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THE USE OF TECHNOLOGY IN CONTINUOUS NURSING TRAINING IN HOSPITALS: A SCOPING REVIEW PROTOCOL

A UTILIZAÇÃO DA TECNOLOGIA NA FORMAÇÃO CONTÍNUA DOS ENFERMEIROS EM CONTEXTO HOSPITALAR: PROTOCOLO DE UMA SCOPING REVIEW

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RESUMO

Objetivo: Mapear e analisar a evidência científica acerca da utilização da tecnologia na formação contínua dos enfermeiros, em contexto hospitalar. **Método:** Elaboração de protocolo de uma scoping review, com recurso às recomendações de Joanna Briggs Institute. Para a procura de evidência serão selecionadas as seguintes fontes: PubMed, Scopus, Web of Science, agregador EBSCO, Repositórios Científicos de Acesso Aberto de Portugal, Google Scholar e OpenGrey. Os resultados da pesquisa serão analisados, por dois revisores independentes, por título, resumo e texto integral. O relatório da revisão, a divulgar junto da comunidade científica, fornecerá pistas acerca dos modelos ou estratégias de transmissão de informação, que incrementem a motivação dos participantes para aprender e consequentemente uma melhor resposta aos clientes dos serviços de saúde.

Descritores: Enfermeiras e Enfermeiros; Tecnologia Educacional; Educação Continuada.

ABSTRACT

Objective: To map and analyze scientific evidence on the use of technology in continuous nursing training at hospitals. **Method:** To prepare a scoping review protocol using the recommendations of the Joanna Briggs Institute. The following sources will be selected to search for reference: PubMed, Scopus, Web of Science, EBSCO aggregator, Open Access Scientific Repositories of Portugal, Google Scholar, and OpenGrey. The results of the research will be analyzed by title, abstract, and full text by two independent reviewers. The review report, which will be disclosed to the scientific community, will provide clues about information transmission models or strategies that increase participants' motivation to learn and consequently offer a better response to health service clients.

Descriptors: Nurses; Educational Technology; Education, Continuing.

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INTRODUCTION

In contemporary society, science and technology impose that nurses should permanently update their knowledge. It is expected that these professionals always search for information so that they can actively and adequately respond to the challenges imposed on them in the context of care[1].

During undergraduate courses, nursing schools should adopt the perspective of lifelong learning, providing nurses with the capability of responding to the complexity of clinical situations that they face[2].

With continuous training, which includes formal, non-formal and informal learning, they can develop their knowledge and boost their personal and professional growth. Continuous training can also gather interdisciplinary information and promote better management and service organization. As an example, in Portugal, each worker is entitled annually to at least forty hours of continuous training, or when there is an employment contract equal to or greater than three months, to the number of hours equivalent to the duration of that contract[3]. This training is important and necessary to ensure high standards of quality and safety in the clinical practice of nurses, enhancing the best response to the needs of the population[4]. The available Information and Communication Technologies (ICT) may integrate a significant component in the nurses' technical-scientific development. These can be defined as a set of technological and computational resources that store, process, and communicate information[5]. Continuing training courses should use technology so that the users can access it easily[6], given that nowadays, society faces some lifelong learning obstacles, such as family management, expenses, and time spent[7].

In recent years, and more specifically because of the pandemic, the aging population, and the increase in the costs of health systems, new accessible Web-based resources have emerged, which contribute to disease prevention and care[8].

In fact, continuing education contributes to the development of practices and knowledge[9], preparing nurses to respond to advances in their areas of interest, through formal or informal courses.

Continuing education and adult learning have been subject to improvement, which emphasizes the importance of responding to the expectations and aspirations of both health professionals and their managers. Technological literacy, available ICT, and nurses' easy access to some devices create opportunities for them to develop their technical and scientific knowledge[10-11].

The use of new strategies, methods, and tools for continuous training in Nursing will lead to an increase in the quality of educational processes, the development of professional skills, and a better response to health service clients[12].

An alternative approach to in-person teaching during the pandemic was learning through platforms, which provided interactivity and collaboration to the teaching-learning process[8]. The availability of training programs on platforms through e-learning promotes accessibility to lifelong learning and allows health institutions to have and use tools to educate, train, and improve their employees' skills. The tools should include gamified virtual clinical simulators or real games, which motivates participants to use them, because of the realistic characteristics of the clinical scenarios and the playful aspect associated with learning, reducing the dropout rates of training programs[7].

Another information transmission strategy is the Massive Open Online Courses (MOOCs). Although they emerged more than 20 years ago, they stand out because of the content provided and the use of innovative tools[13]. The primary objective of a MOOC in the health area is to ensure and promote the safety and quality of care provided, improving the health condition of the population[14].

The frequency of a MOOC provides numerous personal and professional advantages, from increasing global knowledge to improving skills, attitudes, commitment, and confidence[15]. When the MOOC is aimed at developing skills, closely related to the professional practice of the participants, it has a higher enrollment and completion rate when compared to a course that covers more generic content[16].

On the other hand, the World Health Organization has emphasized the relevance of digital training and virtual clinical simulation as a pedagogical strategy complementary to the models in use in in-service training or continuous training to develop clinical reasoning in lifelong learning[17].

In view of the above, the following guiding question was outlined for this study: What is the scientific evidence available regarding the use of technology in the continuous training of nurses in hospitals?

Therefore, this scoping review was aimed at mapping and analyzing scientific evidence on the use of technology in the continuous training of nurses in hospitals. The purpose is to identify the use of educational resources, recognizing their development and organization in health institutions, more specifically in hospitals.

METHOD

This is a scoping review for which the JBI method will be adopted, using the checklist recommended by the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).

In fact, the scoping review is a type of evidence synthesis that maps the evidence available regarding a given topic, field, concept, or issue, regardless of the source[18], and its systematization is based on the JBI framework and uses the PCC mnemonic (population, concept, and context)[19].

This protocol has been registered in the *Open Science Framework* (OSF), and can be found at: https://doi.org/10.17605/OSF.IO/YUR2K.

Scoping Review

Figure 1 explains the PCC established for the scoping review.

(P) Participants	Nurses
(C) Concept	Educational technology in continuous training
(C) Context	Hospitals, in any country

Figure 1 – PCC of the scoping review. Porto, Portugal, 2023

Based on figure 1, the following guiding question was outlined: What is the scientific evidence available regarding the use of technology in the continuous training of nurses in hospitals?

Inclusion and Exclusion Criteria

Figure 2 describes the inclusion and exclusion criteria of the scoping review.

Selection Criteria	Inclusion criteria	Exclusion criteria
Participants	Nurses	Students/Interns
Concept	Educational resources and methods within the scope of information and communication technologies used in continuous training	Educational resources and methods within the scope of information and communication technologies used in training during the undergraduate course
Hospital	Context	Any other context
Types of Sources of Evidence	- Studies with no time limit; - Studies in Portugue-se, English, and Spani-sh; - Open-access studies and full text; - Sources of Evidence: PubMed; Scopus; Web of Science; EBSCO; RCAAP; Google Scholar; OpenGrey	- Studies in other languages; - Restricted-access studies or no full text available; - Other type of research sources.

Figure 2 – Inclusion and exclusion criteria of the scoping review. Porto, Portugal, 2023

Research Strategy

According to the JBI guidelines, the research strategy follows three stages[20]. In the first stage, an initial search will be carried out in the Medical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed and in the Cumulative Index to Nursing and Allied Health Literature (CINAHL) via EBSCO, to verify the existing evidence about the use of technology in the continuous training of nurses in hospitals. Also at this stage, the terms contained in the titles and abstracts of the articles will be analyzed to identify the main indexed Medical Subject Headings (MeSH) terms and the natural language terms related to the topic under investigation. A new search will be carried out in the second stage using the indexed MeSH terms and the natural language terms found in the first stage. In the third stage, a new search for evidence will be carried out in other sources of primary evidence with the final Boolean expression. The selected databases will be PubMed, Scopus, Web of Science and EBSCO aggregator.

Research in the gray literature will also be included in the scoping review, to map the most comprehensive topics[20]. It should be noted that, for this research, the final Boolean expression will be adapted to each of the sources. The sources of gray literature chosen for this scoping review will be the Open Access Scientific Repositories of Portugal (RCAAP), Google Scholar, and OpenGrey.

Studies identified in primary research sources and gray literature will be exported to the platform *Endnote* version 20 and will be analyzed by two independent reviewers, and by a third reviewer in case of disagreement.

The final Boolean expression of this scoping review is: ("*nurs**" NOT "*student**") AND ("technolog*") AND ("*lifelong learning*" *OR* "*learning**" *OR* "*education**") AND ("*professional development*" *OR* "*care continuum*" *OR* "*quality improvement*").

Analysis of Bibliographic References

This stage includes the selection of bibliographic reference, based on the analysis of the title and abstract and, later, on the analysis of the full text. For this selection, the inclusion and exclusion criteria previously defined will be taken into account. The narrative description of the process will be followed by a flowchart of the review process, according to the PRISMA-ScR, with details of the research flow, the selection of bibliographic references, the removal of duplicate articles, the recovery of full text, any addition of third research, the extraction data, and the presentation of the results[20].

Data Extraction

Figure 3 refers to the data extraction instrument, which was developed by the researchers. The following information will be considered: title, authors, year of publication, method, objectives, population studied, context, main results found, and inclusion/exclusion criteria.

Since the objective of the scoping review is to map and analyze scientific evidence on the use of technology in the continuous training of nurses in hospitals, the methodological quality of the studies included will not be evaluated.

Data extraction - Study 1	
Title	
Authors	
Year	
Method	
Objectives	
Population	
Context	
Main outcomes	
Inclusion/exclusion criteria	

Figure 3 – Data extraction instrument. Porto, Portugal, 2023

Presentation and Result Analysis

The scoping review results will be presented in two ways: schematically, using figure 4, developed by the researchers; and in narrative, when analyzing the evidence mapped. Limitations will also be identified to encourage future research on the topic under investigation.

Study	Author/Year	Title	Objective	Population	Main results
1					
2					
3					

Figure 4 – Presentation of the results. Porto, Portugal, 2023

CONFLICT OF INTERESTS

The authors have declared that there is no conflict of interests.

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