Impacts of Realistic Simulation on the Development of Nursing Competencies: A Scoping Review Protocol

Impactos da Simulação Realística no Desenvolvimento de Competências em Enfermagem: Protocolo de Revisão de Escopo

Impactos de la Simulación Realista en el Desarrollo de Competencias en Enfermería: Protocolo de Revisión de Alcance

RESUMO:
Objetivo: mapear evidências científicas sobre os impactos da simulação realística no desenvolvimento de competências em estudantes de graduação em enfermagem. **Médoto:** O estudo seguirá as diretrizes do *Joanna Briggs Institute* (JBI) para revisões de escopo e o *checklist Preferred Reporting Items for Systematic Reviews and Meta-Analyses* voltada às revisões de escopo (PRISMA-ScR). As bases de dados serão: Banco de Dados em Enfermagem (BDENF); *Latin American and Caribbean Literature in Health Sciences* (LILACS); *National Library of Medicine - National Institutes of Health* (NIH); *Scientific Electronic Library Online* (SciELO); *Sci Verse Scopus; Cumulative Index to Nursing and Allied Health Literature* (CINAHL) e *Web of Science*, via Portal de Periódicos da CAPES por meio do acesso à Comunidade Acadêmica Federada (CAFe). A extração de dados será realizada por dois revisores, utilizando checklist com informações da publicação, características do estudo, participantes e resultados. Registro na *Open Science Framework* (OSF) – 2026, DOI: 10.17605/OSF.IO/3925F.
DESCRITORES: Treinamento por Simulação; Educação em Enfermagem; Aprendizagem Baseada em Problemas; Enfermagem.

ABSTRACT:
Objective: to map scientific evidence on the impacts of realistic simulation on the development of skills in undergraduate nursing students. **Method:** The study will follow the Joanna Briggs Institute (JBI) guidelines for scoping reviews and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses checklist for scoping reviews (PRISMA-ScR). The databases will be: Nursing Database (BDENF); Latin American and Caribbean Literature in Health Sciences (LILACS); National Library of Medicine - National Institutes of Health (NIH); Scientific Electronic Library Online (SciELO); Sci Verse Scopus; Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Web of Science, via the CAPES Journal Portal through access to the Federated Academic Community (CAFe). Data extraction will be performed by two reviewers, using a checklist with information on the publication, study characteristics, participants, and results. Registration in the Open Science Framework (OSF) – 2026, DOI: 10.17605/OSF.IO/3925F.
DESCRIPTORS: Simulation Training; Nursing Education; Problem-Based Learning; Nursing.

RESUMEN:
Objetivo: recopilar evidencia científica sobre los impactos de la simulación realista en el desarrollo de competencias en estudiantes de grado de enfermería. **Método:** El estudio seguirá las directrices del Joanna Briggs Institute (JBI) para revisiones de alcance y la lista de verificación Preferred Reporting Items for Systematic Reviews and Meta-Analyses orientada a revisiones de alcance (PRISMA-ScR). Las bases de datos serán: Banco de Datos en Enfermería (BDENF); Latin American and Caribbean Literature in Health Sciences (LILACS); Biblioteca Nacional de Medicina - Institutos Nacionales de Salud (NIH); Biblioteca Científica Electrónica en Línea (SciELO); Sci Verse Scopus; Índice Acumulativo de Literatura de Enfermería y Salud Aliada (CINAHL) y Web of Science, a través del Portal de Periódicos de CAPES mediante el acceso a la Comunidad Académica Federada (CAFe). La extracción de datos será realizada por dos revisores, utilizando una lista de verificación con información de la publicación, características del estudio, participantes y resultados. Registro en Open Science Framework (OSF) – 2026, DOI: 10.17605/OSF.IO/3925F.
DESCRIPTORES: Formación por simulación; Educación en enfermería; Aprendizaje basado en problemas; Enfermería

Meillyne Alves dos Reis
Doctor of Nursing. State University of Goiás
ORCID: https://orcid.org/0000-0001-5953-4398

Kennedy Feliciano
Master's Degree in Nursing. Federal District School of Public Health
ORCID: https://orcid.org/0000-0003-0157-7883

Flávia Alves Amorim Souza Sales
Master's Degree in Nursing. Pontifical Catholic University of Goiás
ORCID: https://orcid.org/0000-0001-7820-5805

Catarina Maia Braga de Souza
Resident in Adult and Elderly Health. Federal District School of Public Health
ORCID: https://orcid.org/0000-0001-6316-0245

Maria Fernanda Barros Parreira
Resident in Adult and Elderly Health. Federal District School of Public Health
ORCID: https://orcid.org/0009-0005-3371-3140

Nathalya Coelho Cintra
Resident in Adult and Elderly Health. Federal District School of Public Health
ORCID: https://orcid.org/0000-0003-4104-8046

Rayanne Emanuele de Andrade Silva
Resident in Adult and Elderly Health. Federal District School of Public Health
ORCID: https://orcid.org/0000-0002-3388-4063

Larissa Fernanda de Carvalho Lourenço
Master's Student in Nursing. University of Brasília
ORCID: https://orcid.org/0009-0000-7331-7365

Received: 01/19/2026
Approved: 02/05/2026

DOI: https://doi.org/10.36489/nursing.2026v31i333p12943-12957

INTRODUCTION

The hospital is a care environment that requires qualified professionals to deal with a variety of situations[1], and the lack of professional and managerial skills is associated with factors that undermine the quality of services provided[2].

Nurses, as protagonists of hospital care[3] and responsible for managing their teams[4] , need multiple skills[4] to meet the varied demands of the institution and ensure excellent care[5,6] .

The adoption of innovative pedagogical strategies in professional training requires a critical evaluation of current educational practices[7]. In addition, it requires recognition of training needs for the implementation of interventions based on new teaching methods[8].

In this context, it can be observed that, over time, educators have resorted to the use of educational technologies aligned with emerging global scenarios, which point to structural transformations in teaching-learning processes and contemporary educational practices[9].

Nursing education requires the development of technical, cognitive, and relational skills for safe and qualified practice[10,11] . In this scenario, realistic simulation stands out as a pedagogical strategy that enables the experience of clinical situations in a controlled environment, favoring clinical reasoning, decision-making, and communication, without exposing users to risks[12,13] .

Despite its growing adoption in undergraduate nursing courses, evidence on the impacts of realistic simulation on skills development remains scattered and heterogeneous, which limits a broader understanding of its educational effects.

Thus, mapping scientific production on the impacts of realistic simulation on the development of skills in undergraduate nursing students can contribute to the identification of knowledge gaps and support more qualified pedagogical practices in nursing education.

OBJECTIVE

To map scientific evidence on the impacts of realistic simulation on the development of skills in undergraduate nursing students.

MATERIAL AND METHOD

Type of Study

This study will be conducted in accordance with the methodological guidelines established by *the Joanna Briggs Institute* (JBI)[14]for scoping reviews. The methodological steps, as well as the reporting of findings, will follow the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for scope reviews (PRISMA-ScR)[15] , ensuring transparency, reproducibility, and standardization in the evidence synthesis process[15,16,17] .

Protocol registration

This study led to the development of a scope review protocol[18] , which was registered on the *Open Science Framework* (OSF) platform on January 18, 2026, with registration number: https://doi.org/10.17605/OSF.IO/3925F.

Research question

The research problem was defined based on the acronym PCC (population/participants, concept, context)[19], and the following review question was formulated: What competencies are developed through realistic simulation in undergraduate nursing education? (Table 1)

Table 1: Formulation of the research question

	P	C	C
Definition of Acronym	Population	Concept	Context
Components of the question	Nursing students	Realistic simulation	Skills development

Source: Prepared by the authors, December 2025.

Reference sources

Searches will be conducted in the following databases: Nursing Database (BDENF); *Latin American and Caribbean Literature in Health Sciences* (LILACS); *National Library of Medicine - National Institutes of Health* (NIH); *Scientific Electronic Library Online* (SciELO); *Sci Verse Scopus*; *Cumulative Index to Nursing and Allied Health Literature* (CINAHL) and *Web of Science*, via the CAPES Journal Portal through access to the Federated Academic Community (CAFe)[20] .

A complementary search will be conducted in the *MedRxiv* database to identify preprints related to the topic. In addition, gray literature will be investigated through *Google Scholar*, *OpenGrey*, *ProQuest Dissertations and Theses Global*, the Thesis and Dissertation Catalog available on the CAPES Journal Portal, and the Brazilian Digital Library of Theses and Dissertations (BDTD).

Search strategies

The search strategy will be de-

DOI: https://doi.org/10.36489/nursing.2026v31i333p12943-12957

veloped using the Boolean operators "*AND*" and "*OR*." The search strategy will be adapted according to each database, maintaining proximity between controlled and uncontrolled descriptors: *Simulation Training*; *Entrenamiento Simulado*; *Nursing* Education; *Educación en Enfermería*; Problem-Based Learning; *Problem-Based Learning*; *Aprendizaje Basado en Problemas*; *Nursing*; *Enfermería* (Table 2).

Table 2. Search strategy, conducted on January 18, 2026.

Databases	Search strategies	Articles found
National Library of Medicine - National Institutes of Health (NIH)	((Simulation Training) AND (Education, Nursing)) AND (Problem-Based Learning)) AND (Nursing))	37
Latin American and Caribbean Health Sciences Literature (LILACS)	(simulation training) AND (education, nursing) AND (problem-based learning) AND (nursing)	19
BDENF	(simulation training) AND (education, nursing) AND (problem-based learning) AND (nursing)	19
Web of Science	("simulation training") AND ("nursing education") AND ("problem-based learning") AND ("nursing")	53
Cumulative Index to Nursing and Allied Health Literature (CINAHL)	(simulation training) AND (education, nursing) AND (problem-based learning) AND (nursing)	05
Sci Verse SCOPUS	("simulation training") AND ("nursing education")	05

Source: Prepared by the authors, January 2026.

Criteria for inclusion of studies in the review

Inclusion criteria

Primary and secondary studies addressing realistic simulation as a pedagogical strategy in undergraduate nursing programs, with regularly enrolled students, regardless of the period or level of training, will be included. Studies that evaluate or describe impacts on the development of technical, cognitive, clinical, communicational, behavioral, ethical, or relational skills will be eligible.

Different methodological designs will be considered, such as experimental or quasi-experimental, observational, qualitative, mixed methods, and review studies. Scientific articles and relevant gray literature, such as theses, dissertations, and technical reports, will be included, provided they are available in full and with an adequate methodological description. There will be no time limit, and publications in Portuguese, English, and Spanish will be accepted.

Exclusion criteria

Studies that address realistic simulation outside of undergraduate nursing education, such as continuing education, graduate studies, residencies, or training for trained professionals, will be excluded. Studies on other types of simulation, such as isolated virtual simulation, digital games, theoretical case studies, or active methodologies without structured simulation, will also be excluded.

Publications that do not evaluate impacts on the development of student competencies or that are limited to the description of perceptions, satisfaction, or acceptability without a direct relationship to training competencies will be excluded. Editorials, letters, comments, protocols, event summaries, opinion reports, or studies without access to the full text or without an adequate methodological description will not be included.

Data extraction

The data extraction procedure will follow the recommendations presented in Chapter 7 of the JBI Manual for Evidence Synthesis[14], and the information will be entered into a spreadsheet prepared by the authors using *Microsoft Excel Spreadsheet* 365® software.

Two independent reviewers will perform all stages of data collection (reading the title, abstract, and full text of the references included in the scoping review) and will subsequently use the *Rayyan* platform, developed by *the Qatar Computing Research Institute* (QCRI)[21].

Rayyan was chosen because it is

DOI: https://doi.org/10.36489/nursing.2026v31i333p12943-12957

a free program that helps to automate the process, enabling the screening/labeling of studies, collaboration between reviewers, reduction of time, and making the selection more efficient and organized[21].

After the search, and after removing duplicates, the references will be exported to the *Rayyan Software* which was developed to assist researchers in the review selection process. The selection by title and abstract will be guided by the exclusion criteria (reasons) and the documents included according to the titles and abstracts. The *Blind ON* or *Blind OFF* applications will be used in the system, which allow for the management of blinding and conflict verification.

The data extraction tool will be developed by the reviewers. The extracted data will include bibliographic and specific details about the study, and main results/findings. The data will be presented in graphical format and may be supplemented with diagrams, followed by an accompanying narrative.

Quality assessment and risk of bias

The abstracts will be evaluated independently by two reviewers, considering the level of scientific evidence of the studies. For this analysis, the *Agency for Healthcare Research and* Quality (AHRQ) classification system[22]will be adopted, in line with Cochrane recommendations, as well as the completeness criteria established by the PRISMA-ScR checklist[15].

Analysis Plan

In the analysis, data will be grouped based on the type of participation of experts in the HTA process. The presentation will be organized graphically, in schematic and/or tabular form; it will accompany tabulated and/or graphical results and describe how the results relate to the objective and question of the review.

References

1. Feuerwerker LCM, Cecílio LC de O. O hospital e a formação em saúde: desafios atuais. Ciênc saúde coletiva [Internet]. 2007 Jul [cited 2026 Jan. 16]; 12 (4): 965–71. Available from: https://doi.org/10.1590/S1413-81232007000400018.

2. Ferracioli GV, Oliveira RR, Souza VS, Teston EF, Varela PLR, Costa MAR. Competências gerenciais na perspectiva de enfermeiros do contexto hospitalar. Enferm Foco. 2020 [cited 2026 Jan. 16]; 11 (1): 15-20. Available from: http://revista.cofen.gov.br/index.php/enfermagem/article/view/2254.

3. Silva SS, Assis MMA, Santos AM. Enfermeira como protagonista do gerenciamento do cuidado na estratégia saúde da família: diferentes olhares analisadores. Texto Contexto Enferm. 2017 [cited 2026 Jan. 16]; 26 (3): e1090016. Available from: https://doi.org/10.1590/0104-07072017001090016

4. Soares MI, et al. Saberes gerenciais do enfermeiro no contexto hospitalar. Rev Bras Enferm. 2016 [cited 2026 Jan. 16]; 69 (4): 676-83. Available from: https://doi.org/10.1590/0034-7167.2016690409i.

5. Pinno C, Vargas MA de O, Bonfada MS, Brutti TB et al. Trabalho do enfermeiro em unidade hospitalar: entre o prescrito e o real. Saude Pesqui. 2020 [cited 2026 Jan. 16]; 13 (4): 889-98. Available from: https://doi.org/10.17765/2176-9206.2020v13n4p889-898.

6. Montezelli JH, Peres AM, Bernardino E. Demandas institucionais e demandas do cuidado no gerenciamento de enfermeiros em um pronto socorro. Rev Bras Enferm [Internet]. 2011Mar [cited 2026 Jan. 16]; 64 (2): 348–54. Available from: https://doi.org/10.1590/S0034-71672011000200020.

7. Silveira RCP, Robazzi MLCC. Modelos e inovações em laboratórios de ensino em Enfermagem. Rev Enferm Centro-Oeste Min. 2012 [cited 2026 Jan. 16]; 0 (0). Available from: http://www.seer.ufsj.edu.br/recom/article/view/138.

8. Bitencourt JVOV, Biffi P, Migliorança DCM, Dors JB et al. Estratégias de ensino-aprendizagem para formação clínica em enfermagem: uma revisão integrativa. Rev Enferm Atual In Derme. 2023 [cited 2026 Jan. 16]; 97 (1): e023043. Available from: https://doi.org/10.31011/reaid-2023-v.97-n.1-art.1515.

9. Scherer S, Brito GDS. Integração de tecnologias digitais ao currículo: diálogos sobre desafios e dificuldades. Educar Rev. 2020 [ci-

DOI: https://doi.org/10.36489/nursing.2026v31i333p12943-12957

ted 2026 Jan. 16]; 36:e76252. Available from: https://doi.org/10.1590/0104-4060.76252.

10. Salum NC, Prado ML. Continuing education in the development of competences in nurses. Texto contexto - enferm [Internet]. 2014Apr [cited 2026 Jan. 16]; 23 (2): 301–8. Available from: https://doi.org/10.1590/0104-070720140021600011.

11. Lourenção DCA, Benito GAV. Competências gerenciais na formação do enfermeiro. Rev Bras Enferm [Internet]. 2010Jan; [cited 2026 Jan. 16] 63 (1): 91–7. Available from: https://doi.org/10.1590/S0034-71672010000100015.

12. Vilarinho J de OV, Bucco M, Carvalho AEL de, Silva NO da, Kalinke LP, Felix JVC. Construction and validation of a model for creating simulated scenarios based on Jeffries Theory. Rev Bras Enferm [Internet]. 2025 [cited 2026 Jan. 16]; 78 (3): e20240222. Available from: https://doi.org/10.1590/0034-7167-2024-0222.

13. Reis MA dos, Santos PA da S, Rolindo JMR, Aranha TC, Melo JM, Correia SF, Meireles GOAB, Melo LB. Uso da metodologia ativa nos cursos de graduação em enfermagem / Use of active methodology in nursing graduation courses. Braz. J. Develop. [Internet]. 2019 Sep. 9 [cited 2026 Jan. 16]; 5 (9): 14280-91. Available from: https://ojs.brazilianjournals.com.br/ojs/index.php/BRJD/article/view/3089. https://doi.org/10.34117/bjdv5n9-044.

14. Peters MDJ, Godfrey C, McInerney P, Munn Z, Tricco AC, Khalil, H. Scoping Reviews (2020) [Internet]. Aromataris E, Lockwood C, Porritt K, Pilla B, Jordan Z, editors. JBI Manual for Evidence Synthesis. JBI; 2024 [cited 2026 jan 10]. Available from:https://jbi-global-wiki.refined.site/space/MANUAL/355862497/10.+Scoping+reviews14.Tricco AC.

15. Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. Extensão PRISMA para revisões de escopo (PRISMA-ScR): lista de verificação e explicação. Ann Intern Med 2018; [cited 2026 jan 10]; 169(7):467–473.doi:10.7326/M18-085015.

16. Rethlefsen ML, Kirtley S, Waffenschmidt S, Ayala AP, Moher D, Page MJ et al. PRISMA-S: an extension to the PRISMA Statement for Reporting Literature Searches in Systematic Reviews. Syst Ver. 2021; [cited 2026 jan 10]. 10(1):1-19. doi: 10.1186/s13643-020-01542-z.

17. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. Ann Intern Med. 2018 [cited 2026 jan 10]; 169 (7): 467-73. Available from: https://doi.org/10.7326/M18- 0850.

18. dos Reis MA, Feliciano K, Sales FAAS, Tavares APC, de Souza CMB, Parreira MFB, et al. Impactos da simulação realística no desenvolvimento de competências em Enfermagem: protocolo de revisão de escopo [Internet]. 2026 Jan 18 [cited 2026 Jan 18]. Available from: https://doi.org/10.17605/OSF.IO/3925F.

19. Polit, D. F. Fundamentos de pesquisa em enfermagem: avaliação de evidências para a prática da enfermagem [recurso eletrônico] / Denise F. Polit, Cheryl Tatano Beck; revisão técnica: Karin Viegas, Priscila Schmidt Lora, Sandra Maria Cezar Leal; tradução: Maria da Graça Figueiró da Silva Toledo. 9. ed. Porto Alegre: Artmed, 2019.

20. Brasil. Ministério da Educação. Coordenação de aperfeiçoamento de pessoal de nível superior (CAPES). Portal de Periódicos da CAPES. Brasília, 2024. [cited 2026 jan 16]. Avaliable from: https://www.periodicos.capes.gov.br/.

21. Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. Rayyan a web and mobile app for systematic reviews. Systematic reviews [internet]. 2016 [cited 2023 Nov 23]; Dec, 5:1-0. Available from: https://doi.org/10.1186/s13643-016-0384-4.

22. Agency for Healthcare Research and Quality. Care Coordination Measure for Primary Care Survey (CCQM-PC). Prepared under Contract No. HHS290-2010-00005I. AHRQ Publication No. 16-0042- 1-EF. Rockville (MD): Agency for Healthcare Research and Quality; 2016. Available from: https://www.ahrq.gov/ncepcr/care/coordination/quality/index.html

DOI: https://doi.org/10.36489/nursing.2026v31i333p12943-12957