Perceptions of senior nursing students regarding clinical decision-making

Percepções dos estudantes finalistas em enfermagem sobre a tomada de decisão clínica

Percepciones de estudiantes avanzados de enfermería sobre la toma de decisiones clínicas

Maria de Fátima Mendes Marques[I]
ORCID: 0000-0001-6581-6711

Carlos Lopes Alves Henriques Pina David[I]
ORCID: 0000-0002-0171-3630

Maria Anabela Ferreira dos Santos[I]
ORCID: 0000-0002-1675-5227

Sandra Cristina da Silva Neves[I]
ORCID: 0000-0002-8865-2761

Maria Jose Fonseca Pinheiro[I]
ORCID: 0000-0003-1789-5843

Maria Teresa Sarreira Leal[I]
ORCID: 0000-0003-0553-1188

[I]*Escola Superior de Enfermagem de Lisboa. Lisboa, Portugal.*

Corresponding author:
Maria de Fátima Mendes Marques
E-mail: fmarques@esel.pt

ABSTRACT

Objectives: to understand the perceptions of senior students in an undergraduate nursing course at a nursing college in Lisbon regarding skills related to clinical decision-making learned during their initial training. **Methods:** qualitative study, of an exploratory and descriptive nature. Data collection occurred by carrying out a focus group with eight senior students in an undergraduate nursing course. Data treatment applied content analysis, performed with twebQDA® software. **Results:** data were analyzed according to the four dimensions of Tanner's model of clinical judgment, and noticing and interpreting stood out as the most influential in clinical decision-making. Theoretical and clinical knowledge, validation of care planning, prioritization, and capacity to discuss and debate about situations emerged as the most representative skills. **Final Considerations:** students make decisions by means of a complex process by using the knowledge and skills learned during their training.
Descriptors: Nursing Students; Decision-Making; Nursing; Nursing Education; Focus Groups.

RESUMO

Objetivos: compreender as percepções dos estudantes finalistas de uma escola superior de enfermagem de Lisboa sobre as competências de tomada de decisão clínica adquiridas na formação inicial. **Métodos:** estudo qualitativo de caráter exploratório e descritivo. A colheita de dados foi realizada por meio de um *focus group,* com 8 estudantes finalistas do curso de licenciatura em enfermagem. Na análise dos dados, recorreu-se à análise de conteúdo pelo *software* webQDA®. **Resultados:** os dados foram analisados segundo as quatro dimensões do modelo de tomada de decisão de Tanner, destacando-se a Percepção e a Interpretação como as mais influentes na tomada de decisão clínica. Emergiram como competências mais representativas: o conhecimento teórico e clínico, a validação do planejamento dos cuidados, a priorização e a capacidade de discussão e argumentação sobre as situações. **Considerações Finais:** os estudantes tomam decisões por meio de um processo complexo usando o conhecimento e as competências adquiridas na formação.
Descritores: Estudantes de Enfermagem; Tomada de Decisão; Enfermagem; Educação em Enfermagem; Grupos Focais.

RESUMEN

Objetivos: comprender las percepciones de estudiantes avanzados de una escuela superior de enfermería de Lisboa sobre las competencias de toma de decisiones clínicas adquiridas en la formación inicial. **Métodos:** estudio cualitativo, exploratorio y descriptivo. Datos recolectados mediante *focus group* con 8 estudiantes avanzados de la carrera de licenciatura en enfermería. Datos analizados por análisis de contenido, utilizándose software webQDA®. **Resultados:** los datos fueron analizados según las cuatro dimensiones del modelo de toma de decisiones de Tanner, destacándose la Percepción y la Interpretación como las más influyentes en la toma de decisiones clínicas. Surgieron como competencias más representativas: el conocimiento teórico y clínico, la validación de la planificación de cuidados, la priorización y la capacidad de discusión y argumentación sobre las situaciones. **Consideraciones Finales:** los estudiantes toman decisiones aplicando un proceso complejo, utilizando el conocimiento y las competencias adquiridas durante su formación.
Descriptores: Estudiantes de Enfermería; Toma de Decisiones; Enfermería; Educación en Enfermería; Grupos Focales.

INTRODUCTION

In the current context of increasingly complex and demanding health care, nurses are expected to have clinical reasoning skills to solve clinical problems and make the most appropriate care-related decisions, to guarantee positive health results[1-2]. Consequently, decision-making has been gaining more and more prominence as a cornerstone of high-quality nursing care[3]. The cognitive process and clinical reasoning that nurses use in clinical decision-making have sparked growing concern about the teaching of this skill[4]. In search of explanations for the concept, most authors agree that clinical decision-making is a process that nurses use to evaluate and select the best actions to meet the desired results in a clinical context[5-6]. Designations such as clinical judgement and critical thinking are often used as synonyms for decision-making[6-8].

Intuition and analysis emerge as two components of the decision-making process in the substantiation of how nurses carry out judgement and decision-making[9]. Intuitive decisions, which are especially useful in solving complex clinical situations, are characterized by a fast and unconscious process, based on global knowledge, that considers patients or situations as a whole and summarizes information to improve the results[10]. Analytical decisions are more methodical and take longer, consisting of identification of options and possible results. These skills allow assignment of values to results and establish probability relationships between options and expected results[7]. In the clinical decision-making process, nurses resort to both alternatives when selecting the most suitable interventions, to the detriment of other options, applying intuitive and analytical judgement[2]. However, different from experienced nurses, who often use intuition to make clinical decisions, nursing students need rules to guide their actions according to the existence of different elements, because of their lack of experience in care situations[7,11]. In complex or unknown clinical situations, students usually respond based on their theoretical knowledge and psychomotor skills, instead of showing a decision-making capacity oriented toward the complex and multidimensional nature of the situation[6,12].

Learning occasions must provide students with the possibility of developing decision-making skills and turn them into nurses whose performance is compatible with the patients, families, and communities that receive their care, as well as with the contexts in which these care receivers are inserted. Although decision-making is not always present in initial training, decision-making is a key skill to be developed and, as such, must be included by nursing courses in programs designed specifically for this purpose[13].

To meet the needs imposed by these circumstances, the curricula of nursing courses will have to cover, in a first phase, classroom learning experiences that are close to clinical practice, because they improve the study of clinical decision-making[10] without the stress that accompanies real situations[14]. Operationalizing the training project in nursing is intimately related to the pedagogical methodologies that make the process effective[6]. Among the several educational methods used to promote decision-making in nursing education programs, simulation[10-11,15], namely high-fidelity simulation[15], and problem-based learning (PBL)[15-17] are two of the most widely used methods[1].

In Portugal, nursing teaching is part of the national educational system. At the polytechnic higher education level, it is equivalent to a nursing undergraduate course (NUC), which lasts four years and confers a bachelor's degree. Each nursing college, with the pedagogical and scientific autonomy that characterizes them as higher education institutions, looked for an initial training framework in accordance with their view on nursing, respecting the guidelines of the European Union and the *Ordem dos Enfermeiros* (Nursing Committee)[6]. Considering that decision-making is what guides nurses' professional activities[18], the Lisbon Nursing College (ESEL, as per its acronym in Portuguese), when designing its initial training plan, created a curricular unit called "The Decision-Making Process in Nursing (PTDE, as per its initialism in Portuguese)." It is offered in the second semester of the second year of the course, and is equivalent to six credits in the European Credit Transfer System[19]. The purpose of the PTDE course is "training students to understand the decision-making process, the factors that influence it, and the strategies to be used, as well as developing the nursing care process over the life cycle".

This curricular unit encompasses theoretical classes, to teach the structuring topics; theoretical-practical classes, for students to grasp the topics, with exercises that lead to the discussion of theories and cases that mobilize learning; and laboratory practices and freelance job activities, to provide training in clinical judgment and decision-making, by planning care situations in different contexts with the application of PBL. Students are assigned to small groups, and get involved in solving situations that simulate clinical practice in different contexts, with questioning, guidance, and feedback from professors.

Because this is a recent inclusion in the nursing curriculum that has to be evaluated, and because perceptions of nursing students regarding clinical decision-making (and the skills inherent to it) is a subject that is little explored in Portugal[4], the following research question emerged for the teaching staff: What are the perceptions of senior nursing students at ESEL regarding the skills learned in the initial training promoted by the curricular unit PTDE?

OBJECTIVES

To understand the perceptions of senior nursing students at ESEL regarding skills learned during the initial training promoted by PTDE that had the greatest impact on clinical practice and influenced their clinical decision-making the most.

METHODS

Ethical aspects

The present study is part of a multi-method study on analysis of the profile of decision-making of NUC students at ESEL and was approved by the institution's ethical committee. Formalization of the students' participation occurred by means of completion of a declaration in which they expressed their informed consent about their participation in the focus group. Confidentiality and anonymity of the students were guaranteed.

Type of study

This was a qualitative, exploratory, and descriptive study that focused on a type of comprehensive knowledge and in which interpretation was the central characteristic. The reflection that this type of study implies[20] allowed exploration of the richness of the experiences of the participants about the topic under discussion[21], including the social reality and meanings assigned by the students. By adapting the qualitative approach to the proposed research design, the authors tried to understand the perceptions of senior nursing students regarding clinical decision-making skills learned during their initial training.

Methodological procedures

The focus group session was planned as suggested by Krueger and Casey[22], de Silva et al.[23], and Soares, Camelo, and Resck[24], and a script containing the questions to be asked was designed. The principles for good practices mentioned by Streubert and Carpenter were observed[25], and the meeting was held in a place comfortable for the participants to facilitate information transmission[24]. The selected place was a room at ESEL, easily accessible to the participants, that is, with a parking lot. It had good acoustic insulation (although not perfect) and characteristics that prevented internal and external distractions[24]. Information on the expected duration of the meeting was provided to reduce the chances of early withdrawal when the group discussion occurred[23]. The authors took the precaution of scheduling the focus group meeting at a time that had the lowest possible impact on the clinical teaching timetable.

It is usually recommended that face-to-face discussion about a limited set of topics have a duration of from one to two hours[22,24,26]. The session lasted 100 minutes, and the audio and video were fully recorded (two recording devices in different places). Simultaneous recording was used to guarantee the collection of all the interactions that would occur[23].

Two researchers participated in data collection, one (FMM) as the moderator and the other (CD) as an assisting researcher, and both wrote field notes. The questions that got the discussion started were: (1) What is the impact of skills learned in PTDE on your clinical practice? and (2) What skills learned in PTDE influenced your clinical decision-making?

The authors aimed to obtain a complete and comprehensive understanding[25] of the study object and ensured the study's validity and reliability as quality criteria in a qualitative study[27]. For validity, examination of agreement between the initial propositions, the study evolution, and the results found during data analysis led the authors to look for factors that affected the learning of clinical decision-making by nursing students and understand how the curricular unit PTDE determined this learning, by means of the defined theoretical framework[27]. For reliability, the authors tried to make the research process the most operational possible and guide the study to make the form and substantiation of clinical decision-making of nursing students understandable[27].

Study setting

The present study was carried out in the Lisbon Nursing College, with a focus on the NUC. The nursing course has two phases: the first, encompassing the two first years, occurs mostly in the academic setting, and the second, which takes up the two following years, concentrates on clinical practice settings[28]. The curricular unit PTDE is offered in the second semester of the second year of the course, and uses, as its pedagogical strategy, the learning method based on problems that students must try to solve and that are part of clinical cases.

Data source

The participants were senior nursing students at ESEL who attended the penultimate clinical teaching course. This was a convenience sample of eight students who agreed to participate in the study after the details were explained to them. According to the rules, the number of participants in a focus group can range from six to 12[24,29], with six to eight being the most common number[26,29]. The selection criteria were: (1) being a fourth-year student of the NUC; and (2) having been through clinical learning experiences in the community and in hospital inpatient services. The authors opted to gather a sample with some diversity but whose characteristics showed some commonality, pertinent to the topic in question, to guarantee productive and relevant discussions, as recommended by some researchers[23].

Data collection and organization

The study met the guidelines for qualitative research suggested in the Standards for Reporting Qualitative Research[30].

Data collection occurred by carrying out a focus group in November 2018. This option can be justified by the importance of the interactions offered by this method, the possibility of having access to the different opinions of the participants, and the potential to maximize the understanding of the perceptions regarding the subject by applying reflection[22-23,29]. The objectives were to identify and map students' unanimities and divergences regarding clinical decision-making skills[29].

After the focus group meeting, the records were literally and fully transcribed, and the data were organized in a way that showed what happened in the group with the maximum possible objectivity and impartiality[24]. Listening for transcription involved a systematic procedure to guarantee its quality and objectivity in data treatment, in order to maximize the usefulness of the information provided by the participants[31].

The students were identified by the letter S followed by a number that indicated the position they occupied in the focus group circle, with the numbers increasing clockwise. A gender characterization was included by adding the letters F (female) or M (male).

Data analysis

The dataset obtained from the transcriptions and the notes produced during the focus group moderation was submitted to content analysis, which was divided into three phases: preanalysis, data analysis, and results treatment and interpretation[32]. Initially, the authors skimmed the texts and created the indicators that supported the interpretation. In a subsequent step, codification

was carried out, based on the record units. Categorization was the last step, in which the elements were classified based on common characteristics[32].

When the categories were defined, there was an attempt to cover representativeness, exhaustiveness, homogeneity, and relevance to the study object. Content analysis was then carried out, according to Bardin[33], by using the software webQDA®, in which the text was split into thematic units that expressed specific ideas. This type of analysis allowed categorization and counting of frequencies, with emphasis on the type of record unit. The use of quantitative stylistics, based on the frequency of the record units found in content analysis, and translating the overall frequency, could be used as a meaning assignment reference frame[33].

The clinical decision-making skills perceived by the students as having the greatest impact on their clinical practice were categorized based on Tanner's model of clinical judgment[7]. The importance of this model at the nursing training level, for mapping the capacity to make clinical judgments by mastering knowledge and the decision-making process[5], guided the authors in the selection of excerpts. Consequently, classification was carried out according to the following four categories: noticing, interpreting, responding, and reflecting. These classes correspond to the four sequential cognitive categories that go from the perceptional understanding of a situation (noticing) to the development of the understanding necessary to the situation (interpreting), which results in a decision about the course of action adequate to the care context (responding). The clients' response to nursing interventions allows professionals to carry out mental reflection compatible with the situation and learn from their actions (executed or not) (reflecting).

Chart 1 – Categories and indicators of clinical decision-making skills of senior nursing students.

Category	Indicators
A - Noticing	A.1 – Theoretical knowledge
	A.2 – Search for information
	A.3 – Clients' knowledge
	A.4 – Care context
	A.5 – Clinical knowledge
	A.6 – Expectations as a nursing student
B - Interpreting	B.1 – Problem-solving
	B.2 – Questioning
	B.3 – Clinical reasoning
	B.4 – Group discussion/debate
	B.5 – Diagnosis formulation
	B.6 – Use of taxonomies
	B.7 – Creativity
C - Responding	C.1 – Care individualization
	C.2 – Prioritization
	C.3 – Autonomy in care-related decisions
D - Reflecting	D.1 – Self-analysis
	D.2 – Validation of care planning

Eighteen indicators emerged from analysis of the participants' clinical decision-making skill typology, distributed over the four categories mentioned above, as shown in Chart 1.

Over the data treatment and analysis process, there was constant reformulation and a need to go back to the recorded interviews to guarantee fidelity to the meaning of the accounts. The transcriptions were submitted to thorough examination, a procedure specific to data analysis in qualitative research. The notes produced during focus group moderation complemented the views of the researchers during the codification process. The privileged information that the group of researchers obtained about facial expressions, gestures, tone of voice, and the circumstances in which the accounts were delivered allowed a unique view, indispensable to the process of data decoding, interpretation, and analysis[31].

RESULTS

The sample of the present study was eight students, 87.5% of whom were women. The age of the participants ranged from 20 to 30 years, with an average age of 22.1 years.

Analysis indicated that, among the 172 identified record units, the category noticing was the one that reached the highest frequency, with 48 record units, followed by responding, with 44, interpreting, with 42, and reflecting, with 38.

In the category noticing, the participants gave special attention to, in descending order: theoretical knowledge (17 record units), clinical knowledge (10 record units), expectations as a nursing student (8 record units), clients' knowledge (6 record units), search for information (4 record units), and care context (3 record units). In the category interpreting, the participants especially emphasized group discussion/debate (16 record units), followed by clinical reasoning (8 record units), diagnosis formulation (7 record units), problem solving (4 record units), creativity (3 record units), and questioning and use of taxonomies (2 record units each). In the category responding, the most cited item was prioritization (22 record units), followed by care individualization (16 record units) and autonomy in care-related decisions (6 record units). Last, in the category reflecting, the students valued mostly the validation of care planning skills (26 record units), followed by those related to self-analysis (12 record units).

Regarding the category noticing, theoretical knowledge emerged as a relevant subcategory. Developing decision-making competence suggests learning how to identify and find pertinent theoretical knowledge, which is a decisive resource for solving problems found in care situations:

To identify the problems by searching. (S3-F)

Why we make some decisions based on searching. (S4-F)

The curricular unit PTDE seems to have developed these competencies in the students when it contributed to learning about what to do and how to do it regarding the offered care:

I think searching is also one of the most important skills I have developed in PTDE […] because searching, especially in databases, allows us to individualize care, we can find several papers related to the pathology. (S5-F)

In clinical practice, students are faced with the care reality according to a logic of knowledge inserted in a context, not just mere knowledge acquisition, as suggested by the development of clinical knowledge:

> The internship place […] stays with us in a way that will later influence how our practice is, as nursing students and as nurses. (S2-F)

Theoretical and clinical knowledge support expectations as nursing students, expressed in the participants' answers:

> We begin to think about how we are going to, what our way to provide care is, that is, our own way to care for the patients. (S6-F)

> Because students only develop trust as they develop their knowledge, I think, and, therefore, it ends up being a good preamble for when this is necessary in clinical instruction. (S8-M)

Group discussion/debate emerged as the most representative subcategory in the interpreting category. Discussion in groups and exposing arguments allow nursing students to develop communication skills and be able to present their ideas and questions to other people with all possible clarity:

> Because we can think that something is correct, and we must maintain our opinion that is correct, but obviously with scientific justification. (S6-F)

The curricular unit PTDE, with its learning methodology based on problems, seems to have contributed to the acquisition of decision-making skills, with its group discussions and debates, as reported by the students:

> The PBL discussions, we have to decide and explain why we made certain decisions based on searching. (S4-F)

> We need to discuss our decision-making, whether with the nursing team or with other professionals, and, in this sense, this training in PTDE is important. (S8-M)

During the offering of the curricular unit PTDE, it seems to have been possible for the students to develop their clinical reasoning, as a way to critically think about care questions:

> Clinical reasoning, in the sense that, over the classes, we received a little more information, and that little increment is what happens later, during the internship. (S1-F)

> The skill that I think I developed the most in PTDE was clinical reasoning. (S3-F)

> And then we have to operationalize the skills we acquired in PTDE and, therefore, it seems to me that this is the time when they get consolidated. (S8-M)

The second most prevalent subcategory was in the responding category, and is called prioritization. The students seemed to have learned to recognize and prioritize nursing interventions according to their understanding of the clinical situation:

> Prioritizing care, not just to that person, but taking into account all the people who were there. (S1-F)

> When we start having more contact with clinical practice, we realize that it is important to establish priorities; we have results to be achieved now, we have results to be achieved in two weeks, and we have results to be achieved in one month; we have to realize what is important now and what will be important later. (S8-M)

Care individualization seemed to be centered on the decision to attempt to get more benefits for clients when meeting health goals, according to the person's needs:

> There are several interventions and, of these several interventions, we can choose, according to scientific evidence, the one that will be the most important to our client or the most pertinent in that case. (S5-F)

The subcategory validation of care planning, which is part of the reflecting category, stood out because of its frequency, being the most valued skill. Reflecting on the adjustment of nursing interventions to meet clients' needs effectively seemed to promote clinical reasoning:

> If, by acting a certain way in the face of a certain situation, I think about how I could have improved that action to be able to, somehow, in a future situation, adjust my conduct a little towards a more suitable one. (S3-F)

> Evaluating whether my action had any impact is in order to see if there really was a positive impact, if I was able to achieve the results I had initially planned. (S4-F)

> How I operationalized these skills, I got home and pondered: "How did I make this decision? Why did I make it? What was it based on? Is that correct?" I used a scale, I used the "opinionmeter," right? How did I get this information? And then we try to move from what is mechanical and gradual, right? As if it was a thing that does not move smoothly, and then we turn it into fluid reasoning by practicing. (S8-M)

Regarding self-analysis, the students suggested self-criticism about their performance, the evidence implicit in the actions, and the possibility of integrating it into future actions:

> …in the sense that I became really aware that these skills had to be developed so the care I delivered could be better. (S6-F)

> …for them to take on this more intuitive nature, first it is necessary to reflect on them. (S8-M)

In summary, the data showed that the students developed the following: theoretical and clinical knowledge; reflection offered by validation of care planning; prioritizing care situations; and ability to discuss and debate about the situations. These were identified as the skills learned in the curricular unit PTDE that were most pertinent to their clinical practice.

DISCUSSION

The current healthcare context, together with rapid evolution of the nursing profession, demands implementation of pedagogical

strategies that promote the development of the scientific mindset, reflective critical thinking, problem-solving, and decision-making in teaching and learning processes[4,34-35]. With these strategies, it is possible for students to develop and mobilize skills that will allow them to grasp the healthcare reality, which is dynamic and complex. This scenario implies a need for students to reason about changes that occur in clinical situations and conditions existing in the context and make decisions, keeping clients (a person or a group, whether it is a family or a community) as the central focus of the care process[18], so they can provide safe and individualized care that translates into health gains[4,36].

The results of the present study were analyzed based on the four dimensions of Tanner's model of clinical judgment[7]. The data indicated that, in the noticing dimension, theoretical knowledge, combined with clinical knowledge, becomes relevant to the understanding of the situation and to the identification and recognition of the data available in it, which helps guide the response, making them factors that may influence the decision-making process[37]. The students' background included not only technical-scientific knowledge, but also information related to their biography, which were a reference for their understanding of the world, providing resources for their learning and teaching process in the clinical context[38]. Clinical knowledge originates in clinical experience in contexts marked by constant change, in which complex health problems emerge and a dialogic relationship is established between the people involved in care. It is thought that these elements are indispensable to the development of clinical reasoning, critical thinking, and decision-making (expressions that can be used interchangeably)[36].

Expectations as a nursing student equally influence this dimension, because, as Tanner explained[7], the view of professionals about what they consider "excellence practice" and their values related to a specific situation affect their evaluation and intervention[6].

Decision-making requires mobilization of preexisting knowledge, with which professionals associate an active process of acquisition of new knowledge that proves pertinent to the client's specific situation[6]. Having this knowledge as a starting point, students formulate hypotheses in the face of multiple options to solve the problem and select those suitable to the situation and context. They identify the best course of action[35], contributing to the development of decision-making skills and high-quality care delivery, because searching for new information and knowledge promotes evidence-based practice, observing standards of excellence of care[34].

Group discussion/debate is assumed to be a determinant in the interpreting dimension. It begins with the experience of working in small groups, following the PBL methodology, allowing students to share knowledge and opinions and think collectively in search of solutions to problems[35]. In the clinical practice context, collaborative dialogue between students, professors, and clinical advisers is a powerful tool that facilitates clinical judgment, helping students develop autonomy in a context that makes the learning process easier, as stressed by Graan et al.[39]. It can also be used as a tool to support professional development, since it allows the establishment of an understanding circle (hermeneutic circle) between theory and practice. It offers the possibility for students to express their thoughts, in a two-way flow that leads to continued learning cycles[40], and promotes acquisition of skills and attitudes oriented toward clinical practice based on well-considered action and transfer of knowledge from theory to practice, which leads to the development of self-knowledge in action[40].

In addition, this type of discussion contributes to developing communication skills, which are crucial to healthcare delivery and will be recruited when therapeutic relationships are established with clients[39]. It will promote effective interpretation of the data available in clinical situations that the students encounter, guiding them toward appropriate responses[6].

In the responding dimension, students emphasized prioritization, which they put into practice by applying clinical reasoning[36], a tool that allows the selection of appropriate interventions when it is necessary to deliver care and the best time to act to prevent complications[4]. Care individualization is achieved by designing and implementing interventions adapted to the client's specific clinical situation[6] (customization), that is, nurses define and implement interventions tailored to that specific client, which is followed by monitoring the patient's progress, resulting in adjustments in the intervention according to the observed response[39].

In the reflecting dimension, validation of care planning materializes when students share their interpretations about the client's condition with their tutors or clinical advisers during discussion and implementation of care planning, analyzing how the client reacts to their interventions and adjusting them according the evaluation carried out[6]. To do that, they resort to reflection on and about the action. In the latter, they evaluate the situation, identifying its contribution to knowledge and future experiences.

Last, self-analysis, mentioned by the students, may be comparable to reflection with action[39], which refers to interpersonal interactions in the process of "developing meanings and formulating inferences, generalizations, analogies, evaluations, resolution of problems, and discriminating as part of the reflection." Promoting self-reflection and reflection on actions, feelings, and established interpersonal relationships proves essential for the development of the decision-making process during undergraduate training[36]. This reflective attitude is boosted when learning facilitators provide feedback, promoting acquisition of knowledge[38]. However, this process can be hindered by the limited experience of the students, which is inherent to their academic status, and by the fact that they are being evaluated[40].

The results of the present study support the idea that theoretical knowledge, complemented by clinical knowledge, contributes to substantiated, personalized, and responsible decision-making, guided by a reflective attitude on and about actions, supported by dialogue that facilitates personal and professional growth, aspects that were stressed by Graan and Williams[41] and Mahmoud and Mohamed[34]. Consequently, the results suggested that students can make clinical judgments by applying a complex process and using domains of knowledge and the decision-making process[6].

Study limitations

Opting for a convenience sample and carrying out only one focus group were some of the limitations of the present study.

Other limitations were not observing the way students made decisions in clinical practice, and not carrying out interviews in which they could explain in detail their experience with clinical decision-making. The challenges for future studies will be comparing results with those of similar studies with third-year NUC students at ESEL and with senior students at other nursing colleges in Portugal, who experience different curricular and training realities.

Contributions to nursing, health, and public policies

The present study, designed to help understand the decision-making of senior nursing students, expanded knowledge about clinical decision-making skills and the competencies of nursing students and their applicability in training contexts, whether simulated practice or real-life situations. The results provide people responsible for training in nursing with resources to carry out detailed analysis of the organization and selection of curricular contents, and of the pedagogical practices necessary to facilitate learning the decision-making process. Considering that promoting decision-making skills improves the global competencies of students, this approach will contribute to these future nurses offering high-quality nursing care to their clients, as well as to their families and communities. Taken together, the results and limitations of the present study present a broad range of research hypotheses about decision-making of nursing students, a subject little explored in the Portuguese reality.

FINAL CONSIDERATIONS

Decision-making is a competence fundamental to the clinical performance of nurses, which is why it must be developed starting in the initial training in nursing. The curricular unit "The Decision Making Process in Nursing" (PTDE), by addressing theories on decision-making and resorting to learning strategies based on problem-solving, promoted the acquisition of skills that help make decisions in the delivery of nursing care. Senior nursing students seemed to have transferred knowledge and skills learned in PTDE to clinical contexts. The process of problematization of learning and reflection about care situations allowed students to show well-considered, reconstructed, aware, decision-making, which also had the property of facilitating personal and professional growth. The students' perceptions showed that the developed theoretical and clinical knowledge, validation of care planning, prioritization, and the capacity to discuss and expose arguments about the situations emerged as the most relevant skills.

To put into effect active learning of decision-making by nursing students, training is necessary in which these soon-to-be professionals can get actively involved with relevant problems, developing mental models and learning habits by means of practice and reflection. This training should utilize multiple pedagogical strategies that allow students to be active in and responsible for the acquisition of their knowledge.

ACKNOWLEDGMENT

We are grateful for the collaboration of the students, without whom this study would not have been possible. And for the clinical teaching supervisors who provided the conditions for their participation.

REFERENCES

1. Merisier S, Larue C, Boyer L. How does questioning influence nursing students' clinical reasoning in problem-based learning? a scoping review. Nurse Educ Today [Internet]. 2018 [cited 2020 Jul 30];65:108–15. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0260691718301308

2. Standing M. Clinical judgement and decision-making in nursing. 3rd ed. London: Learning Matters; 2017.

3. Baxter PE, Boblin S. Decision making by baccalaureate nursing students in the clinical setting. J Nurs Educ. 2008;47(8):345–50. doi: 10.3928/01484834-20080801-02

4. Marques FM. Decision making from the perspective of nursing students. Rev Bras Enferm. 2019;72(4):1102–8. doi: 10.1590/0034-7167-2018-0311

5. Horowitz LS, McCulloch AR, (Eds.). Clinical decision making. In: Nursing: a concept-based approach to learning, Vol 2. 3rd ed. Boston: Pearson Education, Inc.; 2019. p. 2479–542.

6. Marques FM, David C, Ferreira dos Santos A, Neves S, Pinheiro MJ, Leal MT. Competências de tomada de decisão clínica em Enfermagem: perceções dos estudantes finalistas. In: Atas - Investigação Qualitativa em Saúde [Internet]. 2019 [cited 2020 Jul 20]. p. 975–84. Available from: https://proceedings.ciaiq.org/index.php/CIAIQ2019/article/view/2171

7. Tanner CA. Thinking like a nurse: a research-based model of clinical judgment in nursing. J Nurs Educ. 2006;45(6):204–11. doi: 10.3928/01484834-20060601-04

8. Gladstone N. Comparative theories in clinical decision making and their application to practice: a reflective case study. Br J Anaesth Recover Nurs. 2012;13(3–4):65–71. doi: 10.1017/S1742645612000435

9. Orlandi LB, Pierce P. Analysis or intuition? reframing the decision-making styles debate in technological settings. Manag Decis. 2020;58(1):129–45. doi: 10.1108/MD-10-2017-1030

10. Ramadan AH, El-Demerdash SM. The relationship between professional values and clinical decision making among nursing student. J Nurs Heal Sci [Internet]. 2017[cited 2020 Jul 20];6(6):19–26. Available from: https://www.semanticscholar.org/paper/The-Relationship-between-Professional-Values-and-Ramadan-El-demerdash/7f4163df51a76082e78801446382679e5837427f

11. Nibbelink CW, Brewer BB. Decision-making in nursing practice: an integrative literature review. J Clin Nurs. 2018;27(5–6):917–28. doi: 10.1111/jocn.14151

12. Backes DS, Zamberlan C, Siqueira HCH, Backes MTS, Sousa FGM, Lomba MLLF. Educação de qualidade na enfermagem: fenômeno complexo e multidimensional. Texto Contexto Enferm. 2018;27(3). doi: 10.1590/0104-070720180004580016

13. Johansen ML, O'Brien JL. Decision making in nursing practice: a concept analysis. Nurs Forum. 2016;51(1):40–8. doi: 10.1111/nuf.12119

14. Suarez-Garcia J-M, Maestro-Gonzalez A, Zuazua-Rico D, Sánchez-Zaballos M, Mosteiro-Diaz M-P. Stressors for Spanish nursing students in clinical practice. Nurse Educ Today. 2018;64:16–20. doi: 10.1016/j.nedt.2018.02.001

15. Dowding D, Gurbutt R, Murphy M, Lascelles M, Pearman A, Summers B. Conceptualising decision making in nursing education. J Res Nurs [Internet]. 2012 Jul [cited 2020 Jul 30];17(4):348–60. Available from: http://jrn.sagepub.com/cgi/doi/10.1177/1744987112449963

16. Al-Kloub MI, Salameh TN, Froelicher ES. Nursing students evaluation of problem based learning and the impact of culture on the learning process and outcomes: a pilot project. Nurse Educ Pract [Internet]. 2014 [cited 2020 Jul 12];14(2):142–7. Available from: http://www.sciencedirect.com/science/article/pii/S1471595313001327

17. Sharma R. Effect of problem based learning on nursing students' clinical decision making and learning satisfaction. Int J Sci Res [Internet]. 2015[cited 2020 Jul 12];4(7):163. Available from: https://www.ijsr.net/get_abstract.php?paper_id=SUB156308

18. Ordem dos Enfermeiros de Portugal. Regulamento n.o 190/2015[Internet] . Diário da República. 2015;2.a série(N.o 79) [cited 2020 Jul 12]:10087–99. Available from: https://dre.pt/application/conteudo/67058782

19. Escola Superior de Enfermagem de Lisboa. Despacho no 6687/2017. Diário da República [Internet]. 2017;2.a série(no 149) [cited 2020 Jul 12]:16145–7. Available from: https://dre.pt/application/conteudo/107795916

20. Silva A, Castro-Silva CR, Moura L. Pesquisa qualitativa em saúde: percursos e percalços da formação para pesquisadores iniciantes. Saúde Soc. 2018;27(2):632–45. Available from: 10.1590/s0104-12902018172700

21. Austin Z, Sutton J. Qualitative research: getting started. Can J Hosp Pharm [Internet]. 2014 Dec 22 [cited 2020 Jul 24];67(6). Available from: http://www.cjhp-online.ca/index.php/cjhp/article/view/1406

22. Krueger RA, Casey MA. Focus groups: a practical guide for applied research. 5ed ed. New Delhi: Sage Publications, Inc; 2015.

23. Silva IS, Veloso AL, Keating JB. Focus group: considerações teóricas e metodológicas. Rev Lusófona Educ [Internet]. 2014[cited 2020 Jul 24];26:175–90. Available from: https://revistas.ulusofona.pt/index.php/rleducacao/article/view/4703

24. Soares MI, Camelo SHH, Resck ZMR. A técnica do grupo focal na coleta de dados qualitativos: relato de experiência. Rev Min Enferm. 2016;20:1–5. doi: 10.5935/1415-2762.20160012

25. Streubert H, Carpenter DR. Investigação qualitativa em enfermagem: avançando o imperativo humanista. 5th ed. Loures: Lusodidacta; 2013.

26. Ryan KE, Gandha T, Culbertson MJ, Carlson C. Focus group evidence: implications for design and analysis. Am J Eval. 2014;35(3):328–45. doi: 10.1177/1098214013508300

27. Yin R. Estudo de caso: planejamento e métodos. Porto Alegre: Bookman; 2015.

28. Escola Superior de Enfermagem de Lisboa. Proposta de actualização do plano de estudos do CLE da ESEL. 2012.

29. Minayo MC de S, Costa AP. Fundamentos Teóricos das Técnicas de Investigação Qualitativa. Rev Lusófona Educ[Internet]. 2018[cited 2020 Jul 20];139–53. Available from: https://revistas.ulusofona.pt/index.php/rleducacao/article/view/6439

30. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med [Internet]. 2014 [cited 2020 Jul 20];89(9):1245–51. Available from: http://www.ncbi.nlm.nih.gov/pubmed/24979285

31. Galego C, Gomes AA. Emancipação, ruptura e inovação: o "focus group" como instrumento de investigação. Rev Lusófona Educ [Internet]. 2005 [cited 2020 Jul 24];5:173–84. Available from: https://revistas.ulusofona.pt/index.php/rleducacao/article/view/1012

32. Busanello J, Lunardi Filho WD, Kerber NP da C, Lunardi VL. Modos de produção de subjetividade do enfermeiro para a tomada de decisões. Rev Bras Enferm. 2014;67(3):422–9. doi: 10.5935/0034-7167.20140056

33. Bardin L. Análise de conteúdo. Lisboa: Edições 70; 2013.

34. Mahmoud AS, Mohamed HA. Critical Thinking Disposition among Nurses Working in Puplic Hospitals at Port-Said Governorate. Int J Nurs Sci [Internet]. 2017 [cited 2020 Jul 12];4(2):128–34. Available from: https://linkinghub.elsevier.com/retrieve/pii/S2352013216300564

35. Thabet M, Taha EE-S, Abood SA, Morsy SR. The effect of problem-based learning on nursing students' decision making skills and styles. J Nurs Educ Pract. 2017;7(6):108. doi: 10.5430/jnep.v7n6p108

36. Menezes SSC, Corrêa CG, Silva RCG, Cruz DAML. Clinical reasoning in undergraduate nursing education: a scoping review. Rev Esc Enferm USP. 2015;49(6):1032–9. doi: 10.1590/S0080-623420150000600021

37. Carvalho EC, Oliveira-Kumakura ARS, Morais SCRV. Clinical reasoning in nursing: teaching strategies and assessment tools. Rev Bras Enferm. 2017;70(3):662–8. doi: 10.1590/0034-7167-2016-0509

38. Merighi MAB, Jesus MCP, Domingos SRF, Oliveira DM, Ito TN. Teaching and learning in the clinical field: perspective of teachers, nurses and nursing students. Rev Bras Enferm. 2014;67(4):505–11. doi: 10.1590/0034-7167.2014670402

39. van Graan AC, Williams MJS, Koen MP. Professional nurses' understanding of clinical judgement: a contextual inquiry. Heal SA Gesondheid. 2016;21:280–93. doi: 10.4102/hsag.v21i0.967

40. Cunha C, Macedo A, Vieira I. Nursing students' perceptions of training processes in clinical supervision contexts. Rev Enferm Ref. 2017;IV Série(12):65–74. doi: 10.12707/RIV16072

41. van Graan AC, Williams MJS. A conceptual framework to facilitate clinical judgement in nursing: a methodological perspective. Health SA Gesondheid. 2017;22:275–90. doi: 10.1016/j.hsag.2017.01.004