UFSM

REUFSM
REVISTA DE ENFERMAGEM DA UFSM

ISSN 2179-7692
OPEN ACCESS

Rev. Enferm. UFSM, v.14, e8, p.1-15, 2024 •
Submission: 8/23/2023 • Acceptance: 2/20/2024 • Publication: 4/4/2024

Experience report

Use of *moulage* in the clinical simulation of dressings among nursing students: an experience report

Uso da *moulage* na simulação clínica de curativos entre estudantes de enfermagem: relato de experiência

Utilización del moulage en la simulación clínica de apósitos entre estudiantes de enfermería: informe de experiencia

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Abstract

Objective: to report on the use of *moulage* in the clinical simulation of dressings for skin injuries among nursing students. **Methodology:** experience report on the use of *moulage* to represent skin injuries in a clinical simulation of dressings for nursing students. It was developed in five stages: starting point, initial questions, recovery of the experienced process, background reflection and end points. **Results:** three clinical simulations were carried out with 28 students. In order to produce the skin injury, latex, makeup paste, cornstarch, anti-allergic paint, brushes, sponge, artificial blood and cotton were used, at a cost of R$107.35. In the simulated scenario, there was an actor who played the role of a patient with injuries after a car accident. The simulations took place in three stages: *briefing*, simulated scene and *debriefing*. **Conclusion:** clinical simulation with *moulage* is a strategy for teaching dressings for skin injuries and contributes to the teaching-learning process for nursing students.

Descriptors: Simulation Training; Wounds and Injuries; Education, Nursing; Educational Technology; Students, Nursing

Resumo

Objetivo: relatar o uso de *moulage* na simulação clínica de curativos em lesões tegumentares entre estudantes de enfermagem. **Método:** relato de experiência sobre o uso de *moulage* para representar lesões tegumentares em simulação clínica de curativos para estudantes de enfermagem. Desenvolveu-se em cinco etapas: ponto de partida, perguntas iniciais, recuperação do processo vivido, reflexão de fundo e pontos de chegada. **Resultados:** realizaram-se três simulações clínicas, com 28 estudantes. Na produção da lesão tegumentar, utilizaram-se látex, massinha de maquiagem, amido de milho, tinta antialérgica, pincéis, esponja, sangue artificial e algodão, com um custo de R$107,35. No cenário simulado, havia um ator que representou o papel de paciente com lesão, após acidente automobilístico. As simulações ocorreram em três

etapas: *briefing*, cena simulada e *debriefing*. **Conclusão:** a simulação clínica com *moulage* é uma estratégia para o ensino de curativos em lesões tegumentares e contribui para o processo de ensino-aprendizagem de estudantes de enfermagem.
Descritores: Treinamento por Simulação; Ferimentos e Lesões; Educação em Enfermagem; Tecnologia Educacional; Estudantes de Enfermagem

Resumen

Objetivo: informar sobre la utilización del *moulage* en la simulación clínica de apósitos para lesiones cutáneas entre estudiantes de enfermería. **Metodología:** informe de experiencia sobre la utilización del *moulage* para representar lesiones cutáneas en una simulación clínica de apósitos para estudiantes de enfermería. Se desarrolló en cinco etapas: punto de partida, preguntas iniciales, recuperación del proceso vivido, reflexión de fondo y puntos de llegada. **Resultados:** se realizaron tres simulaciones clínicas con 28 estudiantes. Para producir la lesión cutánea, se utilizó látex, pasta de maquillaje, almidón de maíz, pintura antialérgica, pinceles, esponja, sangre artificial y algodón, con un coste de R$107,35. En el escenario simulado, había un actor que representaba el papel de un paciente herido tras un accidente de coche. Las simulaciones se desarrollaron en tres etapas: *briefing*, escena simulada y *debriefing*. **Conclusión:** la simulación clínica con *moulage* es una estrategia para la enseñanza sobre apósitos de lesiones cutáneas y contribuye al proceso de enseñanza-aprendizaje de los estudiantes de enfermería.
Descriptores: Entrenamiento Simulado; Heridas y Lesiones; Educación en Enfermería; Tecnología Educacional; Estudiantes de Enfermería

Introduction

The traditional teaching model with lectures has been undergoing constant changes, especially in the health sector, since this strategy has not been able to meet the demands and expectations of students in a context of practice that requires, in addition to scientific knowledge and mastery of techniques, the development of psycho-emotional skills in the management of emergency situations. Accordingly, higher education institutions have started to implement new teaching methodologies to remedy these gaps and improve the set of skills and competencies by using an approach that combines theory with practice, including the use of directed and controlled scenarios that are close to the real world, known as clinical simulation.[1]

Simulated teaching is a process that allows students to actively participate in it, creating a scenario where a real scene is represented. The objective of clinical simulation is to provide experiences that are closer to professional practice, making learning more reliable, as well as being considered a tool for improving teaching, as it favors the experience of reality in a safe and controlled environment. The use of clinical simulation for training in nursing and other areas of health is related to active methodologies that

provide challenges to be overcome by students, enabling them to take the place of active subjects in the construction of knowledge, actively participating in the analysis of the entire health care process.[2]

Clinical simulation in dressing has been used in nursing teaching and stands out for improving learning and developing skills based on active methodologies. Nevertheless, the injuries of medium- and high-fidelity simulators do not come close to the reality of a patient's skin.[3] Therefore, the *moulage* technique denotes greater fidelity to skin injuries and is an educational tool that produces legitimacy and authenticity to the scene and can be used to simulate wounds and injuries with the application of cosmetic products or other materials, whether on mannequins or people.[3]

This technique therefore makes it possible to accurately reproduce injuries, such as contusions, bruises, wounds and ulcers on mannequins and simulated patients, as well as imitating blood, urine, feces, vomit and pus, among other substances. Through the use of low-cost materials and substances that are easy to apply, *moulage* increases the fidelity of scenarios, facilitating learner engagement in simulations and promoting cognitive and psychomotor skills in the practice environment.[4] Therefore, using this technique to simulate clinical cases helps students to practice the skills needed to deal with a real scenario, using the sensory experience of sight, touch and smell, since *moulage* allows this manipulation to be very close to reality.[5]

During undergraduate nursing classes, students have the opportunity to practice dressing techniques on simulation mannequins. Nevertheless, there are reports of difficulty in terms of managing dressings even after graduation, which reinforces the importance of intensifying their use during academic training. In this sense, clinical simulation with *moulage* wounds allied to *debriefing* enables the development of skills and competencies that go beyond the dressing technique itself and enables students to make assertive decisions regarding real nursing care after graduation.[6]

Although it is a recent and little-publicized technique, *moulage* has been increasingly used in health courses, especially in the field of nursing simulation, making it necessary to report an experience on the use of this technique in an active teaching methodology that is relevant to student training. This allows this technique to be disseminated, expanding its applicability in the context of nursing care for skin injuries,

since there is little research on the topic.

The objective of this study is to report on the use of *moulage* in the clinical simulation of dressings for skin injuries among nursing students.

Methodology

This is an experience report, developed from October to November 2022, on the use of *moulage* to represent injuries in a clinical simulation of dressings in undergraduate nursing courses. The simulations were carried out in the Nursing Teaching Laboratory of a public university in the countryside of the state of Rio de Janeiro and were aimed at undergraduate nursing students.

The Nursing Teaching Laboratory consists of three rooms: the first is an anteroom for personal belongings and dressing; the second is the main environment, with three beds separated by hospital curtains, containing low-fidelity mannequins and all the medical and hospital materials needed for nursing procedures; and the third environment is a control room, separated by one-way glass, which allows a view of the main laboratory environment, which was organized in advance so that all the dynamics of the simulation could take place in the main environment, and all the materials for performing dressings were arranged so that they were easily accessible for use during the scenes.

This report follows a systematized format that aims to produce knowledge from experience to aspects that point to its transcendence, where the importance is to recover what was experienced, reconstructing the historical process in order to interpret it and obtain learning, such as the new generated knowledge. Systematized experience reports help to identify the tensions between projects and processes, identifying and formulating the lessons learned from primary experience. Therefore, it is essential to document experiences and disseminate them in order to record data that can be invaluable for future studies, contributing to theoretical reflection with knowledge that directly arises from experiences.[7]

As ways of systematizing the experience of using *moulage* in clinical simulation with nursing students, the following were considered: 1) Starting point; 2) Initial questions; 3) Recovery of the experienced process; 4) Background reflection; and 5) End

points.[6] The starting point refers to the beginning of the whole process of systematizing an experience, the very conception of the experience itself, where only those who were part of it can take part, being the protagonists of the report. Subsequently, in order to define a systematization objective, initial questions that will direct and guide the reflections and the production of knowledge are formulated, based on the most interesting central aspects of the experience report.

The recovery of the experienced process is about reconstructing the history of the experience in a chronological way, recounting deeds and situations that appear and were lived by the protagonists in an intense way, with the details in narrative form, without interpretative comments or explanations of the events that took place. Through the process of analysis and synthesis, in-depth reflection aims to construct critical interpretations of what has been experienced, based on the richness of the experience itself, allowing deeper learning to be uncovered and made explicit, locating the main tensions and contradictions that marked different components of the experience process and its relationships. The end points refer to the conclusions and communications of learning oriented towards the transformation of practice. They must be clear and concise, covering both theoretical and practical aspects, concretely expressing the statements resulting from the systematization, the main answers to the questions posed and the recommendations that emerge for producing changes in future practice.[7]

The research was approved by the Research Ethics Committee of the Antônio Pedro School of Medicine/University Hospital of the Fluminense Federal University, under Opinion nº 4,740,757. All ethical aspects were considered in accordance with Resolution nº 466/2012 of the National Health Council.

Results

The starting point for this report came from clinical simulations about dressings, whose simulated scenario used actors and the *moulage* technique on the simulated injury. In view of the surprise expressed by the nursing students who took part in the simulations, it was considered reporting this experience, which could contribute to expanding the use of this technique in nursing teaching, since the simulations took place

in the context of scientific research, where the students constituted the sample of participants and consented to their participation.

Next, the initial questions were then posed to guide this report: Is the use of *moulage* considered a relevant strategy for teaching dressings for integumentary injuries in undergraduate nursing courses? Can the use of this technology through an active methodology, such as clinical simulation, favor the teaching-learning process of nursing students?

In order to recover the experienced process, the story experienced by the nursing students was reconstructed, which consisted of taking part in clinical simulations to perform dressings. The simulations took place in three stages, with the *briefing* lasting an average of 10 minutes; the simulated scene lasting an average of 11 minutes; and the *debriefing* lasting an average of 25 minutes.[8]

Three clinical simulations were carried out to perform dressings, using the same simulated injury prepared by the study team using the *moulage* technique, with a total of 28 nursing students taking part. In each simulated scene, two nursing students took an active part and the other students in the group remained observing the scene in silence and without interaction. During the *briefing*, the objectives of the scenario were presented, and the stages of the research were described to the nursing students, who were invited to choose a code name to be used later in the *debriefing* after the simulation.

The objectives of the simulated dressing scenes were related to technical and non-technical skills. Thus, the objective was to ensure proper dressing techniques, the correct handling of materials and the development of skills to deal with wounds in emergency situations. To this end, in this study, the following skills and competencies were expected to be developed: recognizing the environment, planning and organizing resources, teamwork, leadership designation, assertive communication between the team and the patient, agile decision-making and assertive interventions, recognizing one's own limitations, assessing the patient's level of consciousness, assessing the injury in terms of its characteristics (in relation to the type of injury, depth and affected tissues), planning the care and carrying out the dressing, applying the correct coverage in accordance with good practice (using aseptic techniques). The simulated scenes were planned and conducted with an actor simulating the patient, an actor simulating the

patient's caregiver and the use of the *moulage* technique to simulate the injury (Figure 1).

Figure 1 – Simulated skin injuries using the moulage technique for clinical simulations with actors, Rio de Janeiro, 2023

The *moulage* integumentary injury was produced by a nursing student, who used the following materials: latex, makeup paste, cornstarch, anti-allergic paint, brushes, sponge, artificial blood and cotton. Although only one injury was produced, the purchased material allows many injuries to be made that can be reused. The total cost was R$107.35, with the makeup paste being the most expensive item, costing R$31.50.

The simulations were put into practice as follows: after a beep indicating the start of the scene, an actor patient entered the Nursing Teaching Laboratory, being carried by a caregiving actor who was reporting a car accident on a public road. As soon as the patient was accommodated, the caregiver left the scene. The patient was lucid, responsive, distressed, complaining of pain and a injury in his left lower limb.

During the simulated scenes, it was possible to identify the difficulty on the part of nursing students in terms of distinguishing whether what had happened was real or a simulated scene, considering the realism of the injury and the interpretation performed

by the actors. For example, in one of the scenes, the students expected external help from the researcher (in the form of a trained nurse) and were slow to understand that it was a simulation, delaying the start of care for the patient. The scenes were ended whenever the proposed objectives were met or if an increase in stress levels was observed among the students taking part.

After the simulation, all the students in the group were taken to the *debriefing*. At this stage, the nursing students who took part in the simulation were somewhat agitated and incredulous. It was also observed that their facial expressions, such as open mouths, hands covering their mouths and wide-open eyes, revealed surprise at the scene that had just taken place. After a few minutes for the nursing students to assimilate what had happened, it was possible to perceive expressions of relief and moments of relaxation, with laughter clearly indicating the relaxation of the previously experienced tension. These perceptions occurred in all the simulated scenes that were carried out.

As background reflections on the experience, the production of *moulage* stands out as a simple technique that allows for the simulation of injuries that are faithful to reality, providing experiences that are close to a real nursing practice scenario in a simulated environment. In this sense, the use of *moulage* for clinical simulations, especially those that are also carried out with actors, is a relevant resource for the teaching-learning process about integumentary injuries.

The *moulage* technique proved to be a low-cost strategy for developing skin injuries, which will be used in the teaching-learning process in undergraduate nursing courses. Furthermore, the same “injury” can be reused in other clinical simulation scenarios. As it is a low-investment approach, it is possible to develop a wide variety of parts to be used.

The injury created using the *moulage* technique was very close to the reality of a cutaneous injury, i.e., even in a simulated environment using *moulage* techniques and low-cost materials, the simulations are highly faithful to real injuries.

With the use of an actor taking on the role of a patient with a sharp injury made using the *moulage* technique, the simulated environment aroused a feeling of tension in the students when they were exposed to the simulation, due to the need to have skills that need to be improved for practice, as the simulation scene actually looked very real,

making it difficult for the student to distinguish between what was at the beginning of the simulation scene and what was reality.

Because it is very close to reality, the simulated scene prepares students to emotionally deal with small occurrences in a nurse's daily life, improves skills and assertive attitudes in emergency situations and contributes to the teaching-learning process, as it requires technical development in relation to practical activities.

It is worth underlining that the actor used in the scene made a big impact on the students taking part in the study. As it was not a mannequin, the students felt uncomfortable and anxious about the reality of the scene, and initially found it difficult to understand that it was, in fact, a fictitious action, despite having been explained beforehand that they were going to take part in a simulation to perform dressings, as well as hearing a sound signal that indicated the start of the simulated scene.

Regarding the end points, it can be understood that the result of using a single injury with the *moulage* technique with actors in three clinical simulations for dressings, conducted with 28 nursing students, showed a positive effect that points to the need both to change the methods used to teach dressings for integumentary injuries in nursing and to implement this technique in simulations, with a view to working not only on technical-scientific aspects, but above all on aspects related to the mastery of emotions in emergency situations among students. Furthermore, the use of *moulage* was considered to be a relevant, low-cost and sustainable strategy for teaching dressings for skin injuries, which could favor the teaching-learning process in undergraduate nursing courses.

Among the objectives of the simulated scenes on dressing related to technical and non-technical skills, it is understood that they were fully achieved: teamwork, leadership designation, assertive communication between the team and the patient, care planning and dressing, applying the correct coverage. Partially, the following were achieved: recognition of the environment, planning and organization of resources, assertive interventions, assessment of the injury in terms of its characteristics (in relation to the type of injury, depth and affected tissues) and application of aseptic techniques. The scenes did not include agile decision-making, recognition of one's own limitations and assessment of the patient's level of consciousness, but these issues were explored in the *debriefing*, encouraging critical reflection on the experience.

Discussion

This experience report introduces *moulage* as a relevant strategy for teaching nursing students how to dress skin injuries during clinical simulation, favoring the teaching-learning process, especially when combined with simulation with actors. The body of publications on clinical simulation scenarios for the development of higher-education activities reveals the importance of this tool as a good alternative for training, as it provides safety, avoids errors and enhances the learning of future health workers.[9]

From this perspective, the use of clinical simulation combined with simulated integumentary injuries corroborates the application of current pedagogical trends in education based on active methodologies, with a focus on innovation and critical and reflective analysis, seeking to promote different competencies and skills recommended by the Brazilian National Curriculum Guidelines for Undergraduate Nursing Courses, especially those related to health care, decision-making, communication and leadership, in the essential articulation between theory and practice.[10] Accordingly, the construction of the simulated scene with an actor, together with the *moulage* technique, aroused the participants' interest in the events, besides highlighting the need for critical thinking about the practical care required in the dramatized situation.[11]

Similarly to what was documented in a study on the perception of nursing students in the development of skills and competencies in realistic simulation, the end points reported in this study, albeit partially, allowed us to identify that simulation is a preparation for clinical practice, contributes to the articulation between theory and practice and stimulates critical thinking in managerial and health care decision-making, as well as teamwork. Furthermore, it favors technical improvement, psychological preparation and the development of communication skills, which were fundamental in the simulated scene involving dressings for integumentary injuries.[12]

The construction of the clinical simulation scenario involved the produced injury using the *moulage* technique, which proved to be a low-cost and sustainable resource, since it is possible to use the same injury in multiple simulations, although the design requires specific knowledge of integumentary injuries. It should be emphasized that it is necessary to have a mastery of the tissue characteristics and of each type of injury for

development. Thus, student who works on the creation of the pieces has the opportunity to improve and deepen his/her scientific knowledge, with a view to making pieces that are more and more faithful to the reality found in professional practice.[13]

Although low-cost simulation is highly desirable, it can only be successful if it is realistic enough to allow the student to be immersed in the environment. High-fidelity simulations are associated with fewer interventions by the facilitator during the simulation, thus reducing the mental stress experienced by the participants.[14] In this sense, the *moulage* technique for making skin injuries, combined with actors in realistic simulation, is relevant for teaching in nursing, due to its interactive dynamics, and has proved to be a promising methodology in the teaching-learning process.

The moment of simulation involves decision-making, errors, successes, questioning, sensory experiences, emotional experiences, among others, allowing students to improve their psycho-emotional domain, which will be important for dealing with situations related to practice and also for their future as health professionals. Stress and anxiety are present in human life, especially in academic life, when the student is questioned by the teacher, during assessment processes or in relation to performance, internships and clinical practice. Therefore, it is up to the student to modulate these feelings and modify their responses so that their interpretation of stress can contribute to the learning process.[15]

Despite the *briefing* before the simulation and the sound signal, being faced with such a real scene confused the students, a fact that was also found in a study that used actors in realistic simulation.[16] An experience report[17] discusses the application of realistic simulation as a teaching-learning methodology in nursing, pointing out the nervousness, insecurity, surprise and anxiety on the part of students in relation to the use of standardized actors in the *debriefing* carried out at the end of each scenario. According to the same study, simulations with actors make the simulation even more realistic due to their body expressions, speech and movements.

The training process of nursing students requires overcoming challenges, which generate anxiety, stress and insecurity, especially during simulated experiences, which the literature recognizes as difficulties and gaps in this process, which can be minimized through feedback, an essential stage in terms of improving their skills and competencies, through

reflection on the simulated experience.[12] Accordingly, *debriefing* helps students in the simulated clinical experience in a way that enables them to develop their reasoning during learning and reduces stress and anxiety in future practice scenarios, especially those related to emergencies. According to one study,[18] which investigated anxiety during emergency scenarios in high-fidelity simulation, it was shown that performance may have been better in students who had previous experience with critically ill patients.

These experiences can help to identify the nuances of behaviors and reactions to the execution of nursing care common to the professional practice. The *moulage* technique in the production of skin injuries, which resemble a real injury, combined with the use of a simulated actor, allowed for the development of critical thinking and technical skills that are being enhanced in the undergraduate classes, with a view to carrying out the necessary care, overcoming even the psycho-emotional challenges.

Conclusion

Based on the reported experience, it was possible to perceive the use of *moulage* as a relevant strategy for teaching dressings for integumentary injuries in undergraduate nursing courses, besides identifying how the use of this technology, through an active methodology, such as clinical simulation, contributes to the teaching-learning process of nursing students, especially when the use of the *moulage* technique and actors are combined, which makes the scene more faithful to reality. It was noted that simulation provides students with an opportunity to face practical experiences, enabling the development of skills, logical reasoning, critical thinking and psycho-emotional mastery.

Accordingly, the combination of the *moulage* technique and the simulated actors came so close to a real scene that it generated disbelief in the student regarding the scenario, i.e., whether it was really a simulation or a real situation. Allied to this aspect, the interaction through the speeches, body expressions and movements made the scene faithful to reality, altering the student's perception and emotion, requiring decision-making, technical and behavioral skills.

In this sense, the closer the scenario is to the practice of the profession, the better the students' perception of the need for psycho-emotional mastery in order to

carry out nursing care, especially in the context of emergency situations, which could be a relevant aspect in teaching the assessment of skin injuries and dressings in undergraduate nursing courses.

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Funding: I hereby declare that this study is a product of a research project that was awarded a call for research funding by the Fluminense Federal University in 2021. 2020 Fopesq Edital, referring to the project named Educational technologies in simulated nursing teaching in the post-pandemic period: application and evaluation.

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Editor-in-Chief: Cristiane Cardoso de Paula
Associate Editor: Eliane Tatsch Neves

How to cite this article

Silva BMS, Dutra LN, Dias LO, Goulart MCL, Goés FGB, Ávila FMVP. Use of *moulage* in the clinical simulation of dressings among nursing students: an experience report. Rev. Enferm. UFSM. 2024 [Access at: Year Month Day]; vol.14, e8:1-15. DOI: https://doi.org/10.5902/2179769284878