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REVIEW PROTOCOL

Educational technologies in health for self-care of children and adolescents with cancer: A scoping review protocol

Tecnologias educacionais em saúde para autocuidado de crianças e adolescentes com câncer: Um protocolo de revisão de escopo

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ABSTRACT

Objective: To map educational technologies in health aimed at the self-care of children and adolescents with cancer. **Method**: This is a scoping review protocol based on the JBI Manual for Evidence Synthesis guidelines. The protocol is registered with the Open Science Framework. The guiding question was developed using the PCC mnemonic: Population (children and adolescents with cancer), Concept (educational technologies in health), and Context (self-care). The research will be conducted across seven databases. After removing duplicates using the EndNote software, the studies will be exported to the Rayyan software for the selection phase, following the eligibility criteria. The research will be reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses — Extension for Scoping Review (PRISMA-ScR). The data will be presented in charts and tables, accompanied by a descriptive analysis summarizing the extracted data.

Descriptors: Child; Adolescent; Self-Care; Neoplasms; Educational Technology.

RESUMO

Objetivo: Mapear as tecnologias educacionais em saúde direcionadas ao autocuidado de crianças e adolescentes com câncer. **Método**: Protocolo de revisão de escopo segundo as orientações do JBI *Manual for Evidence Synthesis*. O protocolo está registrado na *Open Science Framework*. A questão norteadora foi elaborada com base no mnemônico PCC: População (crianças e adolescentes com câncer), Conceito (tecnologias educacionais em saúde), Contexto (autocuidado). A pesquisa será realizada em sete bases de dados. Após a exclusão das duplicatas no *software* EndNote, os estudos serão exportados para o *software* Rayyan para a etapa de seleção, obedecendo aos critérios de elegibilidade. A pesquisa será reportada de acordo com o *Preferred Reporting Items for Systematic Reviews and Meta-Analyses — Extension for Scoping Review* (PRISMA-ScR). Os dados serão apresentados na forma de quadros e tabelas, acompanhados de uma análise descritiva que sintetizará os dados extraídos.

Descritores: Criança; Adolescente; Autocuidado; Neoplasias; Tecnologia Educacional.

INTRODUCTION

The increasing percentage of cancer victims significantly impacts the child and adolescent population. According to data released by the Brazilian National Cancer Institute (INCA), cancer diagnoses rank at the top of the list of causes of death from diseases among those aged one to 19 years, accounting for 8% of the total. Approximately 12,500 new cases of cancer are recorded annually in children under 15 years old in Brazil[1]. Among children and adolescents, the most frequent diagnoses are leukemias, with an incidence rate of 44.8 per million cases, followed by central nervous system tumors at 29.8 per million and lymphomas at 15.5 per million[2-3].

After starting treatment, children and adolescents with cancer face changes and new experiences due to the toxicity of treatment, such as

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nausea, vomiting, diarrhea, constipation, and mucositis. These side effects require specific dietary, medical, and hygienic care to improve and require self-care practices appropriate for the patient's age and developmental stage[4]. Therefore, this population needs clear and assertive guidance to become active participants in their care. This is essential to ensure better adherence to treatment, symptom management, and safety, aiming to maintain quality of life and well-being.

In health promotion and education, there has been a significant increase in the creation and use of educational technologies. These tools have proven effective facilitators in establishing effective communication between healthcare professionals, families, and patients. They use language appropriate for the target population and incorporate visual resources, design/layout, and relevant cultural considerations. Moreover, these technologies stimulate motivation for learning[5]. By sharing resources and information in an accessible and culturally appropriate manner, these technologies become essential allies in the self-care of cancer patients, contributing to a better quality of life and positive outcomes in coping with the disease.

When appropriately managed and intelligently applied, technologies can significantly benefit people and their self-care. Educational technologies, also known as health technologies, encompass various ethical, philosophical, and methodological principles to improve the services provided by nursing teams to patients, thereby fostering knowledge development[6]. Innovations in digital health offer a path to enhancing the quality of life. They are included in the Global Strategy on Digital Health 2020-2025, proposed by the World Health Organization, and the Brazilian National Digital Health Strategy 2020-2028[7-8].

From this perspective, educational technologies are essential tools for health promotion and education, as well as for maintaining the quality of life of children and adolescents with cancer. Therefore, they must be developed and applied with a focus on self-care[7]. However, it is essential to investigate which educational technologies in health have been specifically produced and utilized for the self-care of this pediatric cancer population. Information on this topic is scattered throughout the literature, making it difficult to gain a comprehensive and organized understanding of the current state of knowledge. Thus, a scoping review is necessary to map and synthesize the available evidence, filling this gap and providing a solid foundation for future research and clinical interventions in this important field.

A preliminary search was conducted on September 1, 2023, in the following information resources: Open Science Framework (OSF), Virtual Health Library (BVS), and Online Brazilian Journal of Nursing (OBJN). Additionally, searches were performed in the International Prospective Register of Systematic Reviews (PROSPERO), Medical Literature Analysis and Retrieval System Online (MEDLINE/PubMed), and Cochrane Database of Systematic Reviews. Despite some studies being closely related to the topic, no current or ongoing systematic reviews, scoping reviews, or protocols specifically addressing this subject were identified in any searches. Therefore, this study is deemed relevant. The presence of primary studies on the topic ensures the feasibility of this review.

Thus, the objective of this scoping review is to map the educational technologies in health aimed at the self-care of children and adolescents with cancer.

METHOD

The scoping review will be developed based on the guidelines of the JBI Manual for Evidence Synthesis, following the nine steps proposed by the method: 1st - Determine and align the objective and question; 2nd - Develop and align the inclusion criteria with the aim and question; 3rd - Specify the planned strategy for search, selection, data extraction, and presentation of evidence; 4th - Search for the evidence; 5th - Select the evidence; 6th - Extract the evidence; 7th - Analyze the evidence; 8th - Present the results; 9th - Synthesize the evidence linked to the objective of study, highlighting the conclusions and implications of the findings[9].

The study will be reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses — Extension for Scoping Reviews (PRISMA-ScR). This protocol is registered with the OSF through DOI 10.17605/OSF.IO/QVWEM.

Review question

Based on the PCC mnemonic (population: children and adolescents with cancer; concept: educational technologies in health; context: self-care), the following question was developed for the review: "What educational technologies in health aimed at the self-care of children and adolescents with cancer can be identified in the scientific literature?"

Eligibility criteria

Population

For the population, studies involving individuals aged two to 18 years with cancer will be included, without distinction of sex or ethnicity. Research that includes adults in the target population will be excluded to ensure that the identified educational technologies in health are specifically designed for children and adolescents undergoing cancer treatment.

Concept

The included studies should address educational technologies in health, encompassing products, and tools used to enhance knowledge and acquire new skills by the target population[10]. This can include but is not limited to, mobile applications, educational videos, educational games, online platforms, virtual reality, and virtual or printed booklets, among other technological resources designed to promote the self-care of children and adolescents with cancer. The technologies may or may not have undergone validation or evaluation processes. Research on educational technologies in health aimed solely at guiding academics, professionals, or families will be excluded if they contain specific elements that directly support the self-care of the pediatric population.

Context

The studies must contextualize the self-care of the child and/or adolescent to manage symptoms related to the disease and treatment and to improve adherence and safety in cancer treatment in any setting[5]. Studies that do not involve the context of care related to the treatment journey and maintaining the quality of life of children and adolescents with cancer will be excluded.

Types of evidence sources

This scoping review will include articles with primary qualitative, quantitative, or mixed data, including experimental and quasi-experimental studies, clinical trials (randomized or not), before-and-after studies, time series, epidemiological studies, observational studies, cross-sectional studies, descriptive studies, analytical studies, prospective or retrospective cohort studies, case series, individual case reports, as well as systematic reviews.

Grey literature will not be used, as non-peer-reviewed data's quality, validity, and reproducibility cannot be guaranteed. Additionally, including these sources could increase heterogeneity and bias in the analysis of results, compromising the integrity and reliability of the review, especially in such a sensitive context as educational technologies in health for the self-care of children and adolescents with cancer.

Studies conducted in the last 10 years will be included, as this scoping review addresses educational technology in health and requires up-to-date information to keep pace with global technological development. Publications such as letters, commentaries, editorials, integrative reviews, expert opinion articles, or ongoing studies without results will be excluded, as these sources are unsuitable for meeting the review's objective.

Search strategy

The searches will be conducted in the first half of 2024 in the following information resources: Nursing Database (BDENF); Cumulative Index to Nursing and Allied Health Literature (CINAHL); Latin American and Caribbean Health Sciences Literature (LILACS); Medical Literature Analysis and Retrieval System Online (MEDLINE/PubMed); Scientific Electronic Library Online (SCIELO); Scopus; Web of Science. The search strategy to find the published studies was defined using Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) with the Boolean operators AND and OR, adapting them to the specifics of each resource. Figure 1 presents a complete search strategy for an important database (MEDLINE/PubMed), as recommended by the JBI Manual for Evidence Synthesis, which will be adapted for each database.

Figure 1 - Search strategy model for document retrieval. Rio de Janeiro, RJ, Brazil, 2024

DATABASE	SEARCH STRING
MEDLINE/ PubMed	(((Children[MeSH Terms] OR Adolescent[MeSH Terms]) AND (Neoplasms[MeSH Terms]) AND (Educational technology[MeSH Terms])) OR ((Children[MeSH Terms] OR Adolescent[MeSH Terms]) AND (Neoplasms[MeSH Terms]) AND (Self care[MeSH Terms])))

Selecting the source of evidence

The search will be conducted using the abovementioned resources, with titles and abstracts evaluated independently by two reviewers according to the defined inclusion and exclusion criteria. After this step, all identified studies will be retrieved and exported to EndNote Web, where duplicates will be removed. Subsequently, the studies will be exported to Rayyan (Qatar Computing Research

Institute, Doha, Qatar), a tool that supports reference selection. The selected studies will be read in full to exclude those that, for any reason, do not address the review question.

The scoping review will report reasons for excluding sources of evidence that do not meet the inclusion criteria. In case of disagreement between the reviewers, a third reviewer will be consulted to discuss and resolve the issue. The search results and the study inclusion process will be fully reported in the review and presented according to PRISMA-ScR[11].

Data extraction

Data will be extracted and organized into an instrument for descriptive mapping of variables, created by the authors in Microsoft Office Excel 365/2022, based on the recommendations of the JBI Manual for Evidence Synthesis, as shown in Figure 2. Any necessary modifications to the form during data extraction will be highlighted and described in the final version of the review. As shown in Figure 2, the extracted data will include title, authorship, year of publication, country of development, type of study, objectives, population and sample, educational technology in health used, and main results and conclusions.

Figure 2 - Data extraction instrument. Rio de Janeiro, RJ, Brazil, 2024

Bibliographic Data	Details
Title	Original title of publication
Authors	Surnames and initials of the authors
Year	Year of publication
Country	Country where the study was conducted
Type of study	Type of research conducted with qualitative, quantitative, or mixed primary data
Map Characteristics	**Details**
Objectives	Describe the objectives of the study
Population/ Sample	Describe the main results of the study
Educational Technology in Health	Indicate the type and theme of the educational technology in health used and the validation and/or evaluation process
Main Results	Describe the results identified with the applicability of the educational technology in health
Study Conclusions	Describe the conclusions of the study

Data analysis and presentation

Data will be presented in charts and tables, accompanied by a descriptive analysis to synthesize the extracted information. These data will be organized and categorized according to the central analytical categories identified, such as the type of educational technology in health, aspects of self-care addressed by the technology, and impact on treatment adherence and quality of life. The descriptive summary will also highlight the main trends, gaps in the literature, and implications for practice and future research. The complete results will be presented in the final scoping review, following the PRISMA-ScR methodology guidelines.

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