JOURNAL OF INTERNATIONAL CRISIS AND RISK COMMUNICATION RESEARCH
ISSN: 2576-0017
2024, VOL 7, NO S6

Effectiveness of an education strategy based on advanced clinical simulation for students of the Nursing program

Omar Eduardo Vergel Ropero[1], Yezid Vargas Ortegón[2], Johana Alexandra Gallardo Castro[3]

1. *Universidad de Pamplona omar.verjel@unipamplona.edu.co ORCID: 0000-0002-3926-7197*
2. *Universidad de Pamplona yezid.vargas@unipamplona.edu.co ORCID: 0009-0004-3333-3554*
3. *Universidad de Pamplona johana.gallardocas@unipamplona.edu.co ORCID: 0009-0001-9993-1563*

Abstract
With the passage of time, clinical simulation is gaining great strength as an educational tool for learning in the context of the real environment, becoming an alternative space for the strengthening of clinical practice and competency-based training of nursing professionals.
Methodology: The approach used was experimental, oriented in two stages, the first consisted of the design of the education strategy and the second stage in the implementation and evaluation, having a group of 52 students who were studying VI, VII VIII and IX semester, who were randomly selected. The information collection was carried out post-test only, using the Student Satisfaction and Self-Confidence in Learning Questionnaire (SSSCL) and Checklist of Non-Technical, Technical and Technological Skills in Nursing Care.
Result: It is obtained that, with clinical simulation as an educational strategy, the acquisition of non-technical, technical and technological skills of nursing care is allowed, enhancing teamwork. Likewise, the student stated that he was satisfied with the teaching methodology, the materials and the facilitating teacher, as well as allowing him self-confidence, seeing it as a safe and pleasant place.
Conclusion: the educational strategy through clinical simulation allows the improvement in the quality of training of nursing students, with the stages of Prebriefing, Briefing and Debriefing being very important for the teaching-learning process.
Keywords: simulation, teaching, learning, education, nursing care.

Introduction

Education over the years has presented great significant changes, allowing new forms of learning, which in turn has been accompanied by the continuous transformation of the use of information and communication technologies; and it is advanced clinical simulation, one of the pedagogical tools that has been taking an important role in the formation of the nursing program. which allows the student to participate in supervised clinical activities and interventions, with the aim of obtaining representative learning of situations that they will perform in their professional role. Clinical simulation is a very useful method to enhance patient safety, where by reproducing clinical contexts, it is essential to develop technical and behavioral skills, and enhance teamwork in a safe environment, without harm to the patient. (Broch, M and Castellanos, P 2024).

Since its inception, clinical simulation has become an important pedagogical tool in the training of nursing professionals in different universities at the national and departmental level, this process being of great significance for the development of good practices of learning care, generating in the student the acquisition of skills that allow him or her to perform better in the places of care

practices. In view of this, the good interaction between the teacher (facilitator), the student and the clinical simulation is transcendental, allowing the conditions for the teaching-learning process to be generated. (image 1)

Image 1. Triad of the teaching/learning process based on clinical simulation.

Source: Prepared by the author. In original language Spanish

However, in order to achieve a good clinical simulation process, some obstacles must be overcome to meet optimal conditions, such as having a good infrastructure, equipment and high-fidelity technologies, as well as a good educational strategy, which allows for a teacher who facilitates knowledge and a space for the development of critical thinking in the student. The simulation design should include the learning objectives that guide the development of activities and scenarios with appropriate content and problem-solving complexity. The elements of physical and conceptual fidelity, including appropriate and predetermined responses by the facilitator to participants' interventions. (Jeffries, P. 2021)

That is why it is essential to start researching and documenting the importance of the training of nursing students in the face of clinical simulation, standardizing the correct process for its use, which allows not only to acquire technical skills, but also non-technical and technological skills of nursing care. In addition, by carrying out the research process of evaluating the effectiveness of clinical simulation, it will be possible to access the generation of new approaches and protocols for the strengthening of these scenarios and thus be able to contribute to the quality of the training of students in the health area.

Objective

To determine the impact of an education strategy based on advanced clinical simulation for students of the nursing program at the University of Pamplona.

Materials and Methods

The methodological design assumed in this research was experimental, which was developed in two stages. The first was the design of the education strategy and the second stage consisted of implementation and evaluation.

In the first stage, a systematic review was carried out to structure the educational strategy through electronic databases to collect relevant scientific articles: Elsevier, Scopus, SciELO, ScienceDirect and Dialnet, where the Boolean operators "AND" were used, in the following search equations: (Simulation AND Education AND Nursing).

Subsequently, in the second stage, the implementation of the educational strategy was carried out in a group of 52 students, who were studying VI, VII VIII and IX semester, who were randomly selected. Likewise, the evaluation process was carried out post-test only, making use of the Student Satisfaction and Self-Confidence in Learning Questionnaire (SSSCL) developed by the National League for Nursing (NLN) and the application of a checklist where non-technical, technical and technological skills of nursing care were observed and recorded.

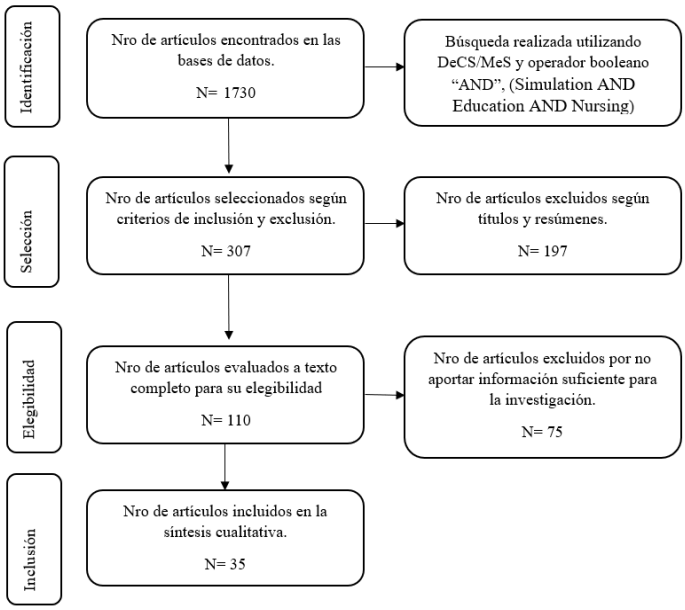
The inclusion criteria for the group of participants were the condition of being male and female nursing students of VI, VII, VIII and IX semester who agreed to participate and who were enrolled in the lines of care of the nursing program of the University of Pamplona.

Results and discussion

Stage 1. Design of the simulation-based education strategy: In this stage, the simulation-based education strategy was designed, which was developed taking into account the systematic review in the database and following the methodology of Pamela Jeffires.

The selection of studies was carried out according to the search strategy, where a total of 1730 articles were found in four databases with the application of the search equation and Boolean operators, 307 articles were selected taking into account the inclusion and exclusion criteria, after reviewing the titles and abstracts 197 articles were excluded, 110 articles were evaluated in full text for eligibility, of which 75 articles were eliminated for not providing sufficient information to the research process, finally including 35 articles in the qualitative synthesis of the systematic review. **(See Figure 1)**

Figure 1. Flow chart of the PRISMA guidelines for the process of searching and selecting the articles.



Source: Prepared by the author. In original language Spanish

The included studies were systematic reviews, quasi-experimental studies, cohort studies, descriptive and qualitative studies, studies with a mixed approach, case studies, cross-sectional observational studies, descriptive studies of qualitative analysis, retrospective descriptive study, longitudinal study analysis, of which most were published in the Science Direct database with a (n= 11; 31.4%), followed by Scielo with (n= 9; 25.7%).

Figure 2. Database.

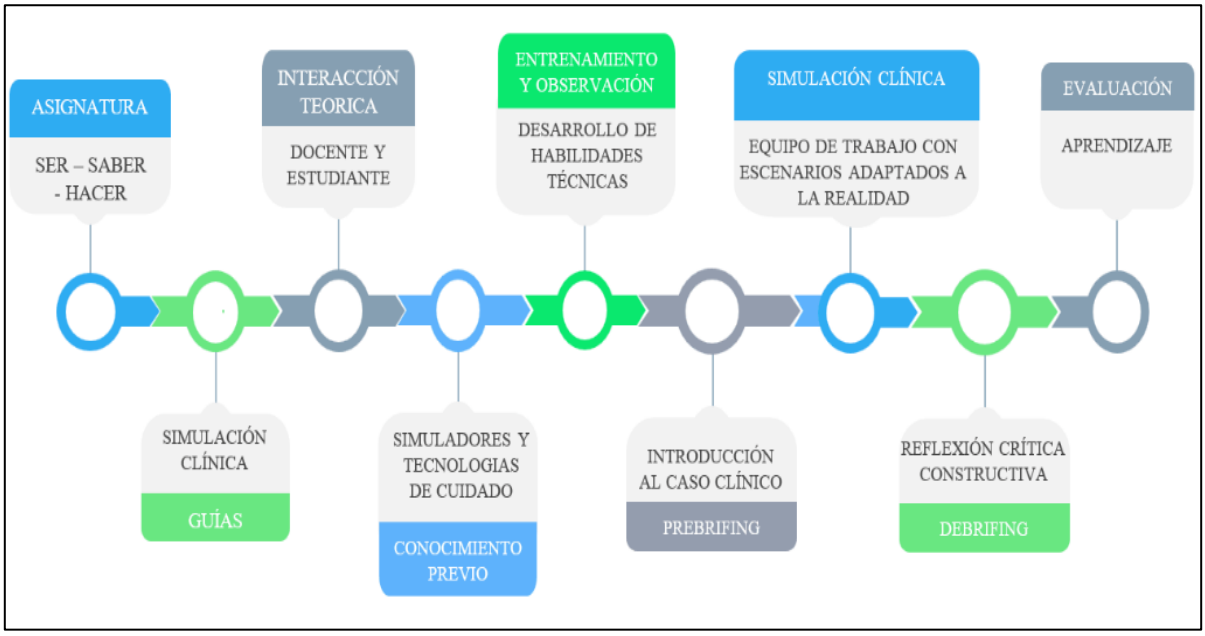
Database / Publisher	**Quantity**	**%**
Science Direct	11	31,4
Scielo	9	25,7
Dialnet	7	20
Elsevier	5	14,2
Scopus	3	8,7

Source: Prepared by the author

Likewise, it is important to emphasize that all studies presented an adequate level of quality, from level I to level IV according to the strategy of prioritizing the evidence (levels of evidence and degrees of recommendation), however, more prevalence was found among grades: II (n= 38; 51%) and III (n= 29; 33%).

And it is from this systematic analysis that the pedagogical strategy of clinical simulation is designed, which is composed of 9 moments, where Prebriefing, Briefing and Debriefing stand out. (**See Figure 3).**

Figure 3. Educational teaching/learning strategy based on clinical simulation



Source: Prepared by the author. In original language Spanish

This educational strategy was broken down into 9 moments, distributed as follows:

1. **Subject:** the simulation process must be immersed in the content of each nursing care subject.
2. **Clinical simulation guides:** each clinical simulation must be previously structured under a guide, allowing prior orientation to the student.
3. **Theoretical interaction:** within the classroom, the teacher guides the student through a participatory master class on the theoretical content necessary for clinical simulation.
4. **Prior knowledge:** it is very important that before the meeting of the clinical simulation, the student and facilitating teacher appropriate the use of the simulators and technological equipment.
5. **Observation and training:** the student will observe the practical explanation guided by the teacher facilitator and will develop individual training in the technical skills of care.
6. **Prebrifing:** at this time there will be a space to make an introduction of the clinical case to be carried out and the resolution of doubts prior to the teamwork simulation scenario.
7. **Clinical simulation or Briefing:** during this space, the high-fidelity clinical simulation scenario is developed, where teamwork was carried out, allowing the strengthening of technical, non-technical and technological care skills.
8. **Debriefing:** a moment of great importance within the educational strategy, because in this space a critical reflection is carried out after the clinical simulation scenario, where the student with the teacher facilitator discusses the ideas of what was developed, highlighting the positive aspects and those situations where it must be improved, and from here, Make the decision whether the simulation needs to be redeveloped.
9. **Evaluation:** and at the last moment, an evaluation process must be entered into the entire process of the educational strategy, with the aim of continuing to strengthen those aspects that must be improved to achieve student satisfaction and a quality teaching/learning process.

In view of this, it is important to bring up Jeffries, P. (2021) who states that, as part of the simulation design, the roles of participant and observer, the progression of the activities, and the information/debriefing strategies must be established.

Stage 2. Strategy implementation and evaluation:
The educational strategy was implemented in the group of 52 students with the theme of the approach to cardiopulmonary resuscitation in the in-hospital setting. According to this, it is obtained that from the application of the Student Satisfaction and Self-Confidence in Learning Questionnaire (SSSCL), it is presented as a result that the student expressed satisfaction with the teaching methodology, the materials and the facilitating teacher, as well as allowing self-confidence, perceiving the simulation center as a safe and pleasant place.

In relation to this, Alconero, A. et al (2020) states that clinical simulation is useful in the learning process and allows for the improvement of quality, safety, and confidence. Likewise, Perdomo, A. (2022) states that it strengthens the student's critical thinking and decision-making in situations of teamwork in the management of a health situation. And Alsaraireh et al (2024) describe that students perceive clinical simulation as an educational strategy that allows the development of skills and abilities.

And in the application of the checklist during the clinical simulation scenario, it is evident that this educational strategy allows the acquisition of non-technical, technical and technological skills of nursing care, enhancing teamwork, communication, leadership and decision-making.

Students recognize that clinical simulation provides a safe and risk-free environment, they can integrate what they have learned in theory into practice, without fear of causing harm to patients, being able to make mistakes, thus achieving meaningful learning. In addition, it allows the development of competencies such as teamwork, effective communication, problem solving, stress management and leadership, improving confidence and security. (**Reyes, M. et al. 2020).**

And to conclude this analysis of results, it is important to highlight the importance of the Prebriefing, Briefing and Debriefing stages within the educational strategy of clinical simulation, becoming three important moments where critical analysis and problem solving are allowed. Al Khasawneh et al (2024) describe that the development of simulations using the Jeffries nursing education simulation framework will provide engaging and pedagogically sound experiences for students. Pre-briefing and de-briefing are significant strategies.

Conclusion
The educational strategy through clinical simulation allows the improvement in the quality of nursing student training, with the Prebriefing, Briefing and Debriefing stages being very important for the teaching-learning process.

The students express that simulation centers become safe and risk-free environments, where they can integrate what they have learned in theory into practice, without fear of causing harm to patients, thus achieving better learning. Likewise, it allows the development of teamwork, accessing the acquisition of technical, non-technical and technological skills in nursing care.

Clinical simulation is not intended to reduce or eliminate real clinical practices, it aims to improve the preparation of students' competencies, before their encounter with the patient in the care area.

Conflict of interest

The study was funded by the authors, who declare that they have no conflicts of interest.

Bibliographic references

1. Broch, M, & Castellanos, P (2024). Patient safety, what do clinical simulation and teaching innovation contribute? https://www-sciencedirect-com.unipamplona.basesdedatosezproxy.com/science/article/abs/pii/S0210569124001141.
2. Al Khasawneh et al. (2024). Efficacy of Simulation Using NLN/Jeffries Nursing Education Simulation Framework on Satisfaction and Self-Confidence of Undergraduate Nursing Students in a Middle-Eastern Country. https://journals.sagepub.com/doi/10.1177/23779608211011316.
3. Agudo, J. (2022). The teaching-learning process through the simulated patient: a challenge in university nurse training. https://www-sciencedirect-com.unipamplona.basesdedatosezproxy.com/science/article/abs/pii/S1130862120305222?via%3Dihub.
4. Carol, et al. (2020). Clinical simulation: innovative tools for health education "manual of good practices in clinical simulation for evidence-based simulation. Ideas for scenario creation and evaluation". University of Texas. https://issuu.com/patriciaduranospina/docs/simulacion_facultad_de_salud_final.
5. Alsaraireh et al. (2024). Effect of a high-fidelity simulation-based teaching-learning experience (SBTLE) on maternal health nursing students' knowledge of postpartum hemorrhage, confidence, and satisfaction. https://www.sciencedirect.com/science/article/pii/S1557308723002093?via%3Dihub.
6. Castro, John; Bedoya, Kimberly and Pino, Ana. (2020). Simulation as a contribution to teaching and learning in times of Covid-19. https://revistas.udes.edu.co/aibi/article/view/la_simulacion_como_aporte_para_la_ense%C3%B1anza_y_el_aprendizaje_en_epocas_de_covid19.
7. Ministry of Health. (1993) Resolution number 8430, Bogotá, Colombia. https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/DE/DIJ/RESOLUCION-8430-DE-1993.PDF.
8. Valladolid, Daniel and Espinoza, Tula. (2020). Usefulness of clinical simulation to achieve competencies in nursing students in times of COVID-19. http://www.revenfermeria.sld.cu/index.php/enf/article/view/3946.
9. Catalán et al. (2021). Simulation in a mirror room with standardized patients: experience in gynecology and obstetrics. https://www-sciencedirect-com.unipamplona.basesdedatosezproxy.com/science/article/pii/S1575181321000048
10. Astro, J.; Bedoya, K. & Pino, A. (2020). Simulation as a contribution to teaching and learning in times of Covid-19. https://revistas.udes.edu.co/aibi/article/view/la_simulacion_como_aporte_para_la_ense%C3%B1anza_y_el_aprendizaje_en_epocas_de_covid19.
11. Zhu Y, Geng C, Pei X, & Chen, X. (2020). Experiences of high school nursing students with high-fidelity simulation: protocol for a qualitative systematic review.
12. https://bmjopen.bmj.com/content/10/12/e040171.
13. Jeffries, P. (2021). The NLN Jeffries Simulation Theory. Second edition, National League for Nursing (NLN)