Breaking the taboo of using the nursing process: lived experiences of nursing students and faculty members

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Abstract

Background　Despite the numerous advantages of the nursing process, nursing students often struggle with utilizing this model. Therefore, studies suggest innovative teaching methods to address this issue. Teaching based on real clinical cases is considered a collaborative learning method that enhances students' active learning for the development of critical thinking and problem-solving skills. In this method, students can acquire sufficient knowledge about patient care by accessing authentic information.

Objective　The aim of the present study was to investigate the experiences of nursing students and faculty members regarding the implementation of nursing process educational workshops, based on real case studies.

Design　A qualitative descriptive study.

Participants　9 Nursing students and 7 faculty members from the Isfahan School of Nursing and Midwifery who attended the workshops.

Methods　This qualitative descriptive study was conducted from 2021 to 2023. Data was collected through semi-structured individual and focus group interviews using a qualitative content analysis approach for data analysis.

Results　After analyzing the data, a theme titled "Breaking Taboos in the Nursing Process" was identified. This theme consists of four categories: "Strengthening the Cognitive Infrastructure for Accepting the Nursing Process," "Enhancing the Applicability of the Nursing Process," "Assisting in Positive Professional Identity," and "Facilitating a Self-Directed Learning Platform." Additionally, thirteen subcategories were obtained.

Conclusion　The data obtained from the present study showed that conducting nursing process educational workshops, where real clinical cases are discussed, analyzed, and criticized, increases critical thinking, learning motivation, and understanding of the necessity and importance of implementing the nursing process. Therefore, it is recommended that instructors utilize this innovative and effective teaching method for instructing the nursing process.

Keywords　Nursing students, Workshop, Education, Nursing process, Clinical case

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Introduction

The nursing process is a systematic and logical method for planning and providing nursing care [1] that provides an opportunity for nurses to efficiently and dynamically utilize their knowledge and expertise. It also creates a common language, known as nursing diagnosis, which facilitates action, promotes creative solutions, and minimizes errors in patient care [2]. Clinical education, based on the nursing process, provides an appropriate setting for nursing students to gain clinical experiences and foster professional development [3].

Despite the numerous advantages, nursing students face difficulties in implementing this model in various countries [4, 5], lack of appropriate knowledge, lack of clinical practice, and insufficient learning are among the most significant obstacles to the implementation of the nursing process by students. This can be attributed to the poor quality of education regarding this important nursing care model. Therefore, it is necessary for educators in this field to use innovative and participatory teaching methods [3, 6]. According to research conducted in Iran, 72% of nursing faculty members use passive teaching methods. Meanwhile, 92% of nursing students prefer active and innovative learning methods over traditional and passive methods [7]. Therefore, the use of modern methods, which aim to stimulate students' thinking and enhance their responsiveness in acquiring and applying knowledge, can be effective [6].

Case-based learning is a collaborative learning method that aims to develop and enhance critical thinking and problem-solving skills [8]. Teaching the nursing process based on clinical and real cases can be very important in terms of promoting critical thinking, simulating real experiences, enhancing clinical judgment, and ultimately improving the quality and effectiveness of education [8, 9]. In this method, students gain sufficient knowledge about patient care by accessing real information, improving their skills in patient assessment, and gaining personal nursing experience. This leads to a better understanding of comprehensive care and prepares individuals for future professional roles [9].

Very few studies have been conducted on teaching methods and their impact on the quality of nursing process [10, 11]. In Iran, case-based trainings have mostly focused on hypothetical cases [1, 12]. In other countries, most studies conducted on the case-based educational method have not focused on the nursing process. The few studies that have been conducted on the nursing process have either not been based on real clinical cases [13] or, if clinical cases have been researched, the studies have been conducted quantitatively [8, 9] While qualitative research provides researchers with more opportunities to discover and explain the realities of the educational environment and gain a better understanding of many challenging aspects related to the nursing education process. Researchers are able to provide a practical model that helps improve and enhance the current process by gaining insight and a deep understanding of what is happening in the field of study [14]. This study represents the first qualitative research that describes the lived experiences of nursing students and faculty members regarding the teaching of the nursing process through real-based case workshops.

Methods

Study design

This qualitative descriptive study was conducted from 2021 to 2023. Qualitative descriptive studies typically align with the naturalistic inquiry paradigm, which emphasizes examining phenomena in their natural settings as much as possible within the context of research. Naturalistic inquiry, rooted in a constructivist viewpoint, enables a deeper understanding of phenomena by observing them within the authentic social world we inhabit [15]. In this type of study, researchers provide a comprehensive summary of an extraordinary occurrence or circumstance of interest and its related factors, but they do not delve into deep interpretation [16]. This study was undertaken to explore students and faculty members perceptions of the effect of the educational workshops on knowledge, skills and attitudes of students to the nursing process.

Setting and sample

Participants were selected from nursing students and faculty members who participated in nursing process workshops (Table 1). The criteria for entry into the study

Table 1 Demographic information of the participants

Participants	Gender	Age	Position(degree)	The number of sessions attended in the workshop
P1	Woman	22	Student (Bachelor)	7
P2	Man	20	Student (Bachelor)	7
P3	Woman	20	Student (Bachelor)	5
P4	Woman	22	Student (Bachelor)	6
P5	Man	22	Student (Bachelor)	5
P6	Woman	21	Student (Bachelor)	6
P7	Woman	20	Student (Bachelor)	4
P8	Man	22	Student (Bachelor)	5
P9	Man	28	Student (Bachelor)	3
P10	Woman	50	Faculty (PHD)	3
P11	Woman	52	Faculty (PHD)	4
P12	Woman	58	Faculty (Master)	8
P13	Woman	48	Faculty (PHD)	3
P14	Woman	41	Faculty (Master)	3
P15	Woman	47	Faculty (PHD)	4
P16	Man	58	Faculty (PHD)	4

included volunteering to participate in the study and attending at least 3 sessions of the workshops.

Workshop details

The workshops were held in the conference hall of the Nursing and Midwifery Faculty. They consisted of 9 sessions, each lasting 2 h, from 16:00 to 18:00. Students from terms 2 to 8 and faculty members participated in these workshops. Each session was attended by an average of 60 members. Despite the inconvenience of scheduling the sessions outside of the official class hours, all the members stayed until the end of the meeting, showing a keen interest in the material and actively participating in discussions. Attendance was open to all students and faculty members, and participants in each of the workshop sessions were not the same.

It should be noted that all workshops were accompanied by a specialized instructor in the field of the nursing process, as well as a specialized instructor in the field of the specific disease being discussed. The details of these workshops are summarized in three stages:

First Stage

Step 1. The researcher visited one of the inpatient clinical wards of the hospital based on the assigned topic for each workshop. They selected a patient, conducted a comprehensive assessment, and recorded the information using Gordon's assessment form. This included the patient's current and past medical history, paraclinical tests, physical examinations, medications, and information gathered from credible sources such as interviews with the patient and their family, medical records, and the patient's treatment and care interventions documented in their medical file and Cardex.

Step 2. Preparing the presentation file, which includes the following items:

a. Writing the comprehensive patient assessment based on step one.
b. Writing actual and at-risk nursing diagnoses according to PES (Problem/ Etiology/ Signs and Symptoms) and PE (Problem/ Etiology) rules, as well as collaborative problems, and then prioritizing them based on Maslow's Hierarchy of Needs.
c. Writing objectives and outcomes for each nursing diagnosis based on the SMART (Specific/ Measurable/ Attainable/ Realistic/ Time Bound).
d. Writing nursing interventions (based on objectives and outcomes), along with the rationales according to evidence-based, up-to-date, and reliable sources for each intervention.

Step 3. Sending the presentation file to an expert professor in the field of nursing process for review and implementing her comments.

Second stage

Step 1. Announcing the date and time of the workshop session to students and faculty members.

Step 2. Providing students and faculty members with a comprehensive patient assessment.

Third stage (workshop implementation)

Step 1. Presenting all stages of the nursing process based on the case study:

a. Providing a comprehensive assessment of the patient's condition. (Giving time for students, faculty members, and presenters to discuss with each other, express their comments, and summarize)
b. Presenting diagnoses along with the objectives and expected outcomes. (Giving time for students, faculty members, and presenters to discuss with each other, express their comments, and summarize)
c. Presentation of nursing interventions. (Giving time for students, faculty members, and presenters to discuss with each other, express their comments, and summarize)
d. Presentation on assessing the level of achievement of expected outcomes and evaluating interventions. (Giving time for students, faculty members, and presenters to discuss with each other, express their comments, and summarize)

Data Collection Tools

Demographic questionnaire

It included age, gender, Position, degree and number of sessions attended in the workshop.

Semi-structured interview

It included the following questions:

1. What was your motivation to attend these meetings?
2. Before entering the nursing process meetings, what did you expect from the meeting?
3. How many of your expectations were met by participating in the meetings?
4. How much did these meetings help you in applying the nursing process in the clinical setting?
5. What do you think about the continuation of such meetings?

Data collection

After obtaining official permission from the university in 2021, the phone numbers of students and faculty members who participated in more sessions of the workshop were collected in 2023. A specific time and location were subsequently arranged to contact and interview participants who had indicated their willingness to take part in the study. Approximately 40 individuals expressed their consent to participate; however, data saturation was achieved after interviewing 16 participants. It is important to note that interviews were conducted through both individual sessions and focus groups. Individual interviews were carried out with 3 faculty members, while two focus groups were conducted separately with 9 students and 4 faculty members.

Individual Interviews

The interviews were conducted in a semi-structured manner and began with a general question to establish initial and closing communication. These interviews were conducted by one of the researchers who holds a PhD in nursing and has published several qualitative articles in reputable journals. In each of these sessions, the interviewer introduced themselves and welcomed the participants. The goals of the session were discussed, and participants were given complete freedom to express their opinions. The interviewer refrained from interfering or reacting to their opinions, and the information discussed was kept completely confidential under the guise of a code. Participants were subsequently asked to provide consent for voice recording during the interviews. Once consent was obtained from the participants, their voices were recorded. Each individual interview lasted between 30 and 45 min.

Focus Group Interviews

All the conditions of these interviews were similar to individual interviews. However, in focus group sessions, an additional researcher acted as an assistant to the main interviewer. The assistant's role was to determine the order of speaking based on the participants' requests, observe their facial expressions while speaking, and take necessary notes. Each of the focus group sessions lasted approximately 5 h. It should be noted that participant selection and sampling continued until data saturation was achieved. Saturation of data refers to the repetition of information and the confirmation of previously collected data.

Data analysis

The qualitative content analysis approach proposed by Graneheim and Lundman was used for data analysis [16]. The recorded interviews were transcribed verbatim (The transcripts were sent to the participants for feedback and were approved by them), and then each word was carefully examined to identify codes Two independent individuals encoded the data. Words that accurately represented thoughts or concepts within the data were highlighted. Then, the researcher added her own notes about his thoughts, interpretations of the text, and initial analysis of the text. With the progression of this process, appropriate names for the codes emerged, and the codes were organized into subcategories. These subcategories were created to organize and categorize the codes within clusters. The researcher reorganized the subcategories based on their relationships, condensing them into a smaller number of organizational categories. And then the concepts of each category, subcategory, and code were developed.

Trustworthiness

Data was managed using the Lincoln and Guba criteria. These criteria include acceptability, which is equivalent to internal validity; transferability, which is equivalent to external validity; similarity, which is equivalent to reliability; and verifiability, which is equivalent to objectivity [17]. The use of member checks by participants is considered a technique for exploring the credibility of results. In this regard, the interview text and the primary codes extracted from it were made available to several participants to verify the accuracy with their experiences. External supervision was employed to ensure that the criterion of internal consistency was met. For this purpose, the data was given to a researcher who did not participate in the study. If there was agreement in the interpretation of the data, it confirmed the presence of internal consistency. Finally, an audit or verification inquiry was conducted. The researcher accurately recorded and reported all stages and processes of the research from beginning to end. This allows external supervisors to conduct audits and assess the credibility of the findings.

Results

Data analysis resulted in the emergence of 13 subcategories, 4 categories, and 1 theme (Table 2).

Strengthening the intellectual infrastructure of accepting the nursing process

Subcategories such as "improving nursing perception," "strengthening critical thinking," "evidence-based nursing practice," and "filling an educational gap" contributed to the emergence of the category "Strengthening the intellectual infrastructure of accepting the nursing process."

Improving nursing perception

Participants' experiences indicate the significant positive impact of the workshop on improving students' perception of the nursing process. Most nurses in departments

Table 2 Subcategory, Category, and theme emerged from faculty members' and students' experiences in face-to-face workshops on the application of the nursing process with a case-oriented approach

Row	Subcategory	Category	Theme
1	Improving Nursing Perception strengthening critical thinking evidence-based nursing practice filling an educational gap	Strengthening the intellectual infra-structure of accepting the nursing process	Break-ing Taboos in the Nurs-ing Process
2	linking the nursing process with team care demonstrating the role of the nursing process in improving care quality comprehensive view in care student's guiding light in the clinic	Practicality of the Nursing Process	
3	highlighting the importance of nursing science reforming the perception of nursing nature	supporting a positive professional identity	
4	stimulating a thirst for learning creating a stress-free learning atmosphere teaching fishing	self-directed learning facilitator	

do not provide patient care based on the nursing process. As a result, students do not have the opportunity to practically experience the real application of the nursing process in the department. Instead, they only perceive the nursing process as a written task.

> *For me, it was a question of what the nursing process is, for instance. How difficult is it?" and it really helped me overcome my fear in a way. (P3 student)*
> *Usually, they would explain the nursing process to us, but it was not practical or based on real cases, like this. (P1 Student)*

Strengthening critical thinking

Critical thinking is a fundamental skill in the nursing process that involves various stages and activities. These include questioning to gather adequate information, validating and analyzing information to comprehend the problem and its underlying factors, evaluating interventions, and making appropriate decisions for effective problem-solving. The experiences of the participating students clearly reflected the formation of these stages during the workshop sessions.

> *I learned in the workshop about the importance of using critical thinking to successfully connect knowledge and practice. It's a shame that critical thinking has not been cultivated in the minds of students, and these workshops have laid the foundation for it in our minds. (P6 student)*
> *Students often come across hypothetical cases in textbooks, but when they are confronted with real cases, the circumstances are different… This is when critical thinking becomes crucial and the art of nursing is demonstrated… These sessions have made a*

significant contribution to this subject. (P15 Faculty member)

Evidence-based nursing practice

One of the features of the sessions was that in introducing the case from assessment to evaluation, to justify the rationale and process of collecting and formulating nursing diagnoses, establishing expected outcomes, and providing reasons for each intervention, relied on up-to-date and reliable nursing and medical resources

> *It had a strong scientific foundation, consistently emphasizing the importance of evidence-based practices and a scientific approach, effectively communicating this perspective to audience. (P2 Student).*
> *I became familiar with the book 'Carpenito,' and it helped me a lot in understanding my shortcomings. (P3 student).*
> *In my opinion, one of the factors that contributed to the effectiveness of the work was consulting the references. They emphasized that as a nurse, I should not solely rely on my personal opinion but should instead base my actions on the reference materials (P14 Faculty member).*

Filling an educational gap

From the perspective of workshop participants, the workshop has increased their awareness of their limited knowledge about the application of the nursing process. It has also helped them recognize their shortcomings, and motivated them to pursue additional studies in this field.

> *Exactly, there was a vacant spot for this educational program in our classes. And there should have been sessions that would prove to us that nursing is*

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not just about the theoretical concepts that faculty members teach in class. (P5 Student)

The nursing process has a theoretical aspect that students learn, but when they attempt to apply it in practice, they often encounter difficulties. These sessions helped to fill the gap between theory and practice. (P15 Faculty member)

Practicality of the nursing process

Subcategories of "linking the nursing process with team care," "demonstrating the role of the nursing process in improving care quality," "comprehensive view in care," and "student's guiding light in the clinic," Created the category "Practicality of the Nursing Process".

Linking the nursing process with team care

Participants' experiences indicated that participating in nursing process sessions helped them realize that the nursing process is a model that will lead to collaborative team care. Prior to attending these sessions, nursing students like nurses considered their duty to be solely executing medical orders under the supervision of clinical faculty members and staff nurses.

I realized that in certain situations, I am able to confidently express my opinion to the doctor. For instance, if I believe that a particular course of action would yield better results, I can easily communicate this and provide reasons to support my viewpoint (P7 Student).

Teaching the pathway when it's categorized with knowing what we're assessing... Let's go up to the patient; our confidence can really guide them along with us as we progress step by step and systematically. Often, the patient accompanies us, and sometimes they voice their unspoken concerns, which helps improve their care. It means the patient themselves are partnering with us. (P6 student)

Demonstrating the role of the nursing process in improving care quality

Strengthening the attitude and belief in the role and application of the nursing process in improving the quality of care was another concept that emerged from the experiences of the students. Presenting reports on the implementation of the nursing process on real cases led them to believe that providing care based on the nursing process results in organized care planning and enhances the quality of care.

In these workshops, the needs of patients were prioritized, documented, and then organized system-

atically. This concept remains ingrained in a person's mind and enables us to deliver comprehensive care to the patient without overlooking any aspect. This has been very helpful for me, and now it greatly assists me in the clinic. (P4 Student)

Another great aspect of these sessions was the emphasis they placed on the nurse-patient relationship. I could see that the students had been following up with patients for a while and implementing the process. This was very helpful to me. For instance, diagnosing based on the patient's current health status was an ongoing process. In my opinion, the connection between the patient and nurse was more important and practical for me.(P1 Student).

Comprehensive view in care

Attention to the patient's care needs went beyond focusing solely on physiological aspects. It involved a holistic approach that addressed the patient's needs related to all aspects of biology, psychology, society, spirituality, and economics. This was clearly reflected in the students' experiences during the nursing process sessions.

...I paid attention to all aspects of the patient. For example, perhaps I overlooked her anxiety issue and never took it into consideration. However, I eventually came to realize that addressing anxiety is crucial, as it is one of the primary concerns and needs of patients. (P2 Student)

...that the students had a holistic view of the patient (they had examined the patient thoroughly, including the patient's skin, etc.) and had compiled a list of the patient's issues, paying attention to all aspects of the patient (P14 Faculty member).

Student's guiding light in the clinic

One of the significant accomplishments of nursing process sessions, as evidenced by the students' experiences, was the role of these sessions in assisting students in overcoming confusion and uncertainty during their internships. These sessions enabled them to establish a mental connection between the theoretical knowledge learned in the classroom and its application in the real clinical setting, also helped them understand how to effectively utilize their theoretical knowledge in a clinical learning environment.

.I was feeling incredibly lost and confused. I didn't know what steps to take next. Many of us find ourselves in this situation, unsure of what to do. At least for me, as someone who grasps concepts better through examples, the case-based studies conducted

during the workshop had a significant impact. (P6 Student)

a change in perspective by attending these sessions. (P2 faculy members)

Supporting a positive professional identity

Two subcategories, "highlighting the importance of nursing science" and "reforming the perception of nursing nature," have contributed to the development of the category "supporting a positive professional identity."

Highlighting the importance of nursing science

Based on students' experiences, the nursing process sessions have been able to answer an important question. Why should they be bombarded with information and expected to possess extensive knowledge in the field of disease recognition, pathophysiology, diagnosis, treatment, and nursing care during their studies? The students believed that the content of the nursing process sessions clarified the necessity and importance of nursing knowledge for them. In these sessions, they came to believe that providing care based on the nursing process requires extensive nursing knowledge.

. In my opinion, this work showcases a significant strength by highlighting the importance of working scientifically as a nurse. Personally, I feel its impact on myself is profound. (P2 Student)

In my opinion, it was very touching and captivating because it accurately portrayed the immense power of a nurse. However, amidst the demanding and difficult nature of the job, what specific details should a nurse pay attention to? and it is precisely these details that shape the work of a nurse. It was very interesting and beneficial for me. (P5 student)

Reforming the perception of nursing nature

The student is seeking ways to comprehend and value the practical aspects of nursing as a genuine science, assuming that nursing is indeed regarded as a science. Participants' experiences have shown that nursing process sessions have been able to address this identity challenge and modify and enhance students' understanding of the nature of nursing.

I used to believe that nursing was primarily an art complemented by science until I entered term 2 and participated in these workshops. And now I realize that it has the scientific foundation that I expected from an evidence-based practice. (P5 student).

. The important point was that lower-term students, who sometimes lacked motivation and thought nursing had nothing to offer, gained motivation and had

Self-directed learning facilitator

Subcategories of "stimulating a thirst for learning," "creating a stress-free learning atmosphere," and "teaching fishing," formed the category of "self-directed learning facilitator."

Stimulating a thirst for learning

Participants' experiences indicated that the format of conducting sessions, ranging from step-by-step training to training accompanied by multiple examples, had a significant impact on creating a sense of necessity and stimulating learners' motivation to learn.

First of all, the challenges that you yourself raised (faculty member) for example, why did you make this diagnosis?" Why did you include this action? Why is this a priority? Really, it shook me and made me think that maybe there is more to this, maybe there is more to the nursing process that I haven't understood yet.... That's why it became my motivation. (P3 student)

...But these sessions helped me a lot. At least, they sparked my curiosity and motivated me to delve deeper into the subject. I began actively participating in these sessions and found them to be highly effective for my personal growth. (P6 student)

In my opinion, one of the things that empowered the work was the act of seeking references. They emphasized that as a nurse, I should not solely rely on my personal opinion but should instead base my actions on credible sources. (P14 Faculty member)

Creating a stress-free learning atmosphere

Students believed that the absence of a legal requirement to attend these workshops, coupled with the understanding that their participation or non-participation would not be evaluated for grading purposes, would enable them to engage in these sessions without concern for their academic performance and in accordance with their own volition.

I was more scared... In my internships, for example, we would sit and talk with the instructor. However, the discussions primarily revolved around grades and other academic matters, which created a stressful environment where students were hesitant to freely express their thoughts. But the sessions here are very relaxed, and students no longer have the fear of grades. (P7 student)

The essence of these sessions was that they came from the heart and inevitably touched the heart. The beauty of this program was that it was built on love. (P10 Faculty member)

Teaching fishing

Direct reference to teaching fishing in the participants' experiences points to one of the very important features that effectively prepares the way for self-guided learning. The term "teaching fishing" was repeatedly mentioned in the participants' experiences. They believed that these sessions served as a roadmap to easily enhance their knowledge and skills in the field of nursing process application.

.And actually, teaching fishing, as mentioned by other students, is important. In my opinion, it has a positive impact both professionally and in terms of the effectiveness of the nursing process. (P2 student) The important aspect was the involvement and full participation of the students, who prepared the materials themselves... The meaning and concept of being a student were more evident, and the talents of the students flourished. They actively participated in discussions about learning and education. (P15 Faculty member)

Discussion

Planners, in their efforts to help students gain a better understanding of the nature and application of the nursing process, are constantly striving to innovate in teaching this model. The aim of the present study was to describe and explain the experiences of nursing students and faculty during clinical-based nursing process workshops involving real cases.

Hanisch et al. (2020) recommend using data from actual patients [18], and Yilmaz et al. (2015) suggest providing nursing students with opportunities to apply the nursing process in diverse patient populations during clinical training [19]. The study conducted by Karimi et al. (2011) demonstrated that organizing nursing process classes as workshops stimulated a sense of competition and superiority both among and within groups. This approach also enhanced participants' concentration on learning the content of each session. In addition, the workshop fostered a sense of cooperation and cohesion among the students, which was evident in their increased interest and excitement [1]. The importance of utilizing workshop-based training with real clinical cases is clearly evident. When students receive data related to a real patient, they directly experience the clinical environment. This, in turn, leads to an improvement in their critical

thinking and decision-making skills when they encounter similar cases. For this purpose, nursing educators can present the rich clinical cases they encounter during their internships in theory classes based on the stages of the nursing process. They can also ask students to present these cases for their peers to comment on and critique the care provided, in order to stimulate discussion.

The category of " Strengthening the intellectual infrastructure of accepting the nursing process " indicates that the teaching method used in this study has been able to help students better understand and recognize the nature and improvement of insight into the nursing process. In the study by Thuvaraka et al. (2018), 52% of participants strongly agreed on the necessity of having a positive attitude and insight towards the nursing process for its proper implementation [20]. According to the study by Mert et al. (2020), a lack of insight into the nursing profession and process can even lead students to consider dropping out of their studies [21]. The importance of reviewing the nursing education process to enhance this perception has been emphasized in various studies. Zamanzadeh et al. (2015) discuss several challenges in the implementation of the nursing process. These challenges include a lack of clarity regarding its meaning, differences in perspectives, and insufficient training leading to a lack of awareness on how to properly implement it [22]. More than 90% of students (93.5%) in the study conducted by Rajabpoor et al. (2018) [4] and over two-thirds (75.6%) of students in the study conducted by Sharghi et al. (2015) identified lack of proper training and insufficient time allocated for teaching as the most significant barriers to implementing the nursing process. They attributed this to traditional and routine teaching methods [23]. This causes students to undervalue the nursing process, perceiving it only at a theoretical level rather than practical. As a result, they become overwhelmed by the routine when working as clinical nurses [7]. Therefore, by teaching the case method based on real clinical cases, nursing instructors can strengthen students' positive outlook and ability to apply the nursing process. This increases the percentage of students implementing the nursing process in clinical wards.

Strengthening critical thinking is one of the concepts derived from analyzing the experiences of the students and faculty who participated in the present study. Based on a review study by Carvalho et al. (2017), the utilization of the nursing process, particularly the stage of nursing diagnosis formulation, enables nurses to employ critical thinking in making judgments and providing clinical care [24]. This process also helps ensure the delivery of high-quality care [25]. But if the nursing process is presented in an undesirable manner, it suppresses critical thinking. According to Heidari et al. (2016), the nursing process resulted in students relying on copying from

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books, which led to a decline in creativity and an increase in their dissatisfaction [26]. According to the study conducted by Ghanbari et al. (2017), the implementation of collaborative workshops focused on the nursing process resulted in an improvement in critical thinking skills among nursing students [3]. Therefore, nursing instructors can teach theoretical classes based on the clinical cases they have experienced in the hospital. By doing so, students can immerse themselves in the clinical environment during theoretical classes, which significantly enhances their critical thinking skills.

The evidence-based nursing display was one of the achievements of nursing process educational workshops, which were based on real cases. Mackey et al. (2017) consider evidence-based practice as a means to bridge the gap between theory and practice in nursing education for undergraduate and graduate students [27]. And likewise, Sin et al. (2017) believe that nursing faculties are obligated to enhance the competence and knowledge of students for evidence-based practice by employing innovative methods [28]. Therefore, it is recommended that nursing instructors use up-to-date scientific references for nursing interventions when teaching about the nursing process of diseases. This practice helps students feel that the care they provide is supported by scientific evidence and motivating them to carry out nursing care more effectively.

One of the emerging concepts in this study was the focus on the practicality of the nursing process. In the study conducted by Agyeman-Yeboah et al. (2017), participants reported that new students and nurses tend to neglect the implementation of the nursing process when they observe experienced nurses failing to apply it in a scientific and systematic manner [5]. The lack of implementation of the nursing process by nurses is due to a lack of knowledge and a negative attitude towards it. Zerihun Adraro and Adugna Cherkos (2021) conducted a study in Ethiopia and found that the majority of nurses had inadequate knowledge, and half of them lacked a positive attitude towards the implementation of the nursing process [29]. In the study by Thuvaraka et al. (2018), only 17% of nurses had sufficient knowledge about the nursing process and implemented it [20]. One of the important experiences for students in the "Practicality of the Nursing Process" category is the development of their participatory and interprofessional spirit. They are encouraged to express their opinions about the care and treatment process of patients, rather than blindly following the doctor's orders. According to a systematic review study, the level of physicians' proficiency in their management systems is a significant issue for the healthcare system [22]. According to the study conducted by Nakhaee et al. (2017), doctors are the ones responsible for making decisions regarding all patient matters, while

the efforts of nurses often go unappreciated. This lack of recognition can result in a decline in their self-esteem [30]. While according to Adamy et al. (2019), the implementation of the nursing process at a professional level is highly effective in creating an independent nursing role, rather than just serving as assistants to physicians. This implementation also enhances the credibility of the nursing profession [31]. The recommendation of the present researchers to nursing instructors is to take a significant step in enhancing the knowledge and independent spirit of nursing students by basing their teaching on real clinical cases. When students perceive that they have independence and are not merely following doctors' orders, their engagement in operationalizing the nursing process and evidence-based care will increase.

Strengthening the holistic perspective was one of the positive experiences for students and faculty members who attended these workshops. According to the study by Hackett et al. (2017), physical problems can result in mental stress among patients. Therefore, it is essential to consider all dimensions of care [32]. According to Ericsson (1995), humans should be considered as a whole, and nursing care should be tailored to address biological, psychological, social, and spiritual aspects [33]. The importance of holistic care has been emphasized by Florence Nightingale, who encouraged caregivers to practice it [34]. Holistic care emphasizes partnership and dialogue between nurse and patient about health care needs [35]. Adequate training is crucial in ensuring that nurses and nursing students are well-prepared to meet the diverse needs of patients and deliver comprehensive care [36]. It is recommended for nursing instructors to focus on the mental aspect in addition to the physical aspect when teaching the nursing process and encourage students to apply this approach during clinical internships.

Another advantage of these sessions was the successful implementation of the nursing process in apprenticeship. Work disorder and confusion in implementing the nursing process are significant challenges. According to the study by Korkut et al. (2021), students were unable to collect appropriate data from their patients and were confused when formulating and prioritizing nursing diagnoses, determining goals, and planning care. However, due to the fear of receiving a low grade, they were compelled to present fabricated data [37]. Therefore, nursing instructors should incorporate real clinical cases encountered during internships into their theoretical classes. This simulation helps students perform better in implementing the nursing process in the hospital environment later on.

During these workshop sessions, the students' awareness of the professional identity of nursing was heightened. They came to understand that this professional identity is a crucial principle that underpins their

comprehension of nursing and scientific care. As a result, they recognized the significance of studying pathophysiology and the fundamental principles of scientific care for different diseases. Professional identity is described as a person's perception of themselves within a profession or the collective identity of the profession [38]. In nursing, professional identity plays a crucial role in delivering high-quality services to patients [39] because it effectively enhances clinical competence, self-assurance, self-esteem, and interpersonal communication skills [40, 41]. In this regard, the study by Sun et al. (2016) found that professional identity and education level had the greatest impact on the stress levels of nursing students. The results of that study showed that developing and enhancing professional identity could be beneficial for nursing students in managing stress [42]. Similarly, according to the study by Sabanciogullari et al. (2015), there was a positive and significant correlation between nurses' job satisfaction and professional identity. This study found that 15.5% of nurses who intended to leave their profession had insufficient professional identity and lower job satisfaction. Professional identity is a significant factor in job satisfaction [41]. According to the study by Van der Cingel et al. (2021), a lack of attention to the professional identity of nursing contributes to the departure of nursing students and young nurses from the nursing profession [43]. Therefore, focusing on professional identity in nursing education is crucial and should be a primary objective [38], despite findings from Haghighat et al. (2019) indicating that nursing education programs in Iran have not effectively nurtured nursing students [44]. This highlights a greater focus on teaching based on real clinical cases, which enhances the professional identity of nursing and facilitates the implementation of the nursing process.

"Self-directed learning facilitator" is one of the important categories identified in the present study. It encompasses three crucial concepts: "stimulating a thirst for learning", "creating a stress-free learning atmosphere", and "teaching fishing". The students' experiences indicated that engaging in discussions, asking questions, and providing answers had a significant impact on motivating them to study and enhancing their motivation for learning. This learning took place in a calm and stress-free environment. Participants were able to analyze the content calmly, as grades were not involved. As a result, they were able to diagnose what to prioritize in a clinical setting, even without the assistance of a clinical instructor. In fact, during these sessions, the instructors focused on teaching the students how to fish instead of simply giving them fish. As a result, the students' spirit of independent learning increased. Kholmuratovich et al. (2020) stated in their study that independent learning helps students to learn effectively and efficiently [45]. It increases their

independence and critical thinking skills, while also effectively enhancing their self-esteem and motivation [46]. For this reason, Lau et al. (2017) recommend promoting this teaching method in their study [47]. Based on the aforementioned studies, independent and self-directed learning leads to improved comprehension and learning, increased motivation, enhanced self-confidence, and critical thinking among students. Consequently, it can be argued that teaching based on clinical cases and workshop-based approaches, beyond aiding students in better understanding and applying the nursing process, has the potential to transform students' overall learning approach.

Conclusion

Teaching the nursing process through workshops based on clinical cases has broken the taboo surrounding the application of the nursing process. The organization of these workshops in a friendly and stress-free environment, where real clinical cases were discussed, analyzed, and criticized, motivated the students to apply the nursing process in clinical setting. This approach led to a correction in their perception that they considered the implementation of the nursing process as time-consuming and unnecessary, and it also increased the students' critical thinking abilities. The nature and process of conducting the workshops proved to be beneficial in implementing the theoretical standards in practical settings. The nursing interventions program was evidence based. This approach not only fostered students' motivation for self-directed learning but also heightened their curiosity for acquiring knowledge. In these sessions, the approach involved teaching students how to fish rather than simply giving them fish. On the other hand, one of the significant challenges in the application of the nursing process in clinical practice by students is the lack of knowledge and skills among nurses to provide care based on the nursing process, it is recommended that these workshops also be conducted for nurses. Furthermore, action research should be employed to evaluate the role of this educational approach in enhancing the knowledge and skills of clinical nurses.

Limitations

Considering that the workshops had to be held outside of the regular class hours of the faculty, which is at 16:00, and taking into account the transportation issues of the students, the workshops could only continue until 18:00. The limitations of this study include the restricted hours and duration of these workshops. Another limitation of this study is the lack of implementation of nursing interventions by the researchers for the patient and subsequently the real evaluation of the interventions performed, due to ethical considerations. In fact, considering

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that the biggest problem for students is the application of the nursing process related to assessment, diagnosis, and planning, the focus of the workshops was on these stages. However, it seems that by covering all stages of the nursing process in educational workshops, the challenges faced by students in the implementation and evaluation stages can also be addressed.

Data availability
The data that support the findings of this study are available from the cor - responding author upon reasonable request.

Declarations

Ethics approval and consent to participate
This study has been approved by the ethics committee of Isfahan University of Medical Sciences (IR.MUI.NUREMA.REC.1400.139) in 2021. Initially, the research purpose was explained to the patients and their caregivers. They were informed that participation in the research is entirely voluntary and free of charge. Not participating in the research would not affect their care and treatment interventions. They were assured that they could withdraw from the research at any time. Furthermore, it was emphasized that their information would be presented in the workshop in a strictly confidential manner, without disclosing their names, photos, file numbers, etc. Subsequently, both oral and written consent were obtained from them. After that, the study's purpose was also explained to nursing students and faculty members, and informed oral and written consent was obtained from them. Numeric codes were used instead of personal names to ensure the confidentiality of the interviews. The participants were free to withdraw from the study at any time. All methods were conducted following the applicable guidelines and regulations.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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