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REFLECTION ARTICLE

Reflection on the implementation of simulation-based education in a public nursing school

Reflexión sobre la implementación de educación basada en simulación en una escuela de enfermería pública

Reflexão sobre a implementação do ensino baseado em simulação em uma escola pública de enfermagem

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ABSTRACT

Objective: To reflect on the relevance of developing training based on clinical simulation that adheres to the standards set by the International Nursing Association of Clinical Simulation and Learning within a public university Nursing school. **Development:** While implementing simulation-based training can pose challenges, following the aforementioned quality standards makes it possible for the objectives to be clearly articulated by the clinical simulation team. This approach allows for monitoring progress and assessing development through established indicators. **Conclusions:** Understanding and striving for compliance with each standard presents a series of challenges, such as the need for a trained faculty team, a design that includes a unified language, high-quality debriefing practices, an appropriately equipped simulation centre, coordinated teamwork, and most importantly, the perception of each member within undergraduate programs.

Keywords: Nursing; Nursing Education Research; Educational Models; Simulation Training; Professional Review Organizations.

RESUMEN

Objetivo: Reflexionar sobre la importancia del desarrollo de la educación basada en simulación clínica cumpliendo los estándares de *International Nursing Association of Clinical Simulation and Learning* en una escuela de enfermería de una universidad pública. **Desarrollo**: La educación basada en simulación, si bien es un camino desafiante, trabajar considerando los estándares de calidad antes mencionados, permite establecer un programa de simulación en el cual se visualicen los objetivos de trabajo por parte del equipo de simulación, permite establecer los avances y evaluar el desarrollo a través de indicadores. **Conclusiones**: Conocer cada estándar y trabajar para su cumplimiento, genera una serie de desafíos como, por ejemplo, un equipo de docentes formados, un lenguaje unificado en el diseño, la aplicación de un *debriefing* de calidad, un centro de simulación adecuado, un trabajo en equipo ordenado y lo más importante la valorización por cada uno de los integrantes de las escuelas de pregrado.

Palabras clave: Enfermería; Investigación en Educación de Enfermería; Modelos Educacionales; Entrenamiento Simulado; Organizaciones de Normalización Profesional.

RESUMO

Objetivo: Refletir sobre a importância do desenvolvimento do ensino baseado em simulação clínica baseado na *International Nursing Association of Clinical Simulation and Learning* em uma escola de enfermagem de uma universidade pública. **Desenvolvimento:** O ensino baseado em simulação, embora seja um caminho desafiador, trabalhar considerando os padrões de qualidade mencionados permite estabelecer um programa de simulação no qual são visualizados os objetivos de trabalho da equipe de simulação, permitindo estabelecer o progresso e avaliar o desenvolvimento através de indicadores. **Conclusões:** Conhecer cada norma e trabalhar para seu cumprimento gera uma série de desafios como, por exemplo, uma equipe de professores capacitados, uma linguagem unificada no design, a aplicação de um *debriefing* de qualidade, um centro de simulação adequado, um trabalho em uma equipe organizada e, o mais importante, o apreço por cada um dos integrantes das escolas de graduação.

Palavras-chave: Enfermagem; Pesquisa em Educação em Enfermagem; Modelos Educacionais; Treinamento par Simulação; Organizações de Normalização Profissional.

INTRODUCTION

Al considerar el modelo de salud actual en Chile, el cual apunta a la calidad y seguridad en la atención, Chile's healthcare model prioritizes quality and patient safety; thus, the Ministry of Health recommends aligning curricula with community needs. Consequently, innovation, education, and the training of healthcare professionals play a fundamental role in ensuring high-quality patient care.[1]

In light of this, the educational model has significantly shifted from a facilitator-centered to a learner-centered approach. This transition necessitates adjustments to both methodological and assessment strategies, as traditional written exams fail to adequately assess the professional competencies essential for the current healthcare model. Within this context, one methodological strategy that has proved to be effective in healthcare training is clinical simulation.[2]

Expanding on this, the article critically examines efforts to advance this teaching-learning methodology within a public university's nursing school. This analysis is based on the quality standards established by the International Nursing Association for Clinical Simulation and Learning (INACSL), an organization dedicated to advancing the science of clinical simulation.[2]

In order to assess and promote the development of Simulation-Based Education (SBE), it is crucial to consider the best practice standards for healthcare simulation. These standards provide a detailed framework for evaluating and improving simulation procedures and delivery methods, benefiting educators, students, and patients. They reflect a commitment to quality and the implementation of rigorous, evidence-based educational practices to improve patient care.[2]

The Healthcare Simulation Standards of Best Practice, published in 2021, include professional development, facilitation, the debriefing process, pre-briefing, simulation design, operations, outcomes and objectives, professional integrity, simulation-enhanced interprofessional education, evaluation of learning and performance, and a simulation glossary. These standards are particularly relevant when incorporating SBE into the nursing curriculum of a public university.[2]

This article's objective is to reflect on the importance of developing simulation-based education in clinical training while adhering to INACSL standards within a public university's nursing school.

DEVELOPMENT

Implementing simulation-based education poses significant challenges. Adhering to established quality standards enables the development of a structured simulation program that aligns with team objectives, monitors progress, and evaluates outcomes using specific indicators.

The first standard, Professional Development, is essential for integrating clinical simulation into the curriculum. This methodology is grounded in theoretical models focused on experiential learning,[3] requiring a distinct use of language, a student-centered analytical capacity, and a high level of creativity.

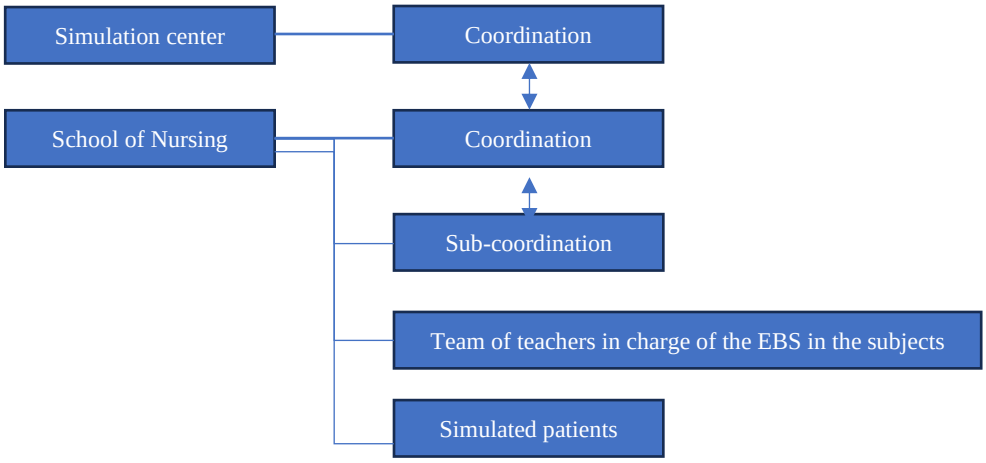
The training of educators ensures that simulation experiences are appropriate and effective within the teaching process.[4] It is important to consider that simulation-based activities tend to induce higher levels of stress and anxiety in participants compared to traditional educational activities.[5] Therefore, faculty training is essential to ensure that learning experiences are conducted in an environment that prioritizes psychological safety and fosters a secure learning atmosphere.

In light of the above, a critical step in developing this standard is to gather faculty background information regarding their training in simulation-based education. This includes credentials such as simulation instructor certification, postgraduate diplomas in simulation-based education, and/or fellowship programs. The objective is to establish a continuous professional development program centered on a shared theoretical and practical language for the design and implementation of simulation scenarios.

Facilitation should maintain a participant-centered approach that is goal-oriented, aligned with the participant’s knowledge or experience level, and focused on expected outcomes.[6] To meet this standard, it is essential to appoint a faculty member responsible for coordinating the SBE program at the undergraduate level, as this fosters its development and implementation. Another key aspect is assigning the design and execution of simulation activities to trained faculty members, ensuring that the process is carried out effectively. Notably, for a simulation team to operate efficiently, effective communication is crucial when planning, designing, and executing each scenario, regardless of faculty members' level of training.

Below is an example of a standardized procedure for conducting simulation activities in the nursing school.

Image 1: Description of the SBE facilitation team in the school of nursing of a public university.



Source: Own elaboration.

The debriefing process is particularly significant, as students must engage in guided reflection that promotes learning in a safe, judgment-free environment, where they can learn from their mistakes.[7] Therefore, faculty training in various debriefing methods is essential to help students identify areas for improvement in each experience.

It is vital not to standardize a single debriefing method if the faculty team has not received proper training, as this can become restrictive.[8] Instead, new approaches should be implemented only after the team has been trained, to avoid compromising a safe learning experience for students. It is advisable to begin SBE programs with a non-judgmental debriefing method, which facilitates the training of new debriefers and serves as a foundation for maintaining this standard in simulation programs.

Pre-briefing (preparation and briefing) was specifically developed in the latest 2021 update of the INACSL standards.[2] This standard is the foundation for the effective and high-quality execution of simulation activities.[9] As mentioned, faculty training and preparation are essential for scenario development and briefing execution.[10] Therefore, design and planning criteria must be unified to implement this standard. One crucial activity is the standardization of methodologies or guidelines, which should be carried out by the simulation expert team within schools and/or simulation centers.

An example of this work is a course developed at this institution, implementing activities focused on pre-briefing. These activities included preparing scenarios centered on the following skills: nasogastric tube placement, indwelling urinary catheter insertion, diabetic foot care, and basic wound dressing. The preparation process considered the following aspects: total student rotation, learning objectives and/or outcomes based on student level, case or situation aligned with the learning outcomes, scenario description aligned with learning outcomes, materials required per scenario and number of students, equipment needed based on number of scenarios, faculty roles, and evaluation systems.

Additionally, incorporating this standard through hands-on experience is essential. An example would be conducting in-person practice sessions where instructors can implement and execute scenarios while holding peer briefings. This process allows them to identify areas for improvement and highlights the importance of high-quality pre-briefing.

Moving on to the next standard, Simulation Design, faculty experience should be considered. It is critical to involve experts in the simulation field, as the learning outcomes, competencies, and objectives should guide the design.[11] While standardized scenarios—such as clinical handwashing—are recommended, they must be updated according to regulations and validated based on the institution's document management criteria.

Another important aspect of the design process is following the SimZones, a system for organizing simulation-based learning.[12] This guides how scenarios are designed, primarily considering the students' level. To reflect on its application, we revisit the handwashing technique example; this design focuses on second-year students, thus centering on skill acquisition, as these students require guidance from instructors.

Regarding the 'Operations' standard, it is recommended that SBE be based on undergraduate schools' strategic plans. This supports the administrative aspects of its development. It is essential to have a simulation center with its own budget, which allows for the availability of resources and equipment and promotes innovation. The lack of recognition of simulation centers as independent academic units presents a challenge, as this methodology requires dedicated simulation specialists to support continuous education, research, and overall SBE quality.

The 'Outcomes and Objectives' standard can be applied by considering what we aim to teach through SBE; it is important to focus on the learning outcomes or competencies of each course. Short-term objectives should center on developing skills and competencies preceding clinical practice.[13] This is crucial for achieving the goals of SBE, as exposing patients to untrained students calls into question whether institutions are achieving the objective of delivering quality and safe care.

Regarding long-term objectives, it is important to measure SBE learning during activities based on clinical practice.[14] One example is using an observation checklist to assess peripheral venous catheter insertion by students at different internship centers; thus, we can assess learning quality.

Concerning the 'Professional Integrity' standard, it is noteworthy that nursing training centers on fostering integrity. Consequently, both faculty and students adhere to the principles of professional ethics and bioethics.[15]

Adherence to the Simulationists Code of Ethics establishes the foundation for this standard in SBE.[16] Moreover, regulations should be implemented within simulation centers to promote an environment of respect, psychological safety, and confidentiality. To achieve this, faculty members must lead by example and explicitly communicate these principles during each simulation session.

Interprofessional education enhanced by simulation is a more complex standard to implement, as its development relies on the coordinated efforts of various healthcare disciplines and requires curricular adjustments that enable students to train together from early courses. Addressing theoretical contexts, clinical cases, and skills such as teamwork and effective communication in shared learning spaces prepares students for interprofessional experiences.[17]

'Evaluation of Learning and Performance' is another key standard, requiring assessment design focused on learning outcomes or targeted competencies. It is crucial to incorporate formative assessments that seek to measure learning quality, as the results can be used to create training opportunities that facilitate skill and competency development. Similarly, summative assessments should not be overlooked. An example of this is the Objective Structured Clinical Examination (OSCE), which significantly increases the stress of both faculty and students.[18] Therefore, it is necessary to make resources available that facilitate its implementation, including trained faculty, adequate physical spaces, standardized patients, and necessary equipment and materials. Ensuring the validity, objectivity, and reliability of such assessments is fundamental, as they allow for the

measurement of a wide range of skills and competencies in various contexts, from basic tasks such as preparing an intravenous medication in Zone 1 to more complex scenarios in Zone 2, involving decision-making processes.[19]

Simpler assessment methods include the use of checklists for formative evaluation with immediate feedback, as well as entry tests that assess students' theoretical preparation before engaging in clinical simulation. Ultimately, regardless of the assessment method, its primary purpose remains to measure learning outcomes, ensuring that students are equipped to provide safe and high-quality care to patients within the healthcare system.

Finally, the significance of the 'Simulation Glossary' standard lies in fostering effective communication within simulation teams, as it is the foundation for simulation design, development, and implementation.[20] Faculty should integrate this into their discourse by attending continuous education courses in simulation.

CONCLUSIONS

Implementing SBE per quality standards is essential when developing a clinical simulation program. Understanding each standard and striving for compliance presents several challenges, such as the need for a well-trained faculty team, a consensus in language use for scenario design, the application of high-quality debriefing techniques, and the existence of a properly equipped simulation center. However, one of the primary obstacles is the lack of financial and human resources to train all faculty members and adequately equip simulation centers. Additionally, it may be challenging to achieve a consistent appreciation of this methodology within the institution, as some educators or administrators may not be familiar with it or fully convinced of its importance.

Another critical challenge lies in the complexity of establishing a well-coordinated and efficient team dynamic, as the successful implementation of these programs depends on interdisciplinary collaboration and effective communication. Without proper coordination, achieving the intended objectives becomes increasingly difficult. Moreover, training centered on patient safety and quality of care requires time, dedication, and a commitment to continuous improvement. However, these efforts may be hindered by competing academic responsibilities, faculty workload, and institutional limitations.

Specialized training is essential to ensuring the effectiveness of clinical simulation programs, as it enables the design and execution of scenarios based on quality standards. However, a recurring obstacle is the lack of access to continuing education programs, particularly in institutions with limited resources. Furthermore, resistance to change among some faculty members or inconsistencies in the implementation of simulation methodologies can undermine the effectiveness of training activities, highlighting the need to foster a culture of continuous professional development.

The success of simulation-based education depends on well-structured planning and evaluation, which should include professional development for faculty members and the use of appropriate debriefing methodologies. However, a major limitation is the lack of time and resources to uniformly implement international standards, which may result in a constrained or incomplete simulation design. Moreover, disparities in simulation center infrastructure, along with a shortage of qualified staff, may pose significant barriers to achieving long-term objectives and ensuring that students are adequately prepared for real-world clinical practice.

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