

# Learning Experiences of Nursing Students with Case-Based Learning Technique: A Qualitative Study

## Hemşirelik Öğrencilerinin Vakaya Dayalı Öğrenmeye İlişkin Deneyimleri: Nitel Bir Çalışma

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### Özet

**Amaç:** Bu çalışmanın amacı, vakaya dayalı öğrenme tekniği ve grup çalışması ile yürütülen Cerrahi Hastalıklar Hemşireliği dersinin uygulamasına ilişkin hemşirelik öğrencilerinin deneyimlerinin belirlenmesidir.

**Gereç ve Yöntemler:** Çalışma, odak grup görüşmesi tekniği ile fenomenoloji deseni kullanılarak gerçekleştirilmiştir. Çalışmanın örneklemini Cerrahi Hastalıklar Hemşireliği alan ikinci sınıf öğrencileri (n=84) oluşturmuştur. Öğrenciler rastgele örnekleme yöntemiyle sınıf listesine göre 14 gruba ayrılmıştır. Uygulama eğitmenleri 8 hafta boyunca vakaya dayalı öğrenme tekniği doğrultusunda gruplara rehberlik etmiştir. Gruplar klinik ortamda gerçek vakayı (hasta) alıp hemşirelik bakımı vermişlerdir. Gruplar veri toplama "Cerrahi Hastalıklar Hemşireliği Hasta Değerlendirme" formunu kullanmışlardır. Öğrenciler grup çalışması ile vakanın (hastanın) hemşirelik bakımını planlayıp ve ardından bakım planını uygulayarak sonucu değerlendirmişlerdir. Eğitim öğretim yılının son iki haftasında öğrenci grupları vaka sunumlarını sınıf içi ortamda gerçekleştirmişlerdir.

**Bulgular:** Çalışmada öğrencilerin deneyimleri üç ana tema ve 9 alt temada açıklanmıştır. Ana temalar; vaka sunumu deneyimi, hemşirelik uygulamasında olgu sunumu, iyi bir olgu sunumudur.

**Sonuç:** Sonuç olarak vakaya dayalı öğrenme tekniği ve grup çalışması öğrenmeyi kolaylaştırmakta olup, uygulamayı teori ile birleştirme ve öğrencilerin mesleki gelişimine katkı sunabilir.

**Anahtar kelimeler:** Deneyim, Hemşirelik, Nitel Çalışma, Öğrenci, Vaka Dayalı Öğrenme

### Abstract

**Objective:** The aim of this study was to determine the experiences of nursing students regarding the application of the Surgical Diseases Nursing course, which was carried out with case-based learning techniques and group work.

**Materials and Methods:** The study was carried out using the phenomenology pattern with the focus group interview technique. The sample of the study consisted of second-year students (n=84) who received Surgical Diseases Nursing. Students were divided into 14 groups according to the class list by random sampling method. Practice trainers guided the groups in line with the case-based learning technique for 8 weeks. The groups took the real case (patient) and gave nursing care in the clinical setting. The groups used the "Surgical Diseases Nursing Patient Evaluation" form to collect data. The students evaluated the result by planning the nursing care of the case (patient) and then applying the care plan with group work. In the last two weeks of the academic year, student groups made case presentations in the classroom.

**Results:** The experiences of the students are explained in three main themes and 9 sub-themes. The main themes were; case presentation experience, case presentation in nursing practice, and a good case presentation.

**Conclusion:** As a result, case-based learning techniques and group work facilitate learning, combine practice with theory, and can contribute to the professional development of students.

**Keywords:** Case Based Learning, Experience, Nursing, Qualitative Study, Student

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## INTRODUCTION

In nursing education, theory and clinical practice are carried out in an integrated way and this process is enriched by various teaching methods (1). The Case-Based Learning (CBL) technique is a learning approach in which students work individually or in groups for solving a case in real-life conditions and finding solutions to the associated problems (2). CBL allows students to combine theoretical knowledge with practice, to develop professional decision making and critical thinking skills, to improve self-confidence, and to develop professional skills, social skills and collaboration habits by acquiring top-level skills such as creative thinking, critical thinking, problem solving and decision-making skills (3,4). During the CBL process, students should understand the case, try to master the details, develop a supportive analysis and provide solutions with a collaborative approach (5). Instructors, on the other hand, facilitate learning by providing guidance and support to students in this process (6). The CBL process in health education is shown in **Figure 1** (7).

Today, the Case-Based Learning (CBL) technique is used in numerous disciplines, from medicine to engineering, from nursing education to the training of instructors (2). Although there are many studies showing the effectiveness of CBL in various disciplines, evidence on its effectiveness in nursing education is insufficient due to the lack of studies on CBL in nursing (8). Studying teaching methods and techniques that facilitate the acquisition of professional knowledge and skills in nursing students is importance for nursing education. Therefore, this study was carried out to determine the experiences of nursing students regarding the applica-

tion of the Surgical Diseases Nursing course, which was carried out with case-based learning techniques and group work.

## MATERIALS AND METHODS

### Study Design

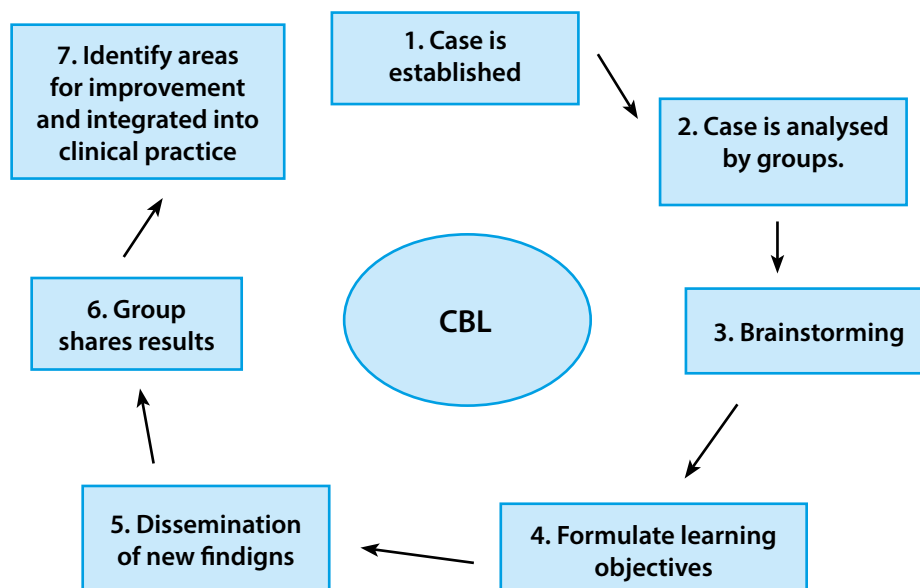
This qualitative study was conducted at a State University's School of Health in the 2018-2019 academic year spring semester between February 18th and May 20th, 2019 in Turkey. The study was carried out using the phenomenology pattern with the focus group interview technique, one of the qualitative research methods, after the CBL course and CBL practice in Surgical Diseases Nursing planned in accordance with the CBL technique.

### Participants

The study population consisted of 93 students, but since 9 students were absent, the study sample consisted of 84 sophomore students who took Surgical Diseases Nursing and who were practicing in surgical clinics. In this study, the mean age of the students was  $18.57 \pm 1.10$  and 58% were female students.

### Data Collection Instruments

The data were collected using the semi-structured interview form after the CBL course and practice. Prior to developing the interview questions and the course content, literature on the research topic was reviewed, and qualitative and quantitative studies on the topic were used (2,7-13). Opinions of 10 experts were obtained, including 4 faculty members working in the Department of Education and Training, and 6 faculty



**Figure 1.** The case-based learning (CBL) process (adapted from the Maastricht “Seven Jump” process).

members working in the Department of Surgical Diseases Nursing, and the questions were revised in accordance with the recommendations. The course content and the semi-structured interview form after the CBL course and practice are shown in **Table 1**.

### Data Collection Method

Before the focus group meeting, the moderator and the reporter came to the classroom where the interview would take place, completed the preparations (table, chair, paper, pen, seating arrangement, drink, and food), and greeted the participants. Before the start of the interview, the moderator and the reporter introduced themselves to the group and when the arrival of all the participants was completed, the moderator explained the purpose of the focus group meeting, and the moderator stated that the interviews would be recorded with an audio recorder. It has been stated that these records will be reported by the researchers working in the project and that the names of the participants will not be included or cited in these reports. In the interview, the iPhone 6S PLUS brand and model mobile phone with 128 GB total memory was used as an audio recorder. It was emphasized that mobile phones should be turned off before the interview started; an audio recorder was checked by the moderator and the reporter, and the recording was provided before the interviews were turned on and the meeting ended. The reporter used keywords that would give the main idea of what was said, taking notes as short as possible and code was given to the participants to facilitate the process while taking notes.

In the second week of the teaching process, a 6-hour CBL course was given to the students in the sample group after the basic concepts specific to Surgical Diseases Nursing, and then a sample case presentation was performed, the questions of the students

were answered, and the presentation was finished with a discussion. After the course, students (n=84) were divided into 14 groups by simple randomization and maximum diversity sampling method, and each group consisted of 6 students. The presentation topics of diagnoses such as "Colon Cancer", "Larynx Cancer", "Parathyroid Adenoma", "Coronary Artery Disease", "Tibia Shaft Fracture", "Septum Deviation", "Mandible Cancer", "Benign Prostate Hyperplasia", "Glial Tumor", "Lung Cancer", "Ureterolithiasis", "Stomach Cancer", "Breast Cancer" and "Burn" were randomly assigned to the groups, and the groups were allowed to investigate the cases and participate in patient care in the surgical clinics. Groups used Surgical Diseases Nursing Patient Assessment form. The students planned their nursing care plans using North American Nursing Diagnosis Association (NANDA) nursing diagnoses with group work and then evaluated the result by applying the care plan.

Researchers (1 moderator-specialist in surgical nursing department and 1 reporter-academician in nursing department) supervised students during these 8 weeks, regarding disease information, data collection about the patient in accordance with the evaluation given by the system, nursing diagnosis according to NANDA planning, implementing and evaluating the nursing interventions to help students to handle the case and prepare their presentations by reviewing the literature. During the last two weeks of the academic year, students were allowed to present the cases in front of other students and instructors, and the case presentations were finished with a discussion. After each case presentation, 14 focus group interviews were carried out with the relevant group members to complete the data collection process. The mean duration of the focus group interviews with each group was 65 minutes (min.60-max.75).

**Table 1. Course Content and Semi-Structured Interview Form Questions**

<b>Content of Course</b>	<ul style="list-style-type: none"> <li>• Case-Based Teaching</li> <li>• Use of Case-Based Teaching From History to Present</li> <li>• Characteristics and Implementation Stages of Case-Based Teaching</li> <li>• Effective Presentation Techniques</li> <li>• A Patient with Fournier's Gangrene (Case Report Example)</li> <li>• Questions and Discussion</li> </ul>
<b>Semi-structured Interview Form</b>	<ul style="list-style-type: none"> <li>• What comes to your mind first when you say case presentation?</li> <li>• What are your thoughts on your case presentation experience?</li> <li>• What do you think about the use of case presentations in Surgical Nursing Course?</li> <li>• What do you think about the use of case presentations in other practice areas of the nursing department?</li> <li>• How do you think a good case report should be?</li> </ul>

## Data Analysis

For the data analysis, the data obtained by listening to audio recordings of the interviews were transcribed using the Microsoft Word program. The data obtained from the study were transferred to the computer using the Microsoft Word program and the data were coded in the MAXQDA 2022 program and appropriate themes were determined. Thematic analysis was used with the 6 steps described by Braun and Clarke (2006) in the evaluation of the data obtained from the interviews (14). In the first stage, all the data were collected by audio recorder and reporter notes. In the second stage, all audio recordings and reporter notes were transcribed by listening, reading, and re-reading. In the third stage, initial codes and labels were generated to represent important features of the data relevant to the research questions. In the fourth stage, the ideas and concepts that inform the semantic content of the data were identified. In the fifth stage, the themes were coded as coherent and meaningful patterns in the data and each theme in relation to sub-themes was defined. In the sixth stage, the findings were completed by analytic narrative and vivid data. All researchers agreed on all themes and sub-themes at the end of the analysis. The numbers at the end of the quotations given under the main theme and sub-themes indicate the group number includes participants.

## Validity and Reliability of The Research

- In the preparation phase of the research, interview forms were created by taking the opinions of the academicians who are experts in the field for the interview forms. Later, a pilot study was conducted and tested. After the pilot study, the interview form was finalized by making adjustments.
- Written and verbal consent was obtained from the participants before starting the interview. Interview forms were shared with the participants during the interview. During the interview, asking leading questions was avoided.
- Long-term interaction has been tried to increase credibility. The interviews lasted an average of 60-75 minutes. The moderator has tried to keep his work free from prejudices.
- In the research, data collection was diversified by making both interviews and observations and taking notes. The same environment and the same data collection sets were used in all interviews, and the same attitude was tried to be displayed towards all participants.
- All the interviews were recorded with the same audio recorder. While the audio-recorded interviews were transcribed, they were transcribed

by the participants' own words without any correction. After the interview, the data sets were shared with the participants.

- The data obtained from the interviews were included in the findings part of the research without adding any comments in the themes and sub-themes.

The validity and reliability of the qualitative findings were tried to be provided by explaining in detail the method, place, and time of the research, the participants, the development of the data collection tool, the collection of data, and the analysis and evaluation of the data.

## Ethical Considerations

Prior to the research, approval of the Adıyaman University's Non-interventional Clinical Research Ethics Committee (decision no.2019/2019/1-10), written permissions of the University's School of Health Directorate and the Department of Nursing, and verbal and written informed consent of all students in the focus group interviews were obtained in order to conduct the study.

## RESULTS

The experiences of the students are explained in three main themes and 9 sub-themes. The main theme and sub-themes on the learning experiences of nursing students related to CBL practices are shown in **Table 2**. Student expressions in the groups are shown in italics. At the end of the statement, the group that the student is in is indicated in parentheses.

### Theme 1: Case Presentation Experience

The experiences related to case presentation of the student groups are explained in five sub-themes: "Our Thoughts, Conveniences, Difficulties, Achievements and Reactions".

#### Our Thoughts

Most of the groups expressed their thoughts about case presentation in the form that there is significant labor in the presentation, there are deficiencies during the case presentation, and they notice the deficiencies during the presentation.

*We want to state that the presentation that we have made is the result of a significant effort. First of all, we had shortcomings, and we received a lot of criticism since we were the first group. Moreover, our major disadvantage was that we couldn't effectively use the time allocated to us for the case presentation, we believe we couldn't express ourselves (the patient, their diagnoses, the interventions, ...) clearly... In preparing the case, we didn't see what was missing, we noticed them during the presentation (G1).*

**Table 2. Group experiences after group working in line with the CBL technique**

Main Theme	Sub Themes
1. Case Presentation Experience	<ul style="list-style-type: none"> <li>• Our thoughts</li> <li>• Conveniences</li> <li>• Difficulties</li> <li>• Achievements</li> <li>• Reactions</li> </ul>
2. Case Presentation in Nursing Practices	<ul style="list-style-type: none"> <li>• Surgical Requirement</li> <li>• Competency</li> </ul>
3. A Good Case Presentation	<ul style="list-style-type: none"> <li>• An Effective Care-An Effective Presentation</li> <li>• Student Characteristics</li> </ul>

### Conveniences

In the interviews, the groups mostly stated that having a work-sharing experience in previous group studies, the fact that medical diagnoses of cases were discussed in Surgical Diseases Nursing, the harmony within the group, and the effective participation of the patient facilitated this process. An example view is as follows:

*... As a group, everyone has done his/her part as best as can be. We shared tasks. We attempted to overcome deficiencies together... The patient in our case presentation answered many of our questions and helped us greatly in collecting data on medical history. (G8)*

In the group interviews, students stated that the course and sample case given by the instructor facilitated and guided the process. Example group views on this issue are as follows:

*... The course and training given by our instructor, before we took our cases, facilitated our work. At least we knew what the case presentation was, what to pay attention to, what to do when we got the case, because we had seen a case... Previously, we couldn't imagine what a case presentation is, and, strictly speaking, we were afraid of it.*

### Difficulties

In the interviews, the groups often stated that they had difficulty finding the appropriate case, communicating with the patient, and finding resources related to the diagnosis, and that difficulty in bringing the group members together, unjust distribution of tasks, clashes of ideas within the group, presence of group members who failed to fulfill their duties and responsibilities, communication problems and individual disputes have made the process more difficult. An example view is as follows:

*First, we had small problems finding the case. After we found the case, communicating with the patient was very challenging. This is because the patient declined the interview, stating that she had undergone major surgery.*

*Upon our insistence, it was accepted by the patient and the patient relatives. We had difficulty in providing training and carrying out interventions. We also had trouble finding resources while researching about the disease. There was also a bit of a lack of communication, so some friends divided into groups could not perform their duties. (G6)*

### Achievements

The groups mostly stated that they learned how to make an effective presentation and research, the things that should be considered when preparing a presentation, they have overcome stage fright, had their self-confidence increased, understood the importance of nursing care and education, acquired permanent knowledge by putting theoretical knowledge into practice, and gained experience. An example view is as follows:

*First, we all had the opportunity to take the stand. We've somewhat controlled our excitement on this issue. Our self-confidence has increased. We don't think we'll be prejudiced when we make any presentations from now on... We believe that we have adequate knowledge about the things to be considered when making research, the required approach when providing care for a patient, as well as the case we were investigating. (G12)*

### Reactions

Some of the groups involved in the case presentation stressed that the reactions of the case (patient) and/or participants during the interviews affected this process, which is important for this process. This was stated by some groups in their following views:

*We were demoralized by the patient's statement that he was very tired because he was 80 and just underwent by-pass surgery. However, the patient was very interested in us, and he was responding to the questions we asked and participating in our training. We had a communication problem during our first interview, but the patient agreed to an interview at our insistence. After that, we*

*didn't have any problems since both the patient and the patient's relatives were paying attention. (G4)*

*The participants liked our presentation. Except a few negative reviews from our instructors, we received generally positive feedback. In addition, the participants stated that we are interested in our case individually, that we made a great effort on the presentation, and we believe that our future presentations will be better. (G3)*

## **Theme 2: Case Presentation in Nursing Practices**

Most of the groups stated that the inclusion of case presentations in Surgical Diseases Nursing and in other application domains of the department of nursing is necessary for Surgical Diseases Nursing and that its inclusion in other application areas of the department of nursing will provide competence in this regard. This topic was explained in two sub-themes under the headings of Surgical Requirement and Competency.

### **Surgical Requirement**

The groups expressed that requirements for Surgical Diseases Nursing include the presentation of a surgical case, investigating and learning a surgical case in detail, the opportunity to watch other surgical case presentations, the fact that case presentations summarize the semester, acquiring detailed knowledge on the disease, case, patient care and training, and understanding of the importance of nursing care. An example view is as follows:

*In general, we can express that case presentations help us develop ourselves. It allows us to look at the subject from different perspectives and helps us learn the aspects of surgical diseases that we do not know. We discuss the variety of cases. Even though the presentation, we see different diagnoses and acquire new information... Case presentations are really important, even essential for Surgical Diseases Nursing and nursing. (G2)*

### **Competency**

Some of the groups expressed in the interviews that the use of case presentations in other areas of nursing practice will make them competent, the educational and instructive role of case presentations will contribute to the process of becoming a nurse and combining theoretical knowledge with case practice will have a permanent place in memory. An example view is as follows:

*Since we have now learned, case presentations will help us learn about different areas. This will allow us to be better-equipped nurses having adequate knowledge. So we believe, its use will provide us competence in all areas of nursing. (G9)*

## **Theme 3: A Good Case Presentation**

In the theme of A Good Case Presentation, most groups explained this theme with two sub-themes, expressing that an effective care will result in an effective presentation, and there are specific characteristics that a student must have in order to be competent in this regard.

### **An Effective Care - An Effective Presentation**

Most of the interviewed groups reported that a detailed history of the case, a nursing care planned in accordance with the patient's needs, an effective presentation supported by audiovisual materials, and the group's knowledge of the case is necessary for a case presentation. Example group views on this issue are as follows:

*After analyzing a good and detailed history, appropriate nursing diagnoses should be made in accordance with the patient's needs, and nursing interventions for these diagnoses should be strictly patient-specific. Presentation slides should emphasize the effective care provided and should be supported by visuals, and the presentation should be made in a fluent manner... It is important to be aware of everything about the patient, the group should know the case well and provide effective care, and most importantly, the group should present the case in fluent and effective language... (G1)*

### **Student Characteristics**

Most of the groups interviewed reported that students who will make a presentation should have presentation skills, should know the subject well, should have advanced communication skills, should evaluate the patient correctly, should be able to use NANDA effectively, should know all aspects of the subject to be presented, should be competent in clinical practice, should have adequate knowledge, should be self-confident, articulate, and should make eye contact with the participants for a good case presentation. Group view examples on this issue are as follows:

*First, a nurse should be able to get a detailed history. A nurse must have the ability to investigate and question. A nurse should know nursing diagnoses. A nurse should know how to diagnose a case. In addition, a nurse should also be able to speak in public and have a good command of the language. A nurse should have adequate knowledge about the disease he/she will present, use effective materials, influence the audience with gestures and mimics, should not talk too fast, should make eye contact with the audience, and should be able to articulate compatible with the slides. A nurse must have a curious, willing, and exploring spirit, because an action that requires significant labor cannot be performed unwillingly. (G13)*

## DISCUSSION

In this study, the application of CBL lasted 10 weeks, including 8 weeks of preparation and 2 weeks of presentation. There are various data in the literature on the duration of implementation of the CBL technique. In systematic research of studies conducted by health-related disciplines, the minimum and maximum periods of the CBL process were to be 2 hours and one year, respectively (15). In the interviews, groups often stated that group work contributes to their learning and the development of their social skills. Dupuis and Persky showed that CBL is much more effective in improving students' communication skills and leads to higher student participation compared to traditional methods (16). Similarly, Razzouk and Jhonson found that compared to the narrative-based method, CBL is more effective in developing students' attention individually, confidence in themselves, and satisfaction with the course, and leads to higher learning outcomes, more positive behavior, and is more effective in learning as a team (17). The results of studies on CBL support the findings of this study.

As part of the research, students stated that they learned how to make an effective presentation and research, the important points to be considered when preparing a case presentation, understood the importance of nursing care and education and gained experience, realized their shortcomings and mistakes after a case presentation. Brooke reports that CBL improves students' Socratic dialog and critical thinking skills (10). Similarly, many studies have shown that CBL improves high-level thinking skills (9, 18, 19). In this context, it is believed that CBL will contribute to the cognitive, affective, and social development of nursing students.

Interviewed groups reported that a detailed history of the case, nursing care planned in accordance with the patient's needs, an effective presentation supported by audiovisual materials, and the group's knowledge of the case are necessary for a case presentation. A study by Yoo and Park concluded that the objective and subjective problem-solving skills of nurses who received education by CBL were higher than those who received education with classical teaching techniques (13). In their study, Stjernquist, and Crang-Svalenius stated that CBL facilitated problem-based learning and understanding, and developed the clinical problem-solving skills of the students significantly (20). Indeed, Peiman *et al.* have described the CBL as a way to integrate basic sciences and clinical sciences for health education (21). From this perspective, CBL can be considered an important teaching technique in terms of nursing education in integrating theoretical knowledge into nursing practice, improving students' problem-solving skills, and internalizing the nursing process.

In the study, students expressed that they had overcome stage fright with the experience of CBL presentation, felt that their subsequent presentations would be more successful, and increased their academic self-confidence. Thistlethwaite *et al.* state that the CBL keeps student interests and motivations alive by ensuring the highest level of student participation (15). Ertmer *et al.* report that students are interested in the courses with the CBL method, and that their perception regarding the benefits of CBL is increasing over time (22). In addition, students have noted that the experience of CBL presentation was significantly useful for them in preparing for the profession. In line with the study findings, some studies of CBL states that the use of real-life cases in the CBL process arouses the interest and curiosity of students (23,24), increases their participation in the course (10, 25), increases students' opportunity to combine theory and practice while working on cases (26), facilitates their learning (27,28), drives students to become aware of their shortcomings and investigate further (29,30) and all of these increases the experience of students and prepares them for the profession (20, 31).

Within the scope of the findings obtained in the study, in addition to the factors facilitating the process during the case presentation experience, the student groups stated that they learned how to prepare a case presentation and make an effective presentation and research, overcame their stage fright, and that their self-confidence has increased, they understood the importance of nursing care and education, gained experience. As a result, it was concluded that the use of case-based learning techniques and group work methods together contributed to the process of integrating theoretical knowledge with practice. This study provides evidence that the CBL approach can improve the professional skills of students. In this context, teaching and learning activities should be organized to include different stimulants, learning materials should be related to real life, and should prepare students for situations that will be encountered in everyday life. Moreover, the groups stated that the inclusion of case presentations in Surgical Diseases Nursing practice is necessary for Surgical Diseases Nursing and that its inclusion in other areas of practice of the department of nursing will provide competence in this regard. A comprehensive literature review conducted by McLean (2016) reports that there were 70 case-based studies associated with health disciplines, of which only three were conducted in the field of nursing. For this reason, it is recommended to expand the use of CBL practices and conduct case-based studies in the field of nursing (11).

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**Ethical Approval:** Prior to the research, approval of the Adiyaman University's Non-interventional Clinical Research Ethics Committee (decision no.2019/2019/1-10), written permissions of the University's School of Health Directorate and the Department of Nursing, and verbal and written informed consent of all students in the focus group interviews were obtained in order to conduct the study.

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