



**FATORES QUE INFLUENCIAM A PRÁTICA SIMULADA NA FORMAÇÃO EM ENFERMAGEM: SCOPING REVIEW**  
**FACTORS INFLUENCING SIMULATED PRACTICE IN NURSING EDUCATION: SCOPING REVIEW**  
**FACTORES QUE INFLUYEN EN LA PRÁCTICA SIMULADA EN LA ENSEÑANZA DE LA ENFERMERÍA: SCOPING REVIEW**

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## RESUMO

**Introdução:** A elaboração de um cenário de simulação requer uma planificação estratégica que permita guiar a prática simulada, de forma a contribuir positivamente para o desenvolvimento de competências e uma prática de excelência dos futuros enfermeiros.

**Objetivo:** Identificar os fatores que influenciam a construção dos cenários de simulação na prática simulada de enfermagem.

**Métodos:** Estudo de Scoping Review realizado nas bases de dados Scielo, CINAHL PLUS, GreenFILE, Lilacs, PubMed, RCAAP, com a frase booleana "Nursing AND Simulation AND Practice Guidelines". Foram definidos como critérios de inclusão estudos escritos em português, inglês e espanhol com *full text* disponível e que envolvessem estudantes do ensino superior de enfermagem, e, portanto, com participantes adultos maiores de 18 anos.

**Resultados:** Foram incluídos no estudo 10 artigos. Nos estudos identificaram-se fatores que influenciam a construção dos cenários de simulação, entre eles, o equilíbrio entre momentos de prática clínica e discussão com os estudantes, momentos de reflexão, o papel do facilitador, a comunicação facilitador/estudantes, a clara definição dos objetivos e o realismo do cenário.

**Conclusão:** A prática clínica em enfermagem tem estado sujeita a uma constante evolução, tanto a nível teórico/científico, como, a nível prático. A identificação de fatores que influenciam a construção dos cenários de simulação na prática simulada de enfermagem facilita um maior aperfeiçoamento a nível prático e uma redução substancial dos erros clínicos, constituindo-se como um excelente contributo para a Simulação em Enfermagem.

**Palavras-chave:** enfermagem; simulação; *practice guidelines*

## ABSTRACT

**Introduction:** The development of a simulation scenario requires strategic planning to guide the simulated practice to contribute positively to the development of skills and a practice of excellence of future nurses.

**Objective:** To identify the factors that influence the construction of simulation scenarios in simulated nursing practice.

**Methods:** Scoping Review study conducted in the Scielo, CINAHL PLUS, GreenFILE, Lilacs, PubMed, RCAAP databases, with the Boolean phrase "Nursing AND Simulation AND Practice Guidelines". The inclusion criteria were defined as studies written in Portuguese, English, and Spanish with full text available and involving undergraduate nursing students, and therefore with adult participants over 18 years old.

**Results:** As a result of the research, 10 articles were included. In the studies, we identified factors that influence the construction of simulation scenarios among them, that balance between moments of clinical practice and discussion with the students, moments of reflection, the role of the facilitator, the facilitating communication/students, the clear definition of the objectives and the realism of the scenario.

**Conclusion:** Clinical practice in nursing has been subjected to a constant evolution, at a theoretical/scientific and practical level. The identification of factors influencing the construction of simulation scenarios in simulated nursing practice facilitates a greater improvement at a practical level and a substantial reduction of clinical errors, thus constituting an excellent contribution to Nursing Simulation.

**Keywords:** nursing; simulation; *practice guidelines*

## RESUMEN

**Introducción:** El desarrollo de un escenario de simulación requiere una planificación estratégica para orientar la práctica simulada, de forma que contribuya positivamente al desarrollo de las competencias y a una práctica de excelencia de los futuros enfermeros.

**Objetivo:** Identificar los factores que influyen en la construcción de escenarios de simulación en la práctica enfermera simulada.

**Métodos:** Estudio de Scoping Review realizado en las bases de datos Scielo, CINAHL PLUS, GreenFILE, Lilacs, PubMed, RCAAP, con la frase booleana "Nursing AND Simulation AND Practice Guidelines". Los criterios de inclusión se definieron como estudios escritos en portugués, inglés y español con texto completo disponible y que incluyeran a estudiantes de enfermería de grado, y por tanto con participantes adultos mayores de 18 años.

**Resultados:** Se incluyeron diez artículos en el estudio. Los estudios identificaron los factores que influyen en la construcción de escenarios de simulación, incluyendo el equilibrio entre los momentos de práctica clínica y la discusión con los estudiantes, los momentos de reflexión, el papel del facilitador, la comunicación facilitador/estudiantes, la definición clara de los objetivos y el realismo del escenario.

**Conclusión:** La práctica clínica de la enfermería ha sido objeto de una evolución constante, tanto a nivel teórico/científico como práctico. La identificación de los factores que influyen en la construcción de escenarios de simulación en la práctica enfermera simulada facilita una mayor mejora a nivel práctico y una reducción sustancial de los errores clínicos, constituyendo así una excelente contribución a la Simulación en Enfermería.

**Palabras clave:** enfermería; simulación; guía de práctica clínica

## INTRODUCTION

Simulation is an essential pedagogical method in the acquisition of knowledge and skills by nursing students, through the reproduction of scenarios, in a controlled environment close to reality, which requires the active participation of the student (Costa, Medeiros, Martins, & Coutinho, 2018). It is essential in the preparation of future professionals, with the recreation of real contexts, with the objective to promote better decision making, problem solving and skills acquisition. This teaching methodology, enhances the interest and motivation for learning, proportionally increasing student satisfaction, interconnecting cognition, critical reflective thinking, and pedagogical objectives, essential for the development of certain practical skills (Silva, Silva, & Belian, 2020). The main focus is on reducing errors and providing safety during client care. The simulators, when programmed, respond to errors made by students, reflecting the consequences that could arise in a real-life client situation (Gamboa, Álvarez, Cepeda, & Gómez, 2019).

It is of utmost importance that nursing students are effectively prepared so that, in clinical settings, they have all the essential tools to minimize errors, as well as to provide holistic and efficient care. Simulation is an opportunity to place nursing students in realistic scenarios taking into account the academic success, with significant repercussions on the development of skills for the nursing profession.

The development of a simulation scenario requires strategic planning to guide the simulated practice. It is essential to identify the needs and objectives to be achieved in a given scenario, conduct an assessment and analysis of student needs and plan the scenarios accordingly (Kaneko & Lopes, 2019). In order to obtain a good simulation scenario, it is essential to select professionals who are qualified in this area and who meet the specific criteria of each scenario. In order to facilitate the whole simulation and learning process, the objectives to be achieved by the students are established in all scenarios. The structure and format of the scenarios are built according to the purpose of the simulation and all the procedures involved and are known by all participants. By enlightening the students concerning the focus of the simulated practice, we will facilitate the creation of a thread that leads them to start the simulation scenario (Kaneko & Lopes, 2019).

Simulation scenarios permit the development of skills, increase the professional maturity and adaptation to multiple teamwork strategies (Jeffries, 2015).

Clinical practice in nursing has been subjected to a constant evolution, both in terms of theory and scientific evidence, and at a practical level. Currently, scientific evidence reflects the importance of simulation in the preparation of a student who is about to enter the professional nursing field (Torredà & Collado, 2015). So, simulations have become essential criteria in the learning process of nursing students and in their academic growth, and it is essential to previously understand which components should be taken into account for the success of simulation.

This research study aims to identify the factors influencing the construction of simulation scenarios in simulated nursing practice.

## 1. METHODS

A scoping review was conducted based on the PCC question (Chart 1) "Which factors influence good practices in simulation scenarios in the acquisition of skills by nursing students, with a view to assuming the profession?" and the goal of the review. We used the Health Sciences Descriptors - DeCS, compatible with Medical Subject Headings - MeSH: Nursing, Simulation and Practice Guidelines, which was implemented with the following Boolean phrase: (Nursing) AND (Simulation) AND (Practice Guidelines).

**Table 1 - PCC Model and Descriptors**

		<b>Descriptors</b>
P (Population)	Nursing Students	<i>Nursing</i>
C (Concept)	Good Practices	<i>Practice Guidelines</i>
C (Context)	Simulation	<i>Simulation</i>

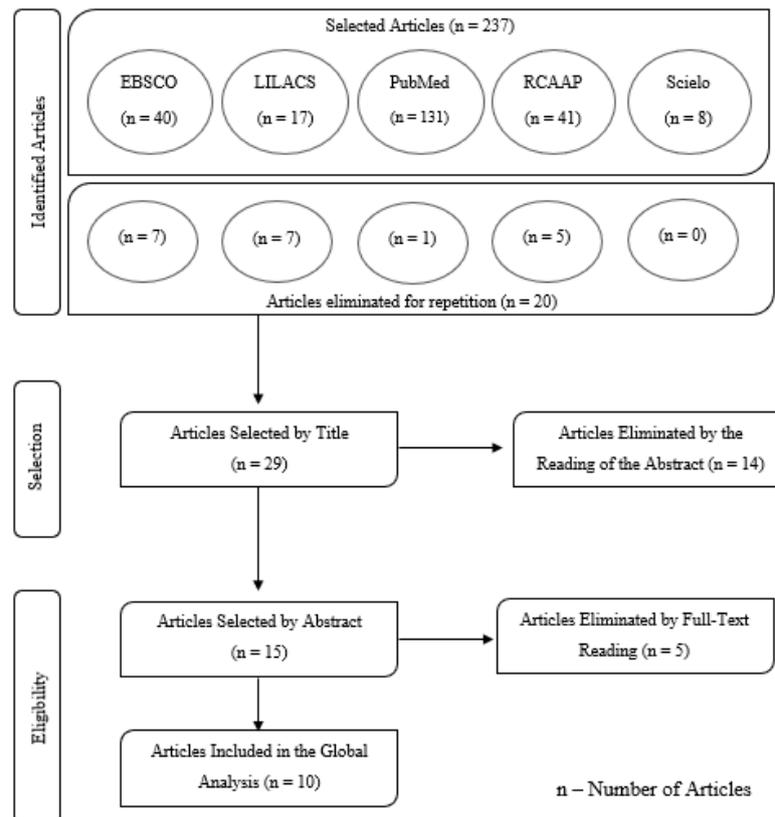
These descriptors were searched in several databases, such as Scielo, RCAAP, PubMed, Lilacs, and the EBSCO Platform, which includes CINAHL Plus with Full Text and GreenFILE.

The following inclusion criteria were defined: studies written in Portuguese, English, and Spanish with full text available and involving undergraduate nursing students, and, therefore, with adult participants aged over 18 years. Studies written in other languages and not included in the scientific domain of nursing and simulation were excluded from the review process. No time frame was defined, so as to make our research as comprehensive as possible and faithful to the topic under study. The search was conducted by two researchers separately, and, during the article extraction process, whenever there were discordant situations, a third researcher was included so as to solve the conflicts found. This search for articles took place from May to July 2020. The following indicators were used in the analysis of the articles included in the review: author/year/country, objectives, sample, type of study, results, and level of evidence according to the hierarchy of evidence of Joanna Briggs Institute (2013).

## 2. RESULTS

As a result of the search 237 articles emerged, of which 20 articles were excluded by repetition, 1 article was excluded by language, 187 articles were excluded by title, 14 articles were excluded by abstract, giving a total of 222 articles excluded, resulting in 15 articles included. After full reading, 5 articles were excluded, and 10 articles were included in the Global Analysis. The article selection process is described in the PRISMA flowchart (figure 1) (Page, et al., 2021).

**Figure 1 - Representative Flowchart of the Selection of Articles included in the Literature Review.**



The ten studies, which fit the previously established inclusion criteria, are shown in Table 1.

**Table 1 - Synthesis of Evidence**

Nº	Authors/ Year/ Country	Goals	Sample	Type of Study	Results	Level of Evidence
A1	Stephens, J. Abbott-Brailey, H. Platt, A./ 2011/ UK	To verify the experience of the students, during clinical practice, related to the critically ill patient, using high-fidelity simulation.	Convenience sample, consisting of two groups of nursing, physiotherapy, and radiography students, with total of 16 students.	Case Study	High-fidelity simulation is recognised as an important tool for learning. It is important to balance the technical part of a procedure with other adaptive skills during the simulation scenario. During the simulation it is essential to promote a space for reflection and dialogue in order to make the beginner's learning more consistent.	Level 4. d
A2	Herrera, C.A. Molina, N.G. Becerra, J A./ 2014/ Colômbia	Systematize the experience developed at the School of Nursing of the Pedagogical and Technological University of Colombia, in the context of clinical simulation.	150 Nursing trainees, during the second semester, of 2014, of the School of Nursing of UPTC.	Qualitative Study	Clinical simulation allows for greater autonomy on the part of students, resulting in more meaningful learning. To be able to guarantee the replication of clinical simulation scenarios it is necessary to implement good practice guides.	Level 4. a

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Nº	Authors/ Year/ Country	Goals	Sample	Type of Study	Results	Level of Evidence
A3	Gamboa, F E. Álvarez, J C. Cepeda, R A. Gómez, J C. / 2019/ Colômbia	Apply a virtual clinical simulation guide for nursing students to acquire autonomous learning.	159 Nursing students.	Quantitative Study	The guide evaluates the students' satisfaction dimension, motivation, technical skills as well as decision making. The simulation coach is extremely important; however, communication is a barrier.	Level 4. a
A4	Kaneko, R M. Lopes, H B. / 2018/ Brasil	Describe the stages of scenario building, highlighting the most relevant aspects, according to the literature and the guidelines of The International Nursing Association for Clinical Simulation and Learning and Best Evidence Medical Education.		-----	The following steps for preparing a simulation scenario were described: planning, objectives, simulation structure and format, case description and perception of realism, pre-debriefing, debriefing, evaluation, materials, and resources. The elaboration of the scenario based on good practices involves important elements, each step is closely interconnected and interdependent in its creation process.	Level 5.c
A5	Pamela R. Jefries / 2015	Understand what advances exist in the area of clinical simulation.		Editorial	Scientific evidence shows that simulations can replace actual clinical practice when conditions are favourable.	Level 5.c
A6	Raurell-Torredà, M. Romero-Collado, A. /2015	It is intended that the student learns to apply and relate the theory with clinical practice, in order to reduce the risk to the client, in real context.	120 Nursing students of the 2nd and 3rd year.	Quantitative Study	Simulation is an important tool for nursing students, working on aspects such as decision-making and skills improvement, when it is developed according to the best scientific evidence.	Level 4. a
A7	Van Vuuren, V J. T. Goon, D. Seekoe, E./ 2018/ South Africa	To determine and describe the perceptions of nurses and teachers on the use of high-fidelity simulation in nursing education in a private South African institution.	Nurses and Professors of a Private Nursing School and Affiliated Hospitals of South Africa, with a total sample of 118 participants.	Descriptive Quantitative Study	The study showed that those who are in greater contact with high-fidelity simulation are more optimistic and adopt the use of more advanced technology.	Level 4. a
A8	Jeffrey, C A. Mitchell, M L. Henderson, A. Lenthall, S. Knight, S. Glover, P. Kelly, M. Nulty, D. Groves, M./ 2014/ Australia	Identify the advantages of using good practice guides in simulation.	15 Nursing students and pharmacotherapists; 5 tutors.	Qualitative Study	Clinical examinations when well-structured and developed, use the good practice guides. These guides provide a very close approach to what is expected in a real life setting, accompanied by all the essential resources for the future of a nurse when it comes to individualised client care in remote areas of Australia.	Level 4. a
A9	Santos Duarte, H M. Lopes Sousa, P M. Rodrigues Dixe, M./ 2017	To translate and cross-culturally validate the ESEE-SAF, (Scale of Satisfaction of Nursing Students regarding High-Fidelity Simulation, into the Portuguese Population).	139 Nursing students.	Quantitative Study	The scale shows adequate validity and reliability, allowing its validation for participants and demonstrating a high potential for research.	Level 4.a
A10	Dubrowsi, A. Alani, S. Bankovic, T. Crowe, A. Pollard, M. / 2015/ Califórnia	Describe and report a set of Guidelines about the simulation.		-----	Simulation requires access to new technologies for learning, as well as resources and developed and developing countries.	Level 5

### 3. DISCUSSION

The articles published between 2011 and 2019 show the importance of simulation in the acquisition of knowledge and skills by nursing students. In view of the promotion of the profession, the authors demonstrate which factors are related to the success of simulated practice and the technical-relational improvement of the student.

When we gathered and analysed the information obtained from the articles, it was verified that a large part of them dealt with the experience that nursing students have during simulation scenarios, as well as the advantages that this brings to their learning and knowledge.

After a full reading of the articles, different factors were identified which contribute to a good simulation scenario, among them, the use of various types of simulation, the different stages for the construction of the scenarios and the use of the best scientific evidence/current guidelines. (Dubrowski, Alani, Bankovic, Crowe, & Pollard, 2015) (Gamboa, Álvarez, Cepeda, & Gómez, 2019) (Kaneko & Lopes, 2019) (Vuuren, Seekoe, & Goon, 2018).

The guidelines, according to Jeffries (2015) are fundamental for the provision of quality and scientifically rigorous care, as well as for the acquisition of professional maturity of nurses.

The main objective of simulation is the development of clinical skills, but it is important to emphasise that clinical practice is also fundamental to the growth of the student, both at the affective and emotional level, thus promoting more assertive decision making and better problem solving (Mota, Jesus, Teixeira, Cabral, & Trindade, 2021).

The development of a simulation centre requires strategic planning to guide the simulated practice of nursing students. Kaneko & Lopes (2019) defined that the first criteria consist of identifying the needs and objectives to be achieved, in order to establish a plan for the centre. Then, it is important to carry out an evaluation and analysis of the origin of the needs of the students, allowing the planning of the centres, according to the previously identified parameters. Finally, the selection of qualified professionals in this thematic area is essential to maintain the rigour that is intended during a simulation scenario.

The structure and the format of the scenarios are built through the purpose of the simulation and all the procedures involved in it. At the beginning, a briefing is carried out, in which the participants are informed about the simulation to be carried out, as well as the objectives that the student is expected to achieve and the resources that will be available.

According to the authors Kaneko & Lopes (2019), Dubrowski, Alani, Bankovic, Crowe, & Pollard (2015) and Stephens, Brailey, & Platt (2011), there is also a fundamental stage at the end of each dinner, the Debriefing. This stage is characterised as the moment in which the student expresses how he/she felt throughout the seminar, making a self-analysis of what went well and what could be improved (Coutinho, Martins & Pereira, 2014). After the student has completed his or her perspective, the instructor transmits the analysis he or she had made, thus providing feedback.

For the success of the simulation to be achieved, there is an essential element for a better use of the nursing student, the Good Practice Guides. These are fundamental for the simulated practices and for the elaboration of the whole scenario since they provide the minimisation of errors and guarantee the quality and perception of the simulation. The Guidelines are based on guidelines so that all practice is conducted in the light of the best scientific evidence, thus contributing to the establishment of a guiding principle and logical reasoning (Jeffries, 2015).

Herrera, Molina, & Becerra (2015) also state that the Best Practice Guidelines are constructed with clinical procedures in mind. These are designed according to clinical situations of different degrees of complexity, being appropriate to the difficulties that the nursing student presents in the simulation scenario. In other words, one of the predominant factors during a simulated practice is the combination of the student's ability and the objective to be achieved, in order to define the degree of complexity of the clinical simulation. According to the authors Vuuren, Seekoe, & Goon (2018), Duarte, Sousa, & Dixe (2017) and Stephens, Brailey, & Platt (2011), we can understand the importance of correctly establishing the level of demand of each simulated practice. According to Van Vuuren (2018), when students are in high-fidelity simulation scenarios, they are able to have a more optimistic attitude and work in more advanced scenarios, with a higher level of difficulty, being an essential tool for their learning and training, thus requiring a balance between the theoretical component and the practical component.

For a good relationship between the theoretical and practical component, there are three fundamental steps during a simulation scenario. Firstly, Knowledge, it means, it is necessary to have a good support of scientific knowledge, before the student enters the classroom; the second point to take into account is Know How, it means, to apply the theoretical knowledge in the simulated practice. Finally, the Demonstrate How, which encompasses all clinical situations and simulations. Herrera, Molina, & Becerra (2015), also refer that the student needs to go through all these levels to be successful in the execution of clinical practice.

We concluded through the analysis of the articles by Gamboa, Álvarez, Cepeda, & Gómez (2019) and Jeffrey, et al. (2014), that simulation brings different advantages for nursing students, promoting not only the acquisition of knowledge and skills, but also the development of critical-reflective thinking and the decision-making process. In addition to these advantages, the other articles also consider the reduction of errors in clinical practice, the provision of quality care and more assertive communication, gained in a simulation scenario. In this way, health professionals are able to quickly meet the needs of their clients through excellent practice, whose objective is the therapeutic success.

## CONCLUSION

This article concluded that there are several factors that influence good practices in simulation scenarios, namely the prior definition of the objectives and realism of each scenario, the balance between moments of clinical practice and discussion with students, the role of the instructor, the communication between instructor and student, and, finally, the Debriefing. It was also possible to identify the advantages of applying this methodology in higher education in Nursing, namely, the stress management, the promotion of critical-reflective thinking, and a better preparation for professional life.

Simulations have become an essential criterion in the learning process of nursing students, promoting a substantial reduction of errors in clinical practice.

The low level of evidence of the articles included in the Scoping Review, associated with the limited number of studies, emerges as limitations to this study. Future developments should involve greater investment in studies focused on simulation and its importance both in the academic and professional environments, in order to create Good Practice Guides to guide simulated practices, analysing their impact on the success of the teaching-learning process in clinical practice.

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