

IN SITU SIMULATION IN THE PERMANENT EDUCATION OF THE INTENSIVE CARE NURSING TEAM

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ABSTRACT

Objective: to know the perception of nursing professionals about the *in situ* strategy in continuing education in intensive care.

Method: a descriptive, exploratory and qualitative study, conducted with 15 nursing professionals from an Intensive Care Unit. Data was collected from December 2018 to February 2019, by means of semi-structured interviews, after *in situ* simulations that occurred in the work environment and involving two settings, one on septic shock and the other, cardiorespiratory arrest. For analysis, the collective subject discourse technique was applied using a software program.

Results: from the 15 nursing professionals participating in the study, eight were nurses and seven were nursing technicians. Their age varied from 23 to 56 years old and their time in intensive care ranged from two months to 17 years. The *in situ* simulation was perceived as an opportunity to update and acquire professional knowledge, skills and competencies, especially for those without experience, favoring the gain of self-confidence, communication, decision-making and clinical reasoning. The simulated *in situ* strategy was also portrayed as a possibility of training in the professional practice and in real time, unlike traditional training, and also, as a safe environment to make mistakes of diverse magnitudes because it is a training setting.

Conclusion: the professionals understand the *in situ* simulation as being valid for professional update and practical learning in a safe setting.

DESCRIPTORS: Simulation. Malingering. Nursing education. Continuing education. Nursing. Intensive care units.

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SIMULAÇÃO *IN SITU* NA EDUCAÇÃO PERMANENTE DA EQUIPE DE ENFERMAGEM DE TERAPIA INTENSIVA

RESUMO

Objetivo: conhecer a percepção dos profissionais de enfermagem sobre a estratégia da simulação *in situ* na educação permanente em terapia intensiva.

Método: estudo descritivo, exploratório, qualitativo, realizado com 15 profissionais de enfermagem de uma Unidade de Terapia Intensiva. Os dados foram coletados de dezembro de 2018 a fevereiro de 2019, por meio de entrevista semiestruturada, após as simulações *in situ* ocorridas no ambiente de trabalho e que envolveram dois cenários, um sobre choque séptico e outro, parada cardiorrespiratória. Para análise se aplicou a técnica Discurso do Sujeito Coletivo com o emprego de um *software*.

Resultados: dos 15 profissionais de enfermagem participantes do estudo, oito eram enfermeiros e sete técnicos de enfermagem. A idade variou de 23 a 56 anos e o tempo de atuação em terapia intensiva oscilou de dois meses a 17 anos. A simulação *in situ* foi percebida como uma oportunidade de atualização e aquisição de conhecimentos, habilidades e competências profissionais, principalmente para aqueles sem experiência, favorecendo o ganho de autoconfiança, a comunicação, a tomada de decisão e o raciocínio clínico. A estratégia simulada *in situ* também foi retratada como possibilidade de treinamento na prática profissional e em tempo real, diferentemente de treinamentos tradicionais, e ainda, como um ambiente seguro para cometer erros de várias magnitudes por se configurar um cenário de treinamento.

Conclusão: os profissionais percebem a estratégia da simulação *in situ* como válida para a atualização profissional e aprendizado prático em ambiente seguro.

DESCRITORES: Simulação. Simulação de doença. Educação em enfermagem. Educação continuada. Enfermagem. Unidades de terapia intensiva.

SIMULACIÓN *IN SITU* EN LA EDUCACIÓN PERMANENTE DEL EQUIPO DE ENFERMERÍA DE CUIDADOS INTENSIVOS

RESUMEN

Objetivo: conocer la percepción de los profesionales de Enfermería sobre la estrategia de la simulación *in situ* en la educación permanente en cuidados intensivos.

Método: estudio descriptivo, exploratorio y cualitativo, realizado con 15 profesionales de Enfermería de una Unidad de Cuidados Intensivos. Los datos se recolectaron entre diciembre de 2018 y febrero de 2019 por medio de entrevistas semiestructurada, después de simulaciones *in situ* que tuvieron lugar en el ámbito laboral e incluyeron dos situaciones hipotéticas, una sobre shock séptico y otra, sobre parada cardiorrespiratoria. Para el análisis se aplicó la técnica del Discurso del Sujeto Colectivo con el uso de un programa de *software*.

Resultados: de los 15 profesionales de Enfermería que participaron del estudio, ocho eran enfermeros y siete técnicos de enfermería. La edad varió entre 23 y 56 años y la experiencia en cuidados intensivos osciló entre dos meses y 17 años. La simulación *in situ* se percibió como oportunidad de actualización y adquisición de conocimientos, habilidades y competencias profesionales, principalmente para quienes carecían de experiencia, favoreciendo así una mejoría en los niveles de autoconfianza, comunicación, toma de decisiones y raciocinio clínico. La estrategia simulada *in situ* también se representó como una posibilidad de capacitación en la práctica profesional y en tiempo real, a diferencias de sistemas tradicionales de capacitación e, incluso, como un ámbito seguro para cometer errores de diversas magnitudes, por tratarse de una situación de entrenamiento.

Conclusión: los profesionales perciben la estrategia de la simulación *in situ* como válida para la actualización profesional y el aprendizaje práctico en un ámbito seguro.

DESCRIPTORES: Simulación. Simulación de enfermedad. Educación en enfermería. Educación continua. Enfermería. Unidades de cuidados intensivos.

INTRODUCTION

Clinical simulation is recognized as an important pillar in health training and allows for the development of diverse skills¹ occurring traditionally in simulation centers, with high-technology laboratories.² The modality denominated *In Situ* Simulation (ISS) is the one that is physically integrated to the clinical environment and has advantages in relation to other simulation formats, as an example of setting fidelity. This modality can offer better participation opportunities for the professionals, in addition to being financially advantageous as it does not depend on the organization of highly technological laboratories.³

The ISS cannot be understood as a substitute for simulation performed in a simulation center, since the training objectives performed in the latter are different and are related to the development of technical and non-technical competence (for example, communication), understood in the logic of a curriculum, for example. On the other hand, the *in situ* simulation allows the teams to review and reinforce their skills.⁴

Although issues related to culture, anxiety about performance or time pressures may interfere with the successful implementation of the ISS, simulations in the clinical environment can be justified by the efficiency of training based on the foundations of adult learning theories. In addition, it offers the opportunity to review team skills related to high-risk or infrequent events at frequent intervals, which can result in greater retention of skills and knowledge.⁵

In this way, it is possible to associate the ISS with opportunities for permanent education in health (PEH), as it allows for the development of training based on the demands of the team. PEH aims to promote learning by associating knowledge, improvement and practice and is an important strategy for transforming work processes, fostering reflexive and technically competent performance.⁶

In Intensive Care Units (ICUs), constant techno-scientific innovations require permanent qualification from the multi-professional team. In the context of PEH as an organizational tool, developed through strategies that corroborate the development of skills and are inserted in the daily work in intensive care, the ISS is an acceptable format for teaching and learning of the work teams, covering clinical issues.⁷

Although the ISS is a growing field of simulation, in Brazil it still has not had the same recognition compared to the international setting, where it is systematically used in conducting permanent and periodic training programs for health professionals.⁸ A Brazilian study described a pilot ISS experiment carried out in an emergency care unit and, as a result, it highlighted that the simulated practice provided technical, behavioral and systems assessment, allowing for the detection of latent threats to patient safety, generating reflection on teamwork.⁹

Considering the ISS in intensive care as a strategy applied to the permanent education of the nursing team, this study aimed to know the perception of the nursing professionals about the ISS strategy in permanent education in intensive care.

METHOD

This is a descriptive and exploratory study with a qualitative approach, conducted with nursing professionals from the adult ICU of a general public and teaching hospital located in southern Brazil. Data was collected from December 2018 to February 2019, by means of a semi-structured interview conducted by one of the researchers immediately after the participation of the professionals in the *in situ* simulations. The interviews were conducted individually with a mean duration of 60 minutes, guided by a script prepared for this research.

The ICU has 63 nursing professionals, one of whom is a reference nurse (head), 14 are assistant nurses and three resident nurses, 45 mid-level professionals (41 nursing technicians and four assistants), distributed in three work shifts (morning, afternoon and night). From this total, 15 professionals were interviewed in this study. The inclusion criteria were the following: being an ICU nursing professional and having participated in at least one *in situ* simulation about septic shock or cardiorespiratory arrest (CRA), previously developed by one of the researchers. Those professionals who were on vacation or leave of any kind were excluded. Intentional sampling was adopted.

The interviews were immediately transcribed in full by the researcher who conducted them, using the Microsoft Word program (version 365 MSO). The professionals were asked to talk about their perceptions, feelings and difficulties in the *in situ* simulation.

For the simulations, two distinct clinical cases were elaborated, one aimed at the patient in septic shock and the other, in CRA, which followed the guidelines of the International League The National League for Nursing (NLN) Jeffries Simulation Framework.

The simulations took place in the professionals' own work environment and followed the stages of the traditional clinical simulation, namely: 1. Briefing - The moment to prepare all the participants with guidelines for the development of the simulation experience; 2. Execution of the simulated setting - stage for implementing the simulation; and 3. Debriefing - the moment immediately after the simulated practice, characterized by the reflection of the experience guided by a facilitator.

The ISSs had a mean duration of thirty minutes (10 minutes of setting followed by 20 minutes of debriefing). They occurred in a deactivated ICU bed from before the period of the simulations, which maintained the fidelity of the physical space of real care with the same layout of the bed and equipment. In the simulations, a medium fidelity simulator was used (SimMan ALS-Laerdal®). The simulations were recorded in audio and video and used to conduct the debriefing.

Theoretical saturation sampling was used in analyzing the data, according to the steps proposed by Fontanella.¹⁰ Thus, first the records of raw data were made available with the transcription of the interviews as they were carried out, read and transcribed, in order to identify their nuclei of meaning - immersion phase in each record. Subsequently, the themes and/or statements identified in the discourses were compiled. From this, the discourses with the same meaning nuclei were grouped, and then, the data in statements were coded or named. Subsequently, the seven statements surveyed were allocated in a table, highlighting the first occurrence of each one. The verification of theoretical saturation was identified when, after new interviews, different statements were not added, which occurred after the sixth interview; however, data collection extended to the fifteenth interview in order to reinforce this verification, as shown in Figure 1.

For data organization, the QualiQuantiSoft® software version 1.3.c was used for the analysis, as well as the Collective Subject Discourse (CSD) technique, which favors the construction of discourses that express a collective.¹¹ The technique employs four methodological figures: key expressions (KEs); central ideas (CIs); anchoring (AC) and the CSD itself. KEs are phrases, or literal transcriptions of the discourse that represent the essence of the content of the question under analysis presented around a CI. CIs are summarized and objective descriptions for the meanings of each of the analyzed statements. AC is the expression of a given theory or ideology that the author of the speech reports and that is embedded in his/her speech as if it were any statement, ideology or belief, therefore, a figure that can be provided. Thus, the CSD is a synthesis discourse, written in the first person singular, structured by the KEs present in the statements, which have a CI or AC with the same or complementary meaning of thought.¹¹

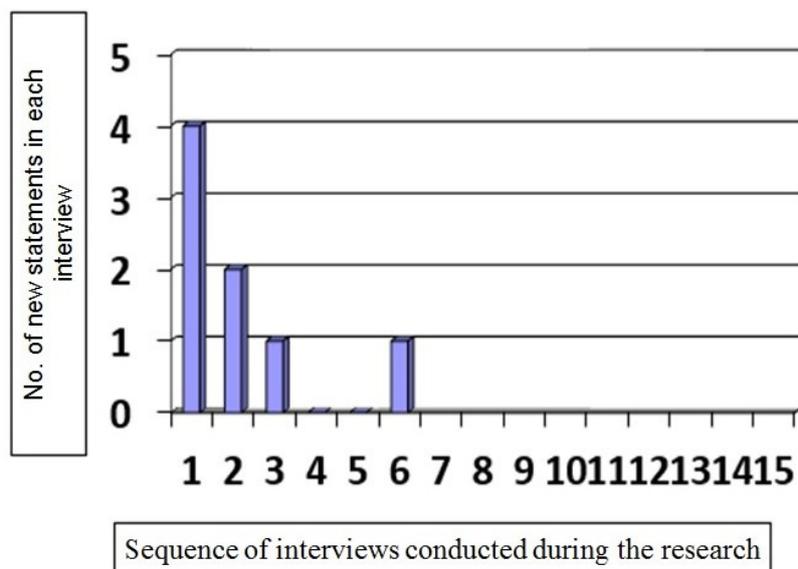


Figure 1 – Theoretical saturation of the study’s statements. Florianópolis, Santa Catarina, Brazil. 2018-2019.

Thus, obtaining the CSD started with the identification of the KEs of each interview. The KEs of the same sense were grouped and the set of these expressions gave rise to a single CI. Thus, from the KEs of the same CI the CSD was built. As AC was not identified in the testimonies, all the CSDs that emerged in the present study were made up of KEs.

This study was approved by the Research Ethics Committee of the Federal University of Santa Catarina and followed the recommendations of Resolution N. 466/2012 of the National Health Council. To guarantee the anonymity of the participants, they were identified in the study with an alphanumeric code represented by the letter E for Interviewee (*Entrevistado* in Portuguese) followed by a number that corresponds to the sequence of the interviews (1,2,3, ...). All the participants signed the Free and Informed Consent Form.

RESULTS

From the 15 nursing professionals participating in the study, eight were nurses (five nursing assistants and three resident nurses) and seven were nursing technicians. Their age varied from 23 to 56 years old (mean of 35). The length of experience in intensive care ranged from two months to 17 years. Regarding the nurses’ academic qualifications, two had a PhD in Nursing, two were masters and four specialists, three being in ICU. From the seven nursing technicians, three had degrees in Nursing.

The analysis of the testimonies gave rise to three CIs with their respective DSCs about the *in situ* simulation in the permanent education of the intensive care nursing team. The AC methodological figure was not identified in the professionals’ testimonies. In the speech of 14 professionals, there emerged CI 1 The ISS as an opportunity to update and acquire knowledge, skills and professional competences. CIs 2 and 3, respectively, The ISS as a possibility for training in the professional practice and in real time and The ISS as a safe environment for making mistakes express the testimonies of nine professionals each.

CI 1 – The ISS as an opportunity to update and acquire knowledge, skills and professional competences

CSD 1: *We have a lot of experience in dealing with critical patients, we have been working in the ICU for a long time, but we are not always up to date. The ISS is an opportunity for professionals*

to update themselves and acquire new knowledge, it is an immersion, especially for professionals who have no experience, and it helps in the issue of gaining confidence and losing shyness. Another issue that the ISS favored was the gain of technical skill, as I can train the correct technique and know exactly how much strength I need to put in to depress the chest, deal with the medications, control the time, handle devices that until then I have not had used it, and mainly acting as a team. I believe that the main contribution of the *in situ* simulation was to provide the team with the opportunity to train together, to be able to work with our own co-workers, and to change roles, and thereby see the other, the work of the other and certainly this helps to improve the work quality, in the final outcome with the patient. Another skill that I was able to experience was the issue of communication, which is precisely something that protocols and good practices call for, closed communication from the team, and this the simulation provided me. I think that the issue of decision-making and clinical reasoning are skills that I only achieve with practice, going through certain situations that make me learn, like simulation, in this sense, I think it is a right way of learning (E1, E2, E3, E4, E6, E7, E8, E9, E10, E11, E12, E13, E14, E15).

CI 2 – The ISS as a possibility of training in the professional practice and in real time

CSD 2: *I think that the best training that can happen is in the practice, this is what consolidates, not just theory, and in the simulation we interact in real time with the co-worker, that no traditional training, sitting, offers this opportunity. I was interacting in real time with my colleagues, and according to their attitude, I also positioned myself and worked. It is a unique learning experience, no school gives you this chance to do it in the practice (E2, E5, E6, E7, E9, E11, E12, E13, E15).*

CI 3 – The ISS as a safe environment for making mistakes

CSD 3: *The simulation allows you to make mistakes, and errors of diverse magnitudes, you can make the technique wrong, the time and the medications wrong, nothing really bad will happen. It is a training environment, a proper place for the professional to train and make mistakes. In the simulation, I see where I sin and that makes me change, because this experience leaves a learning experience, especially not needing to be in a real situation to learn. This is very valid, both for the professional who can prepare and for the safety of the patient. In a real situation I don't know how the colleague who is with me will react and for that the simulation is important, it helps us a little to have the reality of what we will experience when the patient goes through that (E2, E3, E4, E6, E7, E8, E9, E12, E13).*

DISCUSSION

In the first speech (CSD 1), the professionals signify the ISS as an opportunity for professional updating and acquisition of technical and job skills. In this sense, a similar study in the context of neonatal ICU showed improvement in the rates of chest compression among the participants of the *in situ* simulation.¹²

The relationship of the ISS with non-technical skills also emerged in this speech, elements such as confidence, communication, team training and decision-making were reported in the professionals' statements. Despite this, a study carried out in Norway¹³ investigated the use of the *in situ* simulation to assess non-technical skills of a nursing team in ICU. Two skills were assessed: teamwork and knowledge of the situation. It was identified that, although the nurses had experience in the ICU and familiarity with the tasks, the team did not perform them according to the expected standards, with the ISS being reported as a potential for task correction, monitoring quality and identifying potential threats to patient safety intensive therapy.

Implement the *in situ* strategy to provide confidence gain by anticipating situations that may occur in the care practice, there seems to be a trend in the studies on the theme, also revealed in CSD 1 of this research. In this sense, a study¹⁴ involving multidisciplinary team members described a significant increase in the participants' self-confidence at the end of the *in situ* simulated experiments. In another research study, the ISS proved to be advantageous when compared to the traditional didactic class (dialogued) due to the evidence of self-confidence gaining by the nursing professionals in critical situations (cardiorespiratory arrest).¹⁵

In CSD 1, the professionals alluded to the opportunity for teams to train together and, in this relationship, to be able to visualize each other's work. In this sense, a research study developed to identify the facilitators and barriers to teamwork during cardiopulmonary resuscitation simulations identified three pillars for good teamwork: communicate well, perform tasks well, and know how to work as a team. The ISS made it possible for the team members to tune in, the word synergy emerged from the simulations and meant for participants that team members trust each other, which favors relationship building and conflict resolution.¹⁶

Accordingly, CSD 1 also expresses the polishing of communication among the ISS participants as a potential of this education strategy. Communication is the most important element of teamwork and its use combined with the *in situ* simulation strategy has been investigated.¹⁷ When deficient, communication delays the time for the intervention and is associated with a negative outcome for the patient.¹⁸

In addition, CSD 1 reflects the professionals' feeling of concern regarding their outdated information about the service protocols. According to the literature,¹⁹ the knowledge acquired decreases over time and needs to be updated frequently. When the health professionals provide assistance when they are out of date, they can compromise the quality of the services and, above all, have a significant impact on the morbidity and mortality of the patients.²⁰

Professional updating is a process that seeks to provide individuals with acquisition of knowledge, so that they reach their professional capacity and personal development.³ It is considered one of the modern strategies to maintain and increase the knowledge of the professionals, which in turn raises the health status of society.²¹

The idea of the ISS as a possibility for training in the professional practice and in real time is contemplated in CSD 2. The literature corroborates that the ISS makes it easier to observe how care occurs in real time¹⁵ and, as it is developed in a real work environment which brings together the elements of the service team and the environment under specific organizational conditions, it is particularly valuable.²²

Currently, the ISS is seen as a successful proposal as a strategy in permanent nursing education.⁵ It is assumed that the simulated experience is an effective teaching and learning model, responding to the needs of obtaining and maintaining high quality standards in the professional practice.²³

Thus, studies investigate the association of the simulation with better results in the participants' learning. It is believed that the reality provided by *in situ* simulations increases the psychological involvement of the participants²⁴ and possibly helps in learning and retaining knowledge.¹⁹

Under this light, the practical training experienced by the simulation participants expands teaching outside the classroom and integrates other learning strategies.²⁵ A study noted that the professionals who learn from the use of simulation provide more ideas for organizational change than those who have not used this strategy.²⁶

In the third speech (CSD 3), the ISS is considered a safe and ideal environment for training, since it does not expose patients to real harmful situations when learning is related to direct assistance.

There is a strong consensus in the international literature^{16,25} that simulation is a powerful and often used strategy to help health professionals achieve higher levels of competence and safer care. A study using the *in situ* simulation for handling hypoglycemic crises identified pharmacological errors that could be safely corrected.²⁷

The speeches of the professionals in this discourse also encompass the opportunity of not having to be in a real situation to learn. The literature asserts²⁸ that simulation is like a technique that replaces or amplifies real patient experiences through guided experiences, artificially designed to evoke or replicate substantial aspects of the real world in a fully interactive manner.

Despite this, a review² on the ISS topics used in training programs revealed the use of this modality to improve patient safety and procedural safety, create system solutions, and improve patient care.

The speeches of CSD 3 correspond to the findings of the study that used the ISS in a permanent education program, since the strategy allowed identifying deficiencies in teamwork related to patient safety. The ISS is a well-established educational instrument and a tool for improving the quality of the professional practice, as it allows extracting, studying and correcting latent health care problems.²² When implemented in the permanent education of the nursing team, by bringing together all the elements of care and of the environment, it makes it possible to qualify technical and non-technical skills in a real and safe environment, as evidenced by the present study.

Considering the scarce public resources allocated to health in the country, the National Policy for Permanent Education in Health, which emphasizes the need to implement active teaching-learning methodologies,²⁹ as well as the relevance of the andragogy principles applied in the permanent education of health professionals, the ISS stands out in the qualification of the nursing team of the Unified Health System, especially in the intensive care setting, which requires highly qualified professionals to deal with critical health situations, such as CRA and septic shock.

A study on andragogy in the continuing education of health professionals emphasized that it is necessary to understand the challenges of the teaching-learning process with adult students who are often already professionals, as they bring with them a high burden of life experiences and knowledge and learning experiences that are not always positive. Thus, the concern should focus on learning plans with themes close to the context in which the students are inserted, plans that stimulate reasoning, discussion of ideas, reflection and creativity, so that the subjects take ownership of new knowledge and apply the knowledge to the problems that emerge in daily work.³⁰

These are the challenges and concerns facing the ISS implemented in the education of nursing professionals. However, the professionals expressed in this research that, although they have a lot of experience in dealing with critically ill patients because they have been working in the ICU for a long time, the ISS proved to be an opportunity for professional updating and for the acquisition of new knowledge, inferring that it is a strategy of permanent education in health which is positive from the point of view of meaningful learning.

It is noteworthy that this research was limited to the perceptions of the nursing team about the object of study and the ICU setting of a general public and teaching hospital. However, the results can contribute to the consolidation of the simulation strategy with a focus on the *in situ* modality applied in the permanent education of nursing professionals, a strategy still little explored in the national context. In addition, it is believed that this research has stimulated a reflective posture in the nursing professionals on permanent education.

CONCLUSION

The perception of the nursing professionals from an intensive care unit on the *in situ* simulation focused on permanent education in health was included in three Collective Subject Discourses, meanings in the Central Ideas that the ISS is configured as: an opportunity to update and acquire professional knowledge, skills and competences; possibility of training in the professional practice and in real time; and as a safe environment for making mistakes.

The realization of this study can contribute to expand the dissemination of simulation in the *in situ* modality, mainly in the country, as well as raising awareness among the nursing professionals who work in different contexts, especially in critical units, to participate in the ISS practices in permanent education in health.

It is suggested that this research be replicated in other Intensive Care Units in different Brazilian regions and that the ISS theme in permanent education in health be investigated with research studies whose design constitutes a high level of scientific evidence.

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