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Secondary school students' knowledge of cardiopulmonary resuscitation: protocol scoping review
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REVIEW PROTOCOL

Secondary school students' knowledge about cardiopulmonary resuscitation: protocol scoping review

Conhecimento dos estudantes do ensino secundário sobre a reanimação cardiopulmonar: protocolo de revisão de escopo

Conocimiento de los estudiantes de la escuela secundaria acerca de la reanimación cardiopulmonar: protocolo de scoping review

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RESUMO

Objetivo: Mapear a evidência científica disponível sobre o conhecimento dos estudantes do ensino secundário em reanimação cardiopulmonar. **Metodologia:** Protocolo de revisão de escopo, que seguiu a metodologia do *Joanna Briggs Institute* e as recomendações do PRISMA-ScR. Foram incluídos estudos com abordagem quantitativa, qualitativa ou mistos. A pesquisa realizou-se nas bases de dados: CINAHL; Medline Complete; Nursing & Allied Health Collection: Comprehensive; MedicLatina (via EBSCO) em dezembro de 2023. Foram utilizados os descritores conhecimento, estudantes, ensino secundário, reanimação cardiopulmonar em português, inglês e espanhol e sem limite temporal. A triagem dos estudos foi realizada através da leitura do título e resumo, posteriormente foi realizada a leitura na íntegra por dois revisores independentes que farão a extração e síntese dos dados. Recorrer-se-á a um terceiro revisor em caso de discordância. Desenvolveu-se uma tabela de evidências construída pelos investigadores para o efeito. Pesquisa registada na plataforma *Open Science Framework* (DOI10.17605/OSF.IO/V9X5N).

DESCRITORES: Conhecimento; Estudantes; Ensino Secundário; Reanimação Cardiopulmonar.

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ABSTRACT

Objective: Mapping the available scientific evidence on secondary school students' knowledge of cardiopulmonary resuscitation. **Methodology:** Scope review protocol, according to the *Joanna Briggs Institute* methodology and PRISMA-ScR® recommendations. Studies with a quantitative, qualitative or mixed approach are included. The research was conducted in the following databases: CINAHL®; Medline Complete®; Nursing & Allied Health Collection: Comprehensive®; MedicLatina® (via EBSCO) in December 2023. The descriptors used Knowledge, students, secondary education, cardiopulmonary resuscitation were used in Portuguese, English and Spanish and without time limit. The screening of studies was conducted by reading the title and summary, then the full reading was conducted by two independent reviewers who will extract and synthesize the data. A third reviewer will be used in case of disagreement. An evidence table constructed by the researchers was developed for this purpose. Search registered on the *Open Science Framework* platform (DOI10.17605/OSF.IO/V9X5N).

DESCRIPTORS: Knowledge; Students; Secondary Education; Cardiopulmonary Resuscitation.

RESUMEN

Objetivo: Mapear la evidencia científica disponible acerca del conocimiento de los estudiantes de la escuela secundaria acerca de la reanimación cardiopulmonar. **Metodología:** Protocolo de revisión del alcance, según metodología del *Instituto Joanna Briggs* y recomendaciones PRISMA-ScR®. Se incluyeron estudios con enfoque cuantitativo, cualitativo o mixto. La investigación realizada se realizó en las siguientes bases de datos: CINAHL®; Medline Complete®; Colección de enfermería y servicios afines a la salud: integral; Registro Cochrane Central de Ensayos Controlados®; MedicLatina® (vía EBSCO) en diciembre de 2023. Se utilizaron los descriptores Conocimiento, estudiantes, educación secundaria, reanimación cardiopulmonar en portugués, inglés y español y sin límite de tiempo. La selección de los estudios se realizó mediante la lectura del título y resumen, luego la lectura completa fue realizada por dos revisores independientes quienes extraerán y sintetizarán los datos. En caso de desacuerdo se utilizará un tercer revisor. Para ello se desarrolló una tabla de evidencia construida por los investigadores. Búsqueda registrada en la plataforma *Open Science Framework* (DOI10.17605/OSF.IO/V9X5N).

DESCRIPTORES: Conocimiento; Estudiantes; Enseñanza secundaria; Reanimación cardiopulmonar.

INTRODUCTION

In a situation of Cardiorespiratory Arrest (CRA), the maneuvers of Cardiopulmonary Resuscitation (CPR) are presented as the pillar of survival, in which the understandings and insufflations applied, allow to compensate for the sudden interruption of heart beats and the absence of spontaneous ventilation of CRA ⁽¹⁾.

Worldwide, CRA is one of the main causes of death, in which in the last 50 years, there has been a significant increase in the practice of CPR in an extra-hospital environment ⁽²⁾. In the United States of America (USA) it has an incidence of 76/100,000 inhabitants per year and in Europe of 84/100,000 ⁽²⁾. In Portugal, there is also a high mortality rate, which is a serious public health problem ⁽²⁾.

Data from the National Institute of Medical Emergency (NIME) show that there was an increase in occurrences of CRA, in the year 2021 with the registration of 21603 cases per day and in the year 2022

with 21692 cases (3). These data allow us to verify that most CRA events that occur are not witnessed by pre-hospital emergency teams, which always depends on the performance of third parties. Thus, the citizen becomes the first intervener on site to apply CPR maneuvers using the basic life support algorithm (BLS) (2).

There are emergency situations in the school context ranging from traumatology, hemorrhage, asthma, diabetes mellitus, convulsive crisis, anaphylactic shock, among others, which trigger moments of stress and condition the activity of the school community. Require early recognition of signs of risk of death and immediate and effective intervention in the maintenance and support of the victim, the performance of BLS includes a set of standardized interventions aimed at saving time, until the arrival of differentiated help, thus promoting a better prognosis and an increased probability of survival (4).

Research (5-6) affirm that education in first aid, especially in the BLS, provides an improvement in the knowledge and skills of teachers and students in providing relief to the victim. They also emphasize that a regular and systematized training offer increases agility and effectiveness in the care of the victim.

Health promotion in a school context is a conducive means to promote the adoption of healthy behaviors, based on the principles of Health Promoting Schools, contributing to the increase of health literacy in the educational community. Portugal, in collaboration with other countries, has introduced mandatory BLS training for 3rd cycle students (7). The strategies of the National School Health Program contribute to the improvement of the health of the educational community, with the provision of educational activities in first aid, being a mediator between education and health (5). The responsibility of encouraging education among students and knowing how to deal with situations that positively impact educational success, as well as students' health literacy. Thus, the knowledge about CPR maneuvers, assumes a preponderant role in education and health literacy in schools, because its result, in addition to providing and stimulating better attention and learning capacity (8). Interventions implemented in the school environment to improve knowledge and modify behaviors tend to be successful in promoting student empowerment. As a result, these interventions can play a crucial role in improving their education and promoting the health of future generations. Having the potential to reduce the current disparities, it is essential that health literacy interventions in BLS are directed to secondary school students, where health education focuses on a partnership between teachers, teachers and students and trainers in this knowledge sector (9).

It is intended with this scoping review protocol to detail the criteria that researchers used to include and exclude studies, extract, synthesize and present the relevant data for understanding the phenomenon under study (10).

Thus, after a preliminary search in the various databases, no recorded protocols or studies related to the proposed objective were identified. Thus, the design of this scoping protocol aims to fill a gap in the

body of knowledge related to CPR in secondary school students. This review aims to answer the following research question: "What is the knowledge of secondary school students about CPR?".

This study aimed to map the available scientific evidence on the knowledge of secondary school students in cardiopulmonary resuscitation.

METHODOLOGY

Study design

A scoping review protocol was conducted, according to the methodology of the Joanna Briggs Institute® (JBI) following the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), using the extension for scoping reviews (PRISMA-ScR®) ⁽¹¹⁾. The protocol is registered on the Open Science Framework platform and can be consulted via the link: <https://doi.org/10.17605/OSF.IO/V9X5N>.

Inclusion criteria

Following the recommendations of the JBI, the eligibility criteria were defined according to the mnemonic PCC (Participants, Concept, Context) ⁽⁹⁾, according to Table 1.

Regarding the type of study, primary, qualitative, quantitative or mixed studies were included, as well as reviews of literature and gray literature, excluding articles inherent to other contexts or other groups of participants.

Board 1. Eligibility criteria of the *scoping review protocol*

Participants (P)	Concept (C)	Context (C)
Students enrolled in secondary education	Knowledge in Cardiopulmonary Resuscitation	Secondary education

Source: The authors, 2024.

Search strategy

The research strategy was conducted in three stages. In the initial stage, a general research was conducted in the databases CINAHL®; Medline Complete®; Nursing & Allied Health Collection: Comprehensive®; MedicLatina® (via EBSCO) to analyze the keywords of interest contained in the titles, abstracts and the indexing terms of the studies. In a second phase, we proceeded to a broader search in the search engines using the operators AND and OR, being AND to identify studies and OR for synonym, according to the combinations between the descriptors. The following Boolean phrase was created: ("Secondary School" [All fields] AND "Students" [All fields] AND "Knowledge" [All fields] AND

“Cardiopulmonary Resuscitation” [All fields]) as shown in board 2. Studies were included written in Portuguese, English and Spanish, without time limit, published in peer-reviewed journals and/or available in the gray literature in free full text.

Board 2. Records of searches conducted in the different sources of information

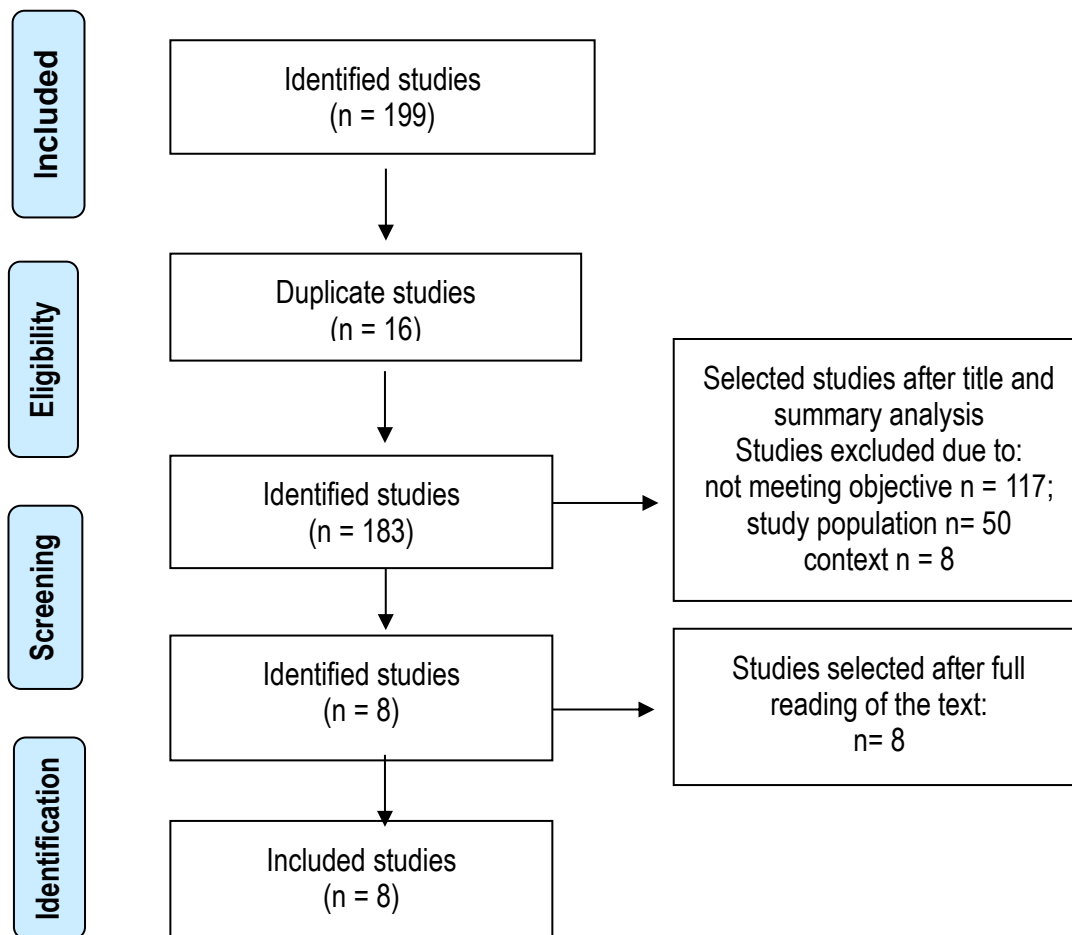
Source of information	Research	Studies identified
CINAHL®	(“Secondary School” [All fields] AND “Students” [All fields] AND “Knowledge” [All fields] AND “Cardiopulmonary Resuscitation” [All fields])	60
Medline®	(“Secondary School” [All fields] AND “Students” [All fields] AND “Knowledge” [All fields] AND “Cardiopulmonary Resuscitation” [All fields])	155
Nursing & Allied Health Collection: Comprehensive®	(“Secondary School” [All fields] AND “Students” [All fields] AND “Knowledge” [All fields] AND “Cardiopulmonary Resuscitation” [All fields])	14
MedicLatina®	(“Secondary School” [All fields] AND “Students” [All fields] AND “Knowledge” [All fields] AND “Cardiopulmonary Resuscitation” [All fields])	02

Source: The authors, 2024.

Selection of studies

We included studies with quantitative, qualitative or mixed approaches written in Portuguese, English and Spanish, without time limit, published in journals with peer review and/or available in the gray literature in free full text.

The search result was exported to a reference manager platform Rayyan® – Intelligent Systematic Review ⁽¹⁰⁾. The screening of the studies was conducted through the reading of the title and abstract, later the reading was made in full by two independent reviewers who will extract and synthesize the data. A third reviewer shall be used in case of disagreement. Finally, the bibliographical references of the identified articles were analyzed to assess the need to include additional studies. The selection process is explained in the PRISMA flow diagram as shown on picture 1 ⁽¹²⁾.



Picture 1. Flowchart of the process of identification, selection and inclusion of studies, based on the PRISMA recommendation.

Source: The authors, 2024.

Data Extraction

Data extraction will occur through an evidence table built by the authors based on the recommendations of the JBI Manual for Evidence Synthesis ⁽⁹⁾. The extracted data will be Author/year/country, title, objective, type of study, methodology and main results, as shown in Table 2. Any divergences that arise between reviewers in data extraction and analysis will be resolved by consensus or using a third reviewer as mentioned above. The results will be presented in a descriptive and narrative way.

Data Presentation

Eight articles were included that will be presented in a descriptive and narrative way, according to the table of evidence built by the researchers for a better interpretation of the results. The presentation

and interpretation of the data will be conducted through the recommendations of the JBI® (13) for review of scoping review using Table 3.

Board 3. Study Data Extraction Tool.

Author/year/country	Title	Objective	Type of study	Methodology	Main results

Source: The authors, 2024.

FINAL THOUGHTS

Studies in the specific field of cardiopulmonary resuscitation are extremely important to ensure the quality of care for the critically ill. It is expected with the accomplishment of this study that the identification and mapping of the scientific evidence related to the knowledge of the contribute to a practice of care based on scientific evidence contributing to increase students' knowledge about CPR procedures.

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