by the entire research team to verify the findings and confirmability criteria. Data credibility and confirmability were achieved by the establishment of agreement and consensus among the raters. Themes and sub-themes related to the same coded expressions were gathered for citations. For this purpose, the data were coded, themes were created and classified, and then the data were interpreted within the framework of the identified themes (Creswell and Miller, 2000; Neuman and Robson, 2014).

3.7. Ethical considerations

Ethical approval for this study was obtained from the Scientific Research and Ethics Committee of Ege University (protocol number: 1418, March 31, 2022). In addition, institutional permission was obtained for data collection, informed consent was provided by the participating students and SPs, and necessary permissions were received from the authors who developed the scales to be used in the study.

4. Results

4.1. Sample characteristics

The sample of the study consisted of 47 senior nursing students. The age of the students varied between 22 and 38 years, with a mean value of 23.49 ± 2.32 years. Forty-one (87.2 %) students were female, and six (12.8 %) were male. The weighted grade point average was 2.50–2.99 for 14.9 % ($n = 7$), 3.00–3.49 for 57.4 % ($n = 27$) of the students and 3.50–4.00 for 27.7 % ($n = 13$).

4.2. Quantitative results

4.2.1. PEIS scores

When the mean pre-test and post-test PEIS scores of the students were compared, there was no significant difference in the subdimension on determining educational needs ($Z = -1.586$, $p = 0.013$), but significant differences were found for the assessment and planning ($Z = -2.599$, $p = 0.009$), implementation ($Z = -3.046$, $p = 0.002$), and evaluation and documentation ($Z = -3.121$, $p = 0.002$) subdimensions, as well as the total scale ($Z = -3.351$, $p = 0.002$) ($p < 0.05$) (Table 1).

4.2.2. PEMAT_{TR-P} scores

Patient education materials (brochures) prepared by the students in line with the case scenario were evaluated using the PEMAT_{TR-P} before and after patient education training. According to the results, there were significant differences between the students' pre-test and post-test PEMAT_{TR-P} scores for both the understandability ($Z = -4.987$, $p = 0.000$) and actionability ($Z = -3.839$, $p = 0.000$) domains ($p < 0.05$) (Table 1). In the current study, the patient education materials were examined by two raters. Upon analyzing the inter-rater agreement for PEMAT_{TR-P}, it was observed that there was a moderately strong, statistically significant relationship for the pre-test scores of the

actionability domain and a highly strong, statistically significant relationship for the post-test scores of the actionability domain and the pre-test and post-test scores of the understandability domain ($p < 0.05$) (Table 2).

4.2.3. PSEF scores

The patient education presentation skills of the students were evaluated over 100 points, and their mean presentation skill score was determined to be 85.14 ± 9.25 (min: 61, max: 97.5) points. The Spearman correlation coefficient calculated for the inter-rater agreement for PSEF scores was $r = 0.881$, which was statistically significant ($p = 0.001$) (Table 2). There was a highly significant relationship between the raters.

4.3. Qualitative findings

As a result of the content analysis performed in this study, two main themes were determined: efficacy and emotions. Ten subthemes were identified under these two main themes, which are presented in Fig. 2.

4.3.1. Efficacy

The views of the students under the main theme of efficacy were grouped under four subthemes: professional skills and experience, building awareness, receiving feedback, and satisfaction (Fig. 2).

> Professional skills and experience

Most students considered that with the experience they had gained in SP practices, they also developed various professional skills related to communication, education, and presentation.

"It will be incredibly good for our communication skills..."

(Participant 17)

"...I had never given patient education before. I know the importance of patient education, but I couldn't do it, and I couldn't say anything to anyone. So, it's better that there is something like this simulation".

(Participant 27)

> Building awareness

Most students reported that they recognized their shortcomings in educational practices by making a self-evaluation in their SP practices.

"We feel as if we are communicating one-on-one with the patient... We take our notes, we recognize our own shortcomings..."

(Participant 10)

"I realized that I didn't let the patient ask questions; I talked too much... I became aware of my flaws."

(Participant 1)

> Receiving feedback

Some of the students also referred to the positive effect of the feedback received from the faculty members and SPs on their patient education practices.

"No worries about grades; we just get feedback. This has positive effects".

(Participant 14)

"The patient's feedback helps us to better see our own shortcomings".

(Participant 27)

“My presentation skills have improved, and I now feel more comfortable. For example, I usually stress a lot, but I felt more comfortable here”.

(Participant 36)

> Satisfaction

The realistic nature of the SP practice and students' active participation increased their satisfaction.

“It was like being in a clinical setting. If we did this on a patient dummy, we would not get the mutual interaction...”.

(Participant 13)

“We became used to receiving no response during the pandemic. It was good being interactive”.

(Participant 17)

4.3.2. Emotions

The views of the students under the main theme of emotions were grouped under six subthemes: anxiety, realistic setting, excitement, feeling comfortable, self-confidence, and sense of belonging to the profession (Fig. 2).

> Anxiety

During the SP practices, the students' mostly described experiencing anxiety due to being under evaluation, time constraints, and the SPs not being real patients.

“...Here I know, more or less, that he [the SP] does not need this education, and I feel it involuntarily. I can't provide an effective patient education because of this feeling...”.

(Participant 17)

> Realistic setting

The majority of the students felt that their experience was very realistic, and they found the SP and simulation laboratory to be very similar to the clinical environment.

“The patient [SP] also acted very well [laughing]. It was so realistic”.

(Participant 23)

“When I entered the room, I felt like I was entering a simulation. I felt like I was in the clinic a minute or so after I entered [laughing]”.

(Participant 32)

> Excitement

Many students stated that they were excited because they were impressed by the SP simulation being very close to reality.

“It was very close to reality. He was very excited. I didn't expect the patient to be that clueless”.

(Participant 5)

> Feeling comfortable

Another feeling that the students reported was comfort. They stated that they felt more comfortable while performing patient education in the laboratory setting.

> Self-confidence

In a few students, anxiety was replaced by self-confidence after the SP practice.

“Experiencing gives you courage for later. It makes you say, ‘I have already done this once’ or ‘I have already explained this once’, so I can easily explain this to someone else later”.

(Participant 27)

> Sense of belonging to the profession

One of the students thought that their professional attitudes would improve as they encountered more SP practices in the early stages of the education program.

“... When you take the field, you become more aware of the uniform you are wearing. You have an increased sense of belonging to the profession”.

(Participant 8)

5. Discussion

Both the quantitative and qualitative findings of this study showed that the students' knowledge, skills, and attitudes concerning patient education improved following the patient education training intervention. The students stated that their professional skills and experience gained at the end of the patient education training program and reported their satisfaction. The post-test increase in the mean scores of the total PEIS scale and its subdimensions suggests that the students began to perform patient education activities more in line with the patient education process. When the literature is examined, it is observed that SP/simulated patient-based training programs improve the patient education knowledge and skills of students to a greater extent compared to control groups (Basak et al., 2019; Torkshavand et al., 2020). A study by Sezer and Orgun (2019), supported the finding that simulation using SPs facilitates more instructive patient education. In a study by Zengin and Eren Fidanci (2024), the use of standardized pediatric patients was stated to increase cognitive, affective and psychomotor learning in the students. In our study, students reported an increase in communication, education and presentation skills in the sub-theme of professional skills and experience. In addition, it has also been reported in the literature that students in the simulation-based patient education group are able to communicate with the patient more easily (Basak et al., 2019), that communication skills of the students are enhanced by repeated SP practices (Toraman et al., 2023), and that students' patient education skills can be maximized with a curriculum that includes SP practices (J. M. Jones et al., 2011). Communication and student satisfaction are among the most important components of the success of a nursing student (Johnson et al., 2020). In the other sub-theme of the study, satisfaction, students reported satisfaction with the SP practice and active participation. Studies in the literature have also found that SP interviews increase satisfaction with learning (Robinson-Smith et al., 2009), students who complete the simulation with SP are more satisfied (Johnson et al., 2020), and increases the satisfaction levels of students (Bakan and Azak, 2022). In this context, student satisfaction is important in terms of promoting future experiential learning and supporting positive learning outcomes (Johnson et al., 2020).

One of the skills we focused on in our study was related to material development. Patient education materials evaluated in many studies using the PEMAT-P have been found to be poor in terms of understandability and actionability (Shneyderman et al., 2022; Steiner et al., 2022). On the other hand, it has been reported that the health education materials of students who have received material preparation training not only have sufficient quality to be used in community education but also set an example for other nursing students (Çatiker et al., 2020). In our study, the materials developed by the students after patient education training were more understandable and actionable than before the intervention. This is considered to be a result of the training provided for the students, the feedback given after the SP application, and the students' recognition of their shortcomings in material preparation during the SP application. In addition, the students stated that they were aware of their shortcomings and that this condition would have a positive impact on their patient education practices. In the study by Zengin and Eren Fidanci (2024), students were aware of their shortcomings in preparing the child for medical procedures. Working with SPs provides students with immediate and structured feedback, allowing them to learn and practice skills in a safe environment (Forbes and Mandrusiak, 2020). In our study, similar to the literature (Slater et al., 2016), the theme of receiving feedback emerged. In addition, in a study by Johnson et al. (2020), participants reported that the feedback they received from the SP was valuable. Similarly, within the scope of this study, the feedback provided by the SPs and instructors to students allowed them to recognize the shortcomings related to their learning. The students considered the feedback to be beneficial as it allowed them to focus on improvement without being concerned about their grades. In a systematic review by Rutherford-Hemming et al. (2019), it was determined that in most studies where the SPs were also evaluators, they were first trained to perform this evaluation. In this respect, it is important that SPs are trained prior to implementation and that formative assessments are carried out.

In this study, the students' mean PSEF scores were found to be high, and they stated that their presentation skills improved and that they felt more comfortable and self-confident after the intervention. In addition, during their SP practices, the students' patient education presentation skills were determined to be at a high level. Similarly, previous studies involving simulation teaching with SPs have reported higher patient education skill scores among students in intervention groups than those in control groups (Basak et al., 2019; J. M. Jones et al., 2011; Sezer and Orgun, 2019). Fowler and Jones (2015) also found that students' presentation skills improved following an educational intervention, including the teaching of presentation strategies and skills. The literature supports the findings of our study and suggests that educational interventions are effective in the development of students' presentation skills.

In this study, anxiety, realistic setting, excitement, feeling comfortable, self-confidence and a professional sense of belonging were the most important emotions. In this study, the some students conveyed that despite their lack of concern for grades, they encountered anxiety stemming from the instructor's presence, and time limitations. Studies in the literature have found that communicating with an SP rather than a mannequin at the beginning of a simulated case causes more anxiety in students (Johnson et al., 2020), and that students feel nervous and anxious before and at the beginning of SP sessions (Byrne, 2020; Robinson-Smith et al., 2009). Contrary to these studies, there are also studies in the literature stating that SP experiences reduce student anxiety (Bakan and Azak, 2022; Kameg et al., 2014; Zengin and Eren Fidanci, 2024). In conclusion, to alleviate anxiety, it may be beneficial to provide students with additional time, record their SP practices without the instructor present, and evaluate it at a later time.

The students regarded SP and the simulation environment as very realistic and were excited in this study. In this respect, it can be stated that the realistic setting and the excitement themes are emotions and themes that feed off each other. This finding of our study is similar to the

study by Zengin and Eren Fidanci (2024). As stated by the participants, it is thought that the environment and the effective implementation of the role of the SP are effective in feeling realistic. In addition, in studies using SPs, it has been reported that the evaluation scenario is realistic (Robinson-Smith et al., 2009; Slater et al., 2016), the presence of a professional actor assuming the role of the SP is effective in providing high reality (Sağır Koptaş et al., 2019), and most students feel like they were in a real situation (Dos et al., 2017). In this context, it is important for SPs to effectively assume their role in the case scenario to achieve realism. The conceptual appropriateness of the case scenario, the experienced and educated SPs, and the successful pilot implementation are believed to enhance the realism of the application. In nursing education, a safe learning environment can be provided by creating a more realistic learning environment with simulations (Eyikara and Baykara, 2017).

Another sub-theme that stands out in the students' comments in the current study is feeling comfortable. Students stated that they felt more comfortable during SP practice compared to the clinical setting. There are studies in the literature that report feeling comfortable during SP practice that support our theme (Basak et al., 2019; Byrne, 2020; Defenbaugh and Chikotas, 2016). The safe environment provided by the SP practice contributes to the participants' feeling of comfort (Defenbaugh and Chikotas, 2016).

In the current study, the senior nursing students state that they who had limited exposure to the clinical setting due to the pandemic conditions stated that despite their nearing graduation, they did not feel adequately prepared for patient education. Ulenaers et al. (2021) and Bogossian et al. (2020) also reported that the clinical experience of nursing students decreased during the COVID-19 pandemic. However, by the conclusion of the patient education training program, they had acquired valuable experience, and their self-confidence increased. A study by Goh et al. (2016) supported the view that the use of SP has been shown to significantly increase students' levels of satisfaction and confidence before being placement to a mental health setting. Coleman and McLaughlin (2019) determined that the use of simulated patients to practice patient education skills is perceived by students as a valuable learning method that they can transfer to clinical practice. Standardized simulation experiences increase the self-confidence of nursing students (Basak et al., 2019; Donovan and Mullen, 2019; Richard et al., 2018; Robinson-Smith et al., 2009). According to the results, the literature supports the findings of our study with regard to the sub-theme of self-confidence.

In this study, one of the students associated the increase in his sense of professional belonging with clinical practices. It is important to develop a sense of belonging in nursing students in order to promote positive and effective clinical learning experiences (Singer et al., 2022). In the study by Russo et al. (2023), according to the experiences of nursing students in the COVID-19 process, the students' sense of belonging to the nursing profession formed the basis of the whole learning process in the clinical context. In this context, due to decreasing clinical placement opportunities, nursing schools are increasing simulation and clinical laboratory areas where students can develop the skills needed for practice (Bogossian et al., 2020). In this way, opportunities can be created for students to realize their shortcomings and develop their strengths. As stated by the students in our study, it is important to increase the use of SP patient education practices in nursing schools for reasons such as authentic experiences, recognition of shortcomings, and increased in knowledge and skills.

6. Limitations

There are some limitations to this study. The first limitation of this study is that it was conducted with senior students of a single nursing faculty. The second limitation is that the researchers who participated in the focus group interviews worked as instructors at the faculty and knew some of the students before the application. However, the evaluations

carried out during the SP practice within the scope of the patient education training were designed to be formative and were not made for the purpose of grading students. It is assumed that this practice does not affect the reliability of the data as it was a formative evaluation feature. In addition, the results of the PEIS and qualitative findings were based on the students' personal reports. Therefore, the findings of the study cannot be generalized to the whole population.

7. Conclusion

This study confirms that structured patient education training, including the use of SPs, is important for supporting and developing nursing senior students' attitudes and skills toward patient education. The education program implemented in this study contributed to the preparation of more understandable and actionable patient education materials and increased the material development skills of students. In addition, the patient education presentation skills of the students were determined to be high. The students reported positive experiences related to the realistic nature of the SP practice, self-confidence, professional knowledge and experiences, and feedback. In conclusion, this study revealed that a structured patient education training program including the use of SPs not only improved the educational skills of nursing students but also created an authentic learning environment as an alternative to clinical teaching, allowing them to learn by doing and experiencing.

Educators need to be aware of how to prepare students to adapt to professional environments for effective patient education (Richard et al., 2018). In light of the results of this research, it can be recommended to implement a structured education program in which SPs are used to provide students with effective educational skills and improve these skills. In addition, students should be provided with feedback based on formative evaluation during the SP practices, and teaching environments should be created in which they can recognize and rectify their deficiencies or errors before clinical placement. Providing patient education training that includes SPs before clinical placement can help students develop skills and attitudes, become aware of their shortcomings, and feel more self-confident in their future clinical practice. It is also recommended to conduct randomized controlled studies in which students who have received this training program are re-evaluated following their clinical placement. In conclusion, it is recommended that the research be carried out with a larger sample in a multicentre study.

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CRediT authorship contribution statement

Fatma Orgun: Supervision, Methodology, Data curation, Conceptualization, Writing – review & editing. **Nilay Özkütük:** Conceptualization, Data curation, Formal analysis, Methodology, Writing – review & editing. **Cemre Paylan Akkoç:** Writing – original draft, Conceptualization, Data curation, Formal analysis, Methodology. **Gülsüm Çonoğlu:** Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft.

Declaration of competing interest

The authors have no conflict of interest.

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