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REVIEW ARTICLE

Pre-simulation, pre-briefing or briefing in nursing simulation: what are the differences?

Pré-simulação, pré-briefing ou briefing na simulação em enfermagem: quais as diferenças?

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ABSTRACT

Objective: To identify the scientific evidence available in the literature on the elements of pre-simulation and pre-briefing/briefing phases and their differences for the development of clinical competence in nursing. **Method:** Integrative review conducted from January 2009 to May 2020, on the PubMed/MEDLINE®, LILACS, Scopus and CINAHL databases, with the descriptors: nursing, nursing student, nursing team, pre-simulation, pre-briefing, briefing and clinical competence. **Results:** 687 studies were identified and seven were included. The following categories were created: Elements of the pre-simulation and pre-briefing/briefing phases in clinical simulation in nursing and Differences of the pre-simulation and pre-briefing/briefing phases in clinical simulation in nursing. The following four elements were highlighted: the concept of the phase, objectives, actions and required resources. The differences were identified as the period of each phase, the objectives and the instructional resources. **Conclusion:** This review synthesizes and clarifies the elements of the preparation stage and their differences, thus enabling the creation of educational scripts for clinical simulation.

Descriptors: Nursing; Students, Nursing; Simulation Technique; Clinical Competence.

RESUMO

Objetivo: Identificar as evidências científicas disponíveis na literatura quanto aos elementos que compõem as fases de pré-simulação e *pré-briefing/briefing* e suas diferenças para desenvolver competência clínica em enfermagem. **Método:** Revisão integrativa, de janeiro de 2009 a maio de 2020, nas bases PubMed/MEDLINE®, LILACS, Scopus e CINAHL, com os descritores: enfermagem, estudante de enfermagem, equipe de enfermagem, pré-simulação, *pré-briefing, briefing* e competência clínica. **Resultados:** Identificaram-se 687 estudos e incluíram-se 7. Elaboraram-se as categorias: Elementos que compõem as fases de pré-simulação e *pré-briefing/briefing* na simulação clínica em enfermagem e Diferenças das fases de pré-simulação e *pré-briefing/briefing* na simulação clínica em enfermagem. Destacaram-se quatro elementos: conceito da fase, objetivos, ações e os recursos necessários. As diferenças foram quanto ao período de cada fase, quanto aos objetivos e os recursos instrucionais. **Conclusão:** Sintetiza e esclarece os elementos da etapa de preparação e suas diferenças e possibilita, desta forma, elaborar roteiros educacionais para a simulação clínica.

Descritores: Enfermagem; Estudante de Enfermagem; Simulação; Competência Clínica.

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INTRODUCTION

When rethinking the traditional methods of knowledge transmission in learning and teaching, in which teachers speak and students listen, the teacher assumes the role of facilitator in the learning process[1]. Thus, the adopted pedagogical proposals must be rethought to enable more autonomous and conscious education and prepare students for the challenges of their profession[2].

This outlook, together with the expanded needs of health workers, an increasing number of students and greater complexity of patients, requires a skill set that often lies beyond the capacity of students beginning in the field of health care[3].

One alternative to minimize this impact is the adoption of clinical simulations, defined as a technique or a technology that recreates the distinctive characteristics of real-life situations and allows students/workers to develop clinical skills in a safe environment[4].

All simulation-based experiences require flexible, cyclical and systematic planning and observance of specific criteria to ensure the desired results and avoid ineffective evaluation of the participants, failure to achieve the learning objectives and the inefficient use of resources in the proposed simulation[5].

Because clinical simulation is configured as a systematized teaching and learning technique, it is divided into three stages: preparation, participation and debriefing[6]. Preparation serves as a theoretical framework for learners, based on the best levels of available evidence and the guidelines required for a successful simulation; however, despite its importance, few studies have explored the inherent factors of the preparation stage[7-9]. Furthermore, preparation is divided into two phases, called pre-simulation and pre-briefing or briefing[6].

Pre-simulation is characterized by the availability of materials for students to study beforehand and by the skills training necessary for it to be carried out. Pre-briefing/briefing, considered synonymous, involves the interaction between facilitator and students and addresses the learning scenario, objectives and roles for the simulation experience, immediately before the scenario[6,7].

After preparation, is the participation stage, which consists of a simulation scenario. This is followed by the final stage, debriefing, which is characterized by a reflexive discussion that supports the development of clinical competence of the participants[6].

The preparation stage is key for a successful simulation because it creates awareness and addresses any queries the participants may have regarding the objectives and steps of the task to be performed clearly, objectively and succinctly[10]. Traditionally, this stage includes lectures, textbook readings and skills practice[6]. Recently, alternative activities have been included to enhance this stage, such as web-based modules, mind maps, preparation of care plans and self-assessment questionnaires[11-13].

The scientific literature highlights the participation and debriefing stages, and describes the preparation stage and its phases more superficially, with little emphasis on its contribution to teaching and learning in nursing[8,14], its importance in reducing the levels of stress and anxiety of students[15] and the elements that compose it. These factors can hinder the efficient performance of this stage and the creation of scripts and protocols to standardize its execution[6,8,13,16,17].

The most recent scientific research, which addressed the preparation stage in clinical simulation, was a systematic review that aimed to examine its effectiveness for health workers and students in general[6]. Although they are crucial to prepare students for learning[6], especially in nursing, the elements that make up each phase have not been clearly highlighted, therefore, it is essential to encourage discussion and explore the scientific evidence regarding the preparation stage of clinical simulation, and to create scientific scripts that can support the effective performance of this stage.

Thus, this study aimed to identify the scientific evidence available in the literature regarding the elements that make up the pre-simulation and pre-briefing/briefing phases and their differences for the development of clinical competence in nursing.

METHODS

This is an integrative literature review, conducted from June 2019 to May 2020, on the preparation stage of clinical simulation and its phases, in the teaching and learning process in nursing. It seeks to identify the elements that make up each phase and their differences.

To this end, the steps were as follows: identification of the subject and guiding question; search and selection of studies in the literature; categorization of studies; analysis of selected studies and presentation of the review[18].

The PICo (patient, intervention, context) strategy was adopted to describe the constituent elements of the following guiding question: What scientific evidence is available in the literature on the elements that make up the pre-simulation and pre-briefing/briefing phases and their differences to develop clinical competence in nursing simulation?

The acronym P (population) was used to refer to nursing students and professionals; the acronym I (intervention) was used to identify the elements that make up the pre-simulation and pre-briefing/briefing phases and their differences; and the acronym Co (context) referred to the development of clinical competence in nursing.

The consulted databases were PubMed®, Scopus, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Latin American and Caribbean Health Sciences Literature (LILACS).

In PubMed® and Scopus, controlled descriptors were identified in Medical Subjects Headings (MESH), in English, namely "Students, Nursing" and "Clinical Competence" and the keywords were Pre-simulation, Pre-briefing and Briefing. The following search strategy was established: Crossing P with I: ("Students, Nursing" OR "Pupil Nurses" OR "Student, Nursing" OR "Nurses, Pupil" OR "Nurse, Pupil" OR "Pupil Nurse" OR "Nursing Student" OR "Nursing Students") AND (Pre-simulation OR Briefing OR Pre-briefing). Crossing I with Co: (Pre-simulation OR Briefing OR Pre-briefing) AND ("Clinical Competence" OR "Competency, Clinical" OR "Competence, Clinical" OR "Clinical Competency" OR "Clinical Competencies" OR "Competencies, Clinical" OR "Clinical Skill" OR "Skill, Clinical" OR "Skills, Clinical" OR "Clinical Skills").

In CINAHL, the controlled descriptors present in titles were: "Students, Nursing" and "Clinical Competence" and the keywords were: Pre-simulation; Pre-briefing and Briefing. The strategy was as follows; Crossing P with I: ("Students, Nursing" OR "Students, Nurse Midwifery" OR "Students, Nursing, Associate") AND (Pre-simulation OR Briefing OR Pre-briefing). Crossing I with Co: (Pre-simulation OR Briefing OR Pre-briefing) AND ("Clinical Competence" OR "Nursing Skills" OR "Cultural Competence" OR "National Vocational Qualifications").

In LILACS, the controlled descriptors present in the Health Sciences Descriptors (Decs) were: Nursing Students; Nursing Team; "Competence, Clinical" and the keywords were: Pre-simulation, Pre-briefing, Briefing, and their variations in Portuguese and Spanish. The following search strategy was used: Crossing P with I: ("Students, Nursing" OR "*Estudiantes de Enfermería*" OR "*Estudiantes de Enfermaría*" AND Pre-simulation OR *Pré-simulación* OR *Pré-simulação* OR Pre-briefing OR Briefing). Crossing I with Co: (Pre-simulation OR *Pré-simulación* OR *Pré-simulação* OR Pré-briefing OR Briefing AND "Clinical Competence" OR "*Competencia Clínica*" OR "*Competência Clínica*").

The words pre-simulation, pre-briefing and briefing were used as keywords given the need to specify the search for the proposed subject and align the strategy to the intrinsic nature of the preparation stage.

Primary studies, published from January 2009 to May 2020, in Portuguese, English or Spanish, in scientific journals available online, and that answered the guiding question, were included. The time frame was chosen due to the increased use of clinical simulation in nursing and advances in scientific research on the stages of clinical simulation since 2009[19]. Literature reviews, editorials, summaries, experience reports, case studies, theoretical reflections, dissertations, theses, monographs and abstracts published in annals of events were excluded.

The searches were followed by three study selection phases. The first phase involved article selection based on the use of the preparation stage, according to the evaluation of titles and abstracts, carried out by two professionals and experts in the subject matter. These professionals used the review application *Rayyan*, which speeds up the initial abstract and title screening process through semi-automation. Subsequently, the application generates a chart with information on the number of included and excluded items in the review, the number of sections performed, and the time used in each section. In addition, it reliably provides data, such as the total number of exported articles, duplicates, number of articles by year of publication, title, abstract, authors, and study type, among other information that can be used to prepare the literature review accurately and with methodological precision[20].

In the second phase of study sample selection, the 10 articles that caused divergence between the researchers were referred to a third researcher, who decided which ones to include or exclude. In the third phase, the full texts were read and evaluated to define the final sample of this integrative review.

To collect data relevant to the selected studies, a validated instrument[21] was used, which highlighted the following topics: identification of the article (title, authors, location, language and year of publication), objectives, methodological design, results and conclusion.

The findings were analyzed through the assumptions of thematic analysis[22] in three stages: pre-analysis, consisting of skim reading of evidence and organization of convergent information, called registration units; thorough reading of the material with detailed grouping of the identified registration units; and treatment of data to determine the categories[22]. Thus the following two categories were determined for analysis and reflection on the findings: Elements that make up the phases of pre-simulation and pre-briefing/briefing in clinical simulation in nursing and Differences of the phases of pre-simulation and pre-briefing/briefing in clinical simulation in nursing.

Finally, the studies were selected according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)[23], as shown in Figure 1.

RESULTS

Seven primary studies, presented in Chart 1 below, were eligible to compose the sample of this review. The first scientific studies that provided a more in-depth description of the phases of the preparation stage in clinical simulation are from 2014[29,30]. Emphasis was on US nursing researchers[24,27,29,30] and on randomized clinical studies[24,25,28-30].

National publications were not found. The main intention of most manuscripts [24-28] was to verify the effectiveness

of the pre-briefing/briefing phase for the development of clinical skills in nursing, namely in terms of cognitive ability (knowledge) and affective skills (attitudes), self-confidence and/or satisfaction of students. The pre-briefing/briefing phase was addressed exclusively by most studies[24-28] and none of the studies explored the pre-simulation and pre-briefing/briefing phases together.

The findings were divided into two categories. The first, called "Elements of the pre-simulation and pre-briefing/briefing phases in clinical simulation in nursing", highlighted the criteria needed to perform each phase of the preparation stage.

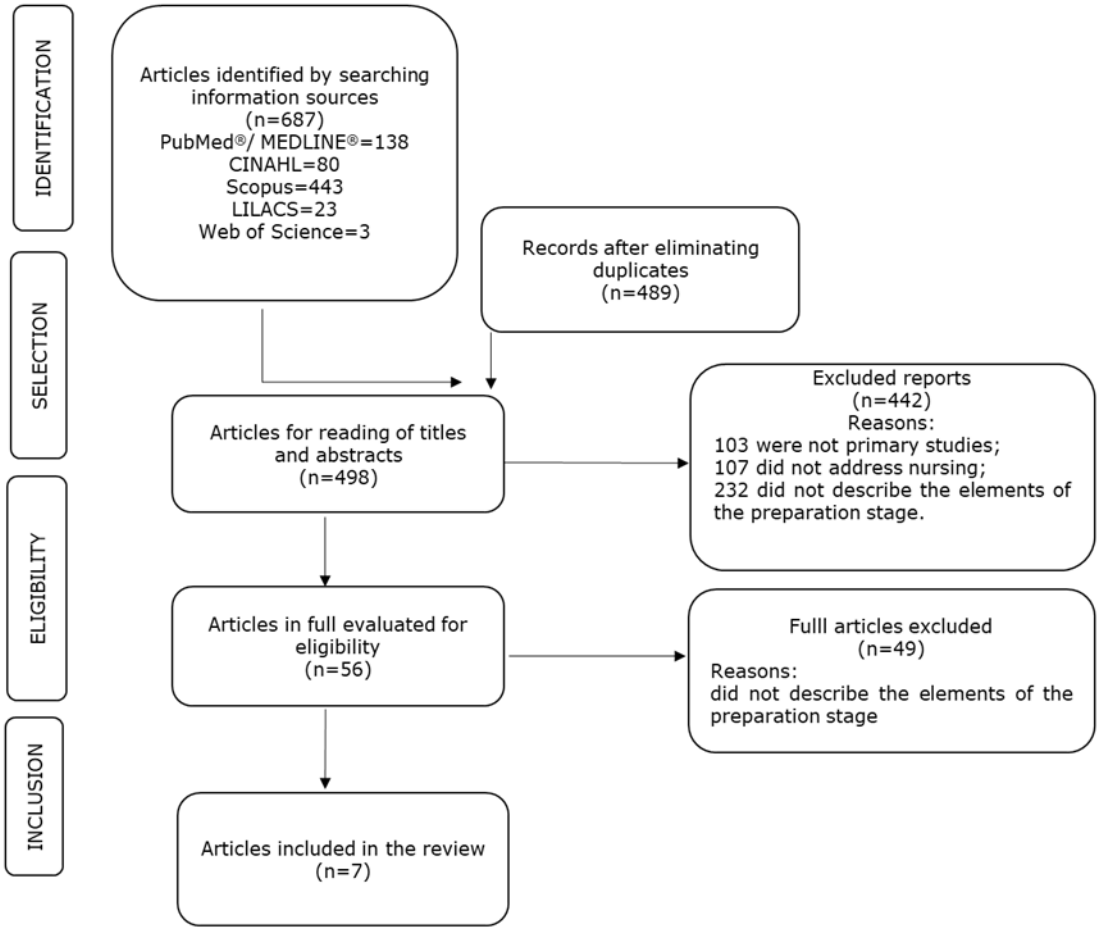
To establish the pre-simulation and pre-briefing/briefing phase, it was necessary to clarify the following four elements: the concept of the phase, to distinguish and contextualize the phases[26,29,30]; objectives, to guide the clinical simulation facilitator as to the intention of each phase[25,26]; actions, or the step-by-step guide for the effective execution of each phase[24-29]; and finally, materials and resources, to enable the proposed phases[25].

The second category, identified as "Differences of the pre-simulation and pre-briefing/briefing phases in clinical simulation in nursing", considered the differences existing in each phase of the preparation stage, as shown in Chart 2.

DISCUSSION

All nursing learning models include a planning phase. In this interim, teaching and learning experiences based on clinical simulation should not be excluded. However, there is still an important gap in the scientific literature on the first stage of clinical simulation that addresses the prior preparation of participants[19], as corroborated by the small sample of studies selected in this integrative review.

Although the publications that address the preparation stage are methodologically well-designed, further scientific research is needed, especially at the national level, regarding the pre-simulation phase, given the emphasis on the performance of pre-briefing/briefing[24-28]. The emphasis on only one phase



CINAHL: Cumulative Index to Nursing and Allied Health Literature; LILACS: Latin American and Caribbean Health Sciences Literature.

Figure 1. Flowchart of the process of identification, selection and inclusion of studies, based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses. Uberaba, MG, Brazil, 2019.

Chart 1. Characterization of the studies selected for the sample of this integrative review. Uberaba, MG, Brazil, 2019.

Study Origin and language	Objectives	Design	Results
Steinemann et al.[24] United States/ English	To verify whether the pre-briefing/briefing performed by the nursing team can develop clinical competence in cardiopulmonary resuscitation.	A randomized experimental study conducted in the trauma center of a US hospital, for 38 nurses. Intervention group: attended pre-briefing/briefing. Control group: did not attend pre-briefing/briefing.	Estimated mortality in simulated scenarios was significantly lower in the group that attended pre-briefing/briefing. Pre-briefing/briefing improved teamwork, individual leadership and quality and speed in cardiopulmonary resuscitation.
Roh et al.[25] South Korea/ English	To identify the effectiveness of the pre-briefing/briefing phase for psychological safety, academic safety, satisfaction with debriefing and performance of nursing students.	A randomized experimental study with 281 nursing students enrolled in a South Korean university. Group 1 and 2 – intervention: (n=163) attended pre-briefing/briefing. Control group (n=118) did not attend pre-briefing/briefing.	The intervention groups showed greater psychological safety and better performance in cardiopulmonary resuscitation. However, there were no significant differences regarding satisfaction with the simulation. It was concluded that pre-briefing/briefing can help students become safer and perform better.
Kim et al.[26] South Korea/ English	To investigate the effectiveness of the pre-briefing/briefing phase for the development of clinical competence, satisfaction and self-confidence in nursing students.	A quasi-experimental study, conducted with 207 nursing students enrolled in a South Korean university, using simulated precordial pain in an adult patient. Intervention group: attended pre-briefing/ briefing. Control group: did not attend pre-briefing/briefing.	The experimental group scored higher for the development of clinical competence, satisfaction and self-confidence. It was concluded that simulation-based education should include pre-briefing/briefing to improve the learning of nursing students.
Chamberlain[27] United States/ English	To assess the impact of the pre-briefing/briefing phase on the learning and confidence of nursing students.	A quasi-experimental study conducted at two US universities with 119 students. The 1st group did not attend pre-briefing/ briefing; the 2nd group attended specific pre-briefing/briefing activities; the 3rd group was presented with specific guidelines and the 4th group attended pre-briefing/briefing and was presented with guidelines.	The groups presented with guidelines prior to the simulation scenario obtained statistically more significant results than the group without pre-briefing/briefing. The findings obtained in this study support the use of guidelines and pre-briefing/ briefing activities during simulation to improve the overall effectiveness of this teaching and learning strategy.

Continue...

Chart 1. Continuation.

Study Origin and language	Objectives	Design	Results
Coran[28] United States/ English	To determine the effectiveness of specific pre-briefing/briefing strategies for the development of clinical judgment capacity in nursing students.	A randomized experimental study with 43 nursing students enrolled in an American university. Intervention group: attended pre-briefing/briefing and viewed a video about blood transfusion. Control group: only attended pre-briefing/briefing activities.	The use of an educational video as the main activity during the pre-briefing/briefing proved effective since the students in the intervention group scored higher for clinical judgment than the students in the control group. The results of this study support the concept that incorporating a video before each simulation scenario improves clinical judgment.
Franklin et al.[29] United States/ English	To compare the effectiveness of three methods of preparation (video lesson with a specialist, classes in PowerPoint and reading materials) for improving clinical competence in nursing students.	A randomized experimental study conducted with 20 students in an undergraduate nursing program in the United States. Group 1 – intervention: reading of teaching materials and viewing of an educational video. Groups 2 and 3 – control: reading of teaching materials and classes in PowerPoint.	No statistically significant differences were found among the 3 groups for the development of competence; however, the combination of pre-briefing/briefing with video may result in higher scores for the development of clinical competence in nursing.
Beverly et al.[30] United States/ English	To investigate the use of interactive preparation strategies prior to simulations in regard to the cognitive knowledge of nursing students.	A randomized experimental study conducted with undergraduate nursing students enrolled in an American university. Intervention group: reading of instructional material, class in PowerPoint, case study and skills training. Control group: reading of instructional material, class in PowerPoint and case study.	The intervention group scored higher than the control group. The results of this study demonstrate that preparation with the combined use of several instructional strategies prior to performing the scenario can improve the knowledge of nursing students.

of the preparation stage may have contributed to the conceptual confusion existing between the pre-simulation and pre-briefing/briefing phases frequently observed in the literature[19,25].

Nursing educators often use pre-simulation empirically when they submit learning materials to support students, before clinical simulation or skills training, without the certainty that this action constitutes an essential phase for the success of the teaching and learning process[29].

A randomized clinical study, conducted with undergraduate students of a nursing course at an American university, compared the effectiveness of several educational strategies to support the pre-simulation phase. It was found that the articulation of pedagogical methods can enhance the teaching and learning process of students; however, the study also found that more scientific research is needed on this perspective[29].

It is important to highlight the identification of cognitive ability (knowledge) and affective skills (attitudes), such as self-confidence and/or satisfaction of students, as being main clinical skills, evaluated in most studies[24-28]. This is because currently, there is interest in research that demonstrates effectiveness for the development of skills, in addition to satisfaction, knowledge and confidence in students, leading to learning results and changes in behavior[3].

Thus, it is necessary to conduct scientific studies that evaluate other competencies in students, in the clinical simulation setting, to broaden the scope and confirm their potential[3].

The main purpose of this integrative review was to identify the elements that make up each phase of the preparation stage and the differences of such phases, which are also what configured their categories. One of the identified elements was the concept of pre-simulation and pre-briefing/briefing.

Pre-simulation is conceptualized as a phase that enables the sending in advance of scientific evidence and consistent frameworks to clinical simulation participants, as well as the necessary skills training required for a successful simulation scenario. Meanwhile, pre-briefing/briefing is configured as a period in which participants are exposed to all the elements that involve and interfere in the simulated scenario and its performance[26,29,30].

This conceptual difference and the knowledge that pre-simulation generally occurs 15 days prior to the scenario, in person or otherwise, and that pre-briefing/briefing occurs in person, immediately before the scenario, can support the creation of educational protocols for clinical simulation through standardization, thus improving the quality of the process[6,7,26,29,30].

It is equally important to understand the objectives or intention of each phase, as a fundamental element of the preparation stage, and for the correct execution of each phase. This is especially true considering the greater knowledge and appreciation of the pre-briefing/briefing phase[24-28] that is observed, often to the detriment of the pre-simulation phase. When the facilitators in a simulation are clear about the intention of each phase, they can apply them correctly and, consequently, enhance all the subsequent stages of the clinical simulation[6].

The actions necessary to establish the pre-simulation phase were addressed in some studies[24-30]. These actions include the need to identify the learning subject, define the teaching materials and resources offered to participants, determine how the selected material and resources will be presented or submitted, organize the environment, date and time, invitations to participants and teaching methodology, establish and submit an organization protocol for the proposed simulation, validate the simulated scenario and teach the skills needed to perform the scenario[24-30].

Chart 2. Identification of the differences between the pre-simulation and pre-briefing/briefing phases. Uberaba, MG, Brazil, 2019.

Differences	Author
Difference in optimal performance period: - The pre-simulation phase precedes the pre-briefing/briefing phase and can be performed in person or otherwise, usually 15 days before the simulation scenario. - The pre-briefing/briefing phase is in-person, performed immediately before the proposed simulation scenario.	Kim et al.[26], Franklin et al.[29], Beverly et al.[30]
Difference in implementation objectives: - The main objective of the pre-simulation phase is to create awareness and prepare participants for the theme of the proposed simulation. - The main objective of the pre-briefing/briefing phase is to guide and clarify the environment, simulation scenario, roles of each participant and learning objectives, providing organization to the simulation.	Steinemann et al.[24], Roh et al.[25], Kim et al.[26], Chamberlain et al.[27], Coram et al.[28], Franklin et al.[29]
Difference in the employed instructional resources: - In pre-simulation, the instructional resources can be varied and include several teaching and learning strategies, such as educational videos, case studies, concept mapping activities, reading textbooks, articles, web-based materials, policy and procedure manuals, best practice guidelines, pre-quiz (short tests using reflective thinking on the subject), simulated scenario video, lectures, expository dialog class and skills training. - The instructional resource used in pre-briefing/briefing should be a plan based on the guidelines that will be clarified, relevant to the environment, simulation scenario, roles of each participant and learning objectives.	Roh et al.[25]

While to effectively carry out the pre-briefing/briefing phase, the actions listed in the literature include the need to establish a "fiction agreement" with the participants. This is a collaboration agreement in which both the facilitators and the students undertake to observe and uphold the psychological safety and confidentiality of the simulation, identify the trainers and evaluators of the simulation, present the learning environment, models, and equipment and materials for the simulation and introduce participants to the learning objectives, scenario and student roles and debriefing[24-30].

Finally, as an element of the phases of the preparation stage, the instructional resources that can enable its development were identified. Emphasis was also given to the variability of learning resources in the pre-simulation phase and the need to elaborate and establish a plan that guides the pre-briefing/briefing phase[25].

The importance of clarifying and defining terms to operationalize pre-simulation and pre-briefing/briefing and the activities that prepare participants for the clinical simulation were addressed in a recent systematic review. This justifies that this deeper conceptual understanding significantly helps to eliminate the ambiguity and obscurities that emerge in the use of the preparation stage among facilitators and researchers[6].

Consequently, the preparation stage provides students with the knowledge and skills they need to fully immerse themselves in the clinical simulation experience, in addition to supporting the development of clinical skills. Therefore, identifying the elements of this stage with their conceptual differences and standardizing its execution and approach is not only beneficial for research purposes, but also for the evaluation of participants and the overall experience of clinical simulation[6].

The main limitation of this study was the small number of scientific studies that clearly address the elements of the pre-simulation and pre-briefing/briefing phases and expose their differences. This made it difficult to describe the scenario, expand knowledge and make comparisons with other studies to provide a better scientific basis for this context.

The findings of the present integrative review contribute to scientific evidence that supports the teaching and learning process of clinical simulation in nursing, with a focus on the preparation stage and its phases in a distinct, clear and objective way, resulting in a unique compilation of knowledge of its elements and differences, which serves as an important resource given the accelerated growth of information in this area.

CONCLUSION

The scientific evidence available in the literature identified four main elements that make up the phases of pre-simulation and pre-briefing/briefing; the concept of the phase, objectives, actions or steps for the effective performance of each phase, and the teaching materials and/or resources needed to enable the proposed phases.

Moreover, it was possible to identify conceptual differences regarding the optimal period for the performance of each phase of the preparation stage, the objectives of their performance and the instructional resources employed in each phase.

The present study contributes to teaching, research and assistance in clinical simulation in nursing by identifying, organizing and presenting the necessary components for the preparation stage of clinical simulation and clarifying its main differences and scenario, thus enabling the creation of educational scripts and protocols for the accurate performance of the first stage of clinical simulation in the process of teaching and learning.

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