

The use of realistic clinical scenario in nursing teaching in urgency and emergency

El uso del escenario clínico realista en la enseñanza de enfermería en urgencias y emergencias

O uso do cenário clínico realístico do ensino da enfermagem em urgência e emergência

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Abstract

This work built and tested a high-fidelity clinical simulation scenario for the management of cardiopulmonary arrest (CPA) by nursing students. Miller's Pyramid was used to assess competences, applying the CPA care flowchart as a tool, according to the guidelines of the American Heart Association 2020. The simulation had 18 students from the 7th semester of the night nursing course, separated into five students in attendance and 13 students in the anteroom during the simulation. Once the scenario was over, the students were gathered in the anteroom for the debriefing. Students critically discussed the care provided, connecting the practice of CRA care by a nurse with the previously discussed theoretical context. When identifying positive points and opportunities for improvement, two students considered the scenario as an emotional trigger, given the clinical case presented. The simulated scenario proved to be an active methodology tool of relevance in health education, and the elaboration should be widely planned so that time is sufficient and the learning objectives are developed. The simulation made it possible to connect students with the object of knowledge and with the simulated patient, favoring cognitive, metacognitive, motivational and affective processes.

Descriptors: Cardiac Arrest; Simulation; Nursing; Nursing Education.

Resumen

Este trabajo construyó y probó un escenario de simulación clínica de alta fidelidad para el manejo del paro cardiorrespiratorio (CPA) por estudiantes de enfermería. Para la evaluación de competencias se utilizó la Pirámide de Miller, aplicando como herramienta el diagrama de flujo de cuidados CPA, de acuerdo con los lineamientos de la American Heart Association 2020. La simulación contó con 18 estudiantes del 7º semestre del curso de enfermería nocturna, separados en cinco estudiantes presenciales y 13 alumnos en la antesala durante la simulación. Una vez terminado el escenario, los estudiantes se reunieron en la antesala para el debriefing. Los estudiantes discutieron críticamente el cuidado prestado, conectando la práctica del cuidado de CRA por una enfermera con el contexto teórico previamente discutido. Al identificar puntos positivos y oportunidades de mejora, dos estudiantes consideraron el escenario como un detonante emocional, dado el caso clínico presentado. Los estudiantes fueron acogidos psicológicamente por el ambulatorio de psicología de la facultad. El escenario simulado demostró ser una herramienta metodológica activa de relevancia en la educación en salud, y la elaboración debe ser ampliamente planificada para que el tiempo sea suficiente y se desarrollen los objetivos de aprendizaje. La simulación permitió conectar a los estudiantes con el objeto de conocimiento y con el paciente simulado, favoreciendo procesos cognitivos, metacognitivos, motivacionales y afectivos.

Descriptorios: Paro Cardíaco; Simulación; Enfermería; Educación en Enfermería.

Resumo

Este trabalho construiu e testou um cenário de simulação clínica de alta fidelidade para manejo da parada cardiorrespiratória (PCR) por estudantes de enfermagem. Para avaliar competências foi usada Pirâmide de Miller, aplicando como ferramenta o fluxograma de atendimento de PCR conforme diretrizes da *American Heart Association 2020*. A simulação contou com 18 discentes do 7º semestre do curso de enfermagem noturno, separados em cinco alunos no atendimento e 13 alunos na antessala durante a simulação. Encerrado o cenário, os discentes foram reunidos na antessala para o *debriefing*. Os discentes criticamente discutiram o atendimento realizado, conectando a prática do atendimento de PCR por um enfermeiro com o contexto teórico previamente abordado. Ao identificar pontos positivos e oportunidades de melhoria, dois alunos consideraram o cenário como gatilho emocional haja vista o caso clínico apresentado. O cenário simulado mostrou-se ferramenta de metodologia ativa de relevância no ensino em saúde, devendo a elaboração ser amplamente planejada para que o tempo seja suficiente e os objetivos de aprendizagem sejam desenvolvidos. A simulação possibilitou conectar os estudantes com o objeto do saber e com o paciente simulado, favorecendo processos cognitivos, metacognitivos, motivacionais e afetivos.

Descriptorios: Parada Cardíaca; Simulação; Enfermagem; Educação em Enfermagem.



Introduction

Simulation-based learning is a teaching method that can convey practical problems in a safe and standardized environment. In addition, simulations can be repeated until student performance improves¹⁻³.

It is a powerful tool that has been shown to promote deeper understanding and application of psychomotor skills, enhancing communication and interdisciplinary teamwork^{4,5}. It is seen as an effective pedagogical approach, allowing students to transfer theory to practice in a clinically safe and realistic environment^{6,7}. However, while simulation provides opportunities for students to practice technical and non-technical skills in a non-threatening and safe environment^{8,9}, death and dying as well as end-of-life scenarios have been controversial topics¹⁰.

With realistic clinical scenarios based on simulation, educational interventions in nursing consolidate the training of nurses, whether new graduates or experienced, helping them to develop non-technical skills and to practice rare emergency situations, providing them with a variety of authentic risk situations of life. Advantages of simulation-based educational interventions include: the ability to provide immediate feedback, repetitive hands-on learning, integration of simulation into the curriculum, the ability to adjust the level of difficulty, the opportunity to individualize learning, and adaptability to diverse types. of learning strategies¹¹.

Simulation can be described as a continuum ranging from low-fidelity simulation (LFS) to high-fidelity simulation (HFS)¹². Various simulation methods can be tailored to specific learning outcomes and educational levels. Dieckmann¹³ cautions against placing too much emphasis on having ideal equipment and environments that realistically replicate the clinical setting. The required learning outcomes should govern the choice of simulation method^{13,14}.

Nursing research studies have evaluated the effectiveness of simulation-based educational programs and interventions¹⁵. However, the reported efficacy varied according to the fidelity level of the simulators and the outcome variables.

The great challenge for health care professionals in cardiorespiratory arrest (CRA) care lies in the care and quality of care provided to people in CRA, as well as in the post-arrest care itself and in the correct management of this care quickly and efficiently effective with health institutions.

Conjecturing the learning needs of nursing course students in this pandemic period, the main objective of the present study is to report the experience of realistic clinical

simulation to future nursing professionals in order to expand the dissemination of knowledge regarding the scientific evidence now available to regarding the impact of the quality of care of a CPA and the increase in the patient's survival rate in the context of teaching the discipline of nursing in urgency and emergency. Based on an experience report, the goal is to provide quality care and create a safe environment for training and improving skills for nursing students at a higher education institution in the interior of the State of São Paulo.

Methodology

The experience report on the teaching activities developed in the discipline 'Nursing in Urgency and Emergency' was adopted. The pre-simulation activity was promoted from February to June 2022 and consisted of 10 meetings aimed at carrying out training on previous skills such as opening the airways, chest compressions, using an automatic defibrillator (AED), preparing medications used in CRP and vasoactive drugs and intraosseous puncture, together with students of the undergraduate nursing course, from the eighth semester of the night shift.

The experience report is considered an instrument of descriptive research that highlights a certain activity or more activities experienced by the authors, composing the same theme. This study practice allows the reflection of the professional also in the scientific environment, highlighting peculiarities related to professional practices¹⁶. Duly respecting research ethics, this study does not identify the higher education institution or the Nursing students composing the group of participants in which the observations were carried out. Classes took place for two classes in a total of 35 students, according to the schedule of classes in the night shift. All had already completed the subject 'Nursing in Urgency and Emergency' and some even worked professionally as Nursing Technicians.

The planning for the construction of the scenario counted on the structuring of the stages of the simulation scenario, namely: the time of organization/briefing of the students/scenario/debriefing, learning objectives of the scenario, being primary and secondary, equipment/consumable materials, organization of the environment, description of the scenario, sequence of actions in the scenario (checklist of student actions/commands on the high-fidelity mannequin), student briefing, debriefing by analysis/understanding, description/reaction and synthesis/evaluation (Chart 1). The table below presents the items considered in the construction of the scenario.

Chart 1. Cardiopulmonary Arrest Simulation Scenario Guide. São Paulo, SP, Brazil, 2022

<p>Planning: Survey of needs to build the scenario: literature review, definition of the target audience, basic literature for cardiorespiratory arrest care, determination of objectives; construction of the clinical situation; preparation of content, facilitator and location and planning of materials and resources necessary for the development of the activity.</p>
<p>Learning Objectives: Primary Identify the PCR situation;</p>



<p>Carry out the correct management of CPA care according to the guidelines of the American Heart Association 2020;</p> <p>Secondary Effective team communication; Interprofessional work.</p>
<p>Simulation structure and format: High fidelity clinical simulation.</p>
<p>Materials and resources: Hospital bed with high-fidelity manikin (monitor and SimPad™); Arm for venipuncture + simulated blood; Defibrillator; Serum support; Oxygen and aspiration wall mounted with flowmeters; Glove Box (S, M, L); Protective goggles; Adult mask valve bag; Laryngoscope handle + blades (can be of various sizes/types); Orotracheal tube; Stethoscope; Syringe 20 ml; Simulated medications: adrenaline 1mg/ml (1 ml), calcium gluconate 10% (10 ml), sodium bicarbonate 8.4% (10 ml); Catheter under needle #18, 20, 22; 5 ml syringes; Macrodrop kits; Garrote; Micropore; Oxygen extender; Needles 40X12 mm; Gauze packs; Bottle of gel alcohol; Bottle of defibrillation gel; electrodes; Descarpack small; PCR cart with rigid board; Scissors; Stairs; Indwelling Vesicak catheter; Identification bracelet.</p>
<p>Case description: Patient N.A.O., 77 years old, male, with a history of smoking (former smoker - 10 years ago, smoker for 33 years), dyslipidemia, type II diabetes mellitus, systemic arterial hypertension and acute myocardial infarction 8 years ago, with stent non-pharmacological, previous ischemic stroke 3 years ago. He sought the emergency service of a municipal hospital in a city in the interior of São Paulo, reporting pain in chest tightness, without improvement at rest. He was classified as orange risk by the Manchester protocol, for which he should wait 10 minutes until the service was carried out. However, during the waiting period, he had a lowered level of consciousness and severe hypotension. After this episode, the patient was transferred to the emergency room, thus requiring endotracheal intubation and puncture of two large caliber peripheral venous accesses in the upper limbs for administration of crystalloids. The patient is under the effect of intubation sedation, and is on mechanical ventilation. PA:60x40mmHg and HR:154bpm. When the nursing technician sees these BP and HR values on the monitor, he immediately calls the nurse. You are the nurse on duty and must assess the patient. The scenario must be interrupted when: at the end of the proposed activity or reaching the 15-minute time limit.</p>
<p>Briefing: Before starting the scenario, present the case, environment and resources available for assistance.</p>
<p>Debriefing¹⁹ Structured debriefing. Duration: 30 minutes. How do you feel after carrying out the simulated activity? What were your perceptions about the service provided? What caught your attention most in the service provided? Justify. Cite positive points in the development of the simulated activity. Mention points for improvement. What would you do differently and why? What did you learn from this simulated activity? What skills were developed during this activity?</p>
<p>Assessment: Knowledge was evaluated three days later by gamification strategy using a game learning platform.</p>



Experience Report

The activities began with expository-dialogued classes and skills training on how to perform cardiac arrest (theme addressed in the course). This step was essential to promote subsidy on the theme and, consequently, instrumentalize the facilitator in the preparation of the scenario and the realistic simulation. For the simulated practices to be effective, it was necessary to plan each stage obeying an increasing level of complexity, which allowed the participants to demonstrate competence acquired in each phase of the process simulation. An 18-minute briefing was held in order to present the problem situations, the learning objectives, in addition to the entire scenario environment (emergency care unit - nursing laboratory with adapted scenario), equipment, supplies, furniture and actor (student actor and volunteer) playing the role of a standardized patient. Guidance was also given on the steps of the entire process.

For the realistic simulation, a duration of 15 minutes was established, in which the order of the stages of events was considered, starting with the identification of CRP in the emergency room, where only the Nurse remained, assisted by a Nursing Technician and a Doctor, assisting service through the glass display in the mirrored room of the Simulation Laboratory. Three professionals worked in the scenario, being a nursing technician, a nurse and a doctor. CPA care was led by the Nurse. At the end, all team members completed the service.

Durante todo o período do fluxo do atendimento do simulated patient and assistance during CPA, communication between professionals played an important role in the realistic simulation, in order to improve interaction between professionals and contribute to the safety and quality of care, as well as the sequence of care for the patient's CPA according to the guidelines from the American Heart Association (2020)¹⁷.

As the most frequent error, the late start of chest compressions was observed. In view of the reason for such an error and the reason for it still being made, at the end of the training a debriefing lasting 30 minutes was carried out in order to extract contributions from the participants and reinforce positive points. The error was not valued, but the solution with a collective outcome was shown for the implementation of the CRA patient care protocol, with the aim of promoting a reflection on the teaching-learning process and strengthening the importance of a safe learning environment.

The planning of the scenario was based on the intention of operationalizing the student's learning with the learning experience lived by the simulation. This rationale contemplated the hospital clinical context contemplating the fulfillment of all stages, including bibliographical survey; determination of objectives; construction of the clinical situation; preparation of content, facilitator and location and planning of materials and resources necessary for the development of the activity^{18,19}.

Final Considerations

Results of the experience guide the teaching of Nursing with regard to the training process, aiming to promote the use of the realistic clinical simulation technique for the purpose of training qualified care for a CPA based on evidence and updated protocols, as well as the development of teaching based on evidence through the simulation technique. In order to be successful in using this technique, it is necessary to equip (prior) students with relevant information so that they can understand, prevent and treat in advance issues related to the early recognition of a CPA, the improvement of the quality of care and facilitating the quick start of the care protocol, prioritizing quality, effective communication and nurse leadership in the care of a CPA.

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