



Knowledge of first aid actions for teachers and staff in basic education

ARTICLE

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Abstract

Basic life support (BLS) is a set of emergency measures to save lives, such as CPR, ventilation and use of a defibrillator. The application of BLS in schools allows professionals to act quickly until the arrival of health professionals in cases of emergencies. From this perspective, this study aims to demonstrate the importance of training teachers and staff in basic notions of first aid in basic education. This is a systematic literature review carried out in the Virtual Health Library, so eight studies were selected. The findings indicated that lack of knowledge about first aid is prevalent in the school environment. In addition, it was observed that many educators recognize the need for training but have deficits in relation to knowledge and self-confidence to act in emergencies. It is concluded that training in first aid is important to promote a safer school environment.

Keywords: School teachers. Basic life support. Knowledge. Review. Education.

Conhecimento das ações de primeiros socorros para professores e funcionários na educação básica

Resumo

O suporte básico de vida (SBV) é um conjunto de medidas emergenciais para salvar vidas, como RCP, ventilação e uso de desfibrilador. A aplicação do SBV nas escolas permite que os profissionais ajam rapidamente até a chegada de profissionais de saúde em casos de emergências. Nessa perspectiva, este estudo tem como objetivo demonstrar a importância da capacitação dos professores e funcionários em noções básicas de primeiros socorros na educação básica. Trata-se de uma Revisão de Literatura do tipo sistemática realizada na Biblioteca Virtual em Saúde, de modo que foram selecionados oito estudos. Os achados apontaram que o desconhecimento sobre primeiros socorros é prevalente no ambiente escolar. Além disso, observou-se que muitos educadores reconhecem a necessidade do treinamento, mas apresentam déficits em relação ao conhecimento e à autoconfiança para agir em emergências. Conclui-se que a





capacitação em primeiros socorros é importante para a promoção de um ambiente escolar mais seguro.

Palavras-chave: Professores escolares. Suporte básico de vida. Conhecimento. Revisão. Educação.

1 Introduction

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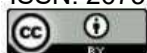
The topic of first aid is considered essential to prevent harm to people's health and well-being (Rodrigues; Rodrigues, 2016). This knowledge is crucial for providing quality care outside the hospital environment, ensuring that assistance is safe, appropriate, and efficient (Rodrigues *et al.*, 2022).

Immediate actions taken to assist a person, regardless of the cause or nature of the accident, are called first aid (Amadigi *et al.*, 2023). These actions are performed at the scene to maintain vital signs, minimize injuries, and save lives. It is necessary to identify life-threatening situations and take the appropriate measures to keep the victim alive and in the best possible condition to receive proper medical treatment. To provide effective and accurate emergency assistance, one must have mastery of first aid techniques.

The school environment is considered a setting prone to accidents (Rodrigues; Rodrigues, 2016). An accident involving a student at school, in addition to causing disruptions for the institution, may lead to legal liability issues. In this regard, the Brazilian Penal Code is clear about the omission of assistance, establishing that failing to provide aid or to contact public authorities constitutes a crime (Cabral; Oliveira, 2017).

Teachers often lack knowledge regarding the initial assistance for school-related accidents, exhibiting feelings of insecurity, fear, and distress (Amadigi *et al.*, 2023). Therefore, spreading awareness about first aid practices among teachers and staff in basic education is crucial.

In the school environment, teachers and staff are more likely to witness accidents due to the large number of children and adolescents interacting, their natural restlessness and unpredictability, and the physical, social, and psychological conditions of the setting (Amadigi *et al.*, 2023). Accidents can occur anywhere and at any time within the school





environment, and education professionals are the closest individuals who can act, intervene, and even reduce the severity of injuries.

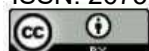
Law No. 13,722 of October 4, 2018, also known as the Lucas Law (Lei Lucas), makes it mandatory for teachers and staff in public and private basic education institutions, as well as in children's recreation facilities, to receive training in basic first aid principles (Brasil, 2018).

Thus, this study, which aims to highlight the importance of training teachers and staff in basic first aid knowledge in basic education, is relevant given the need to promote a safe school environment prepared to handle emergency situations that may compromise students' physical well-being. Moreover, this study stands out by emphasizing the practical and continuous training of teachers and school staff as a mandatory preventive measure, as stipulated by Lucas Law.

2 Methodology

This study consists of a systematic literature review, which began with the formulation of the research question using the PICO method (Population, Intervention, Comparison, and Outcome). This process led to the following question: In basic education schools (P), does the practical and continuous training of teachers and staff in basic first aid principles (I), compared to the absence of training or occasional training (C), contribute to the promotion of a safer and more prepared school environment to handle emergency situations (O)?

The bibliographic search was conducted between May 8 and May 23, 2023, using the Virtual Health Library (Biblioteca Virtual em Saúde – BVS), a platform that compiles and indexes various databases. To ensure the comprehensiveness and quality of the collected information, specific filters were applied to limit the search to the following databases: Latin American and Caribbean Health Sciences Literature (LILACS), Medical Literature Analysis and Retrieval System Online (MEDLINE), Spanish Bibliographic Index in Health Sciences (IBECS), and *Index Medicus* for the Western Pacific (WPRIM).



A single search strategy was developed and applied exclusively in the BVS, using DeCS/MeSH descriptors in Portuguese, Spanish, and English. Boolean operators AND (to combine search terms) and OR (for synonyms) were used during the search (Table 1).

Table 1 – Search Strategy in Databases

Databases	Search Strategy
Virtual Health Library (BVS)	("Reanimação Cardiopulmonar" OR "Cardiopulmonary Resuscitation" OR "Reanimación Cardiopulmonar") AND ("Professores Escolares" OR "School Teachers" OR maestros) AND (conhecimentos OR knowledge OR conocimiento) AND (fulltext:("1" OR "1") AND db:("MEDLINE" OR "IBECS" OR "LILACS" OR "WPRIM") AND la:("en" OR "es" OR "pt")) AND (year_cluster:[2018 TO 2023])

Source: Developed by the authors (2023).

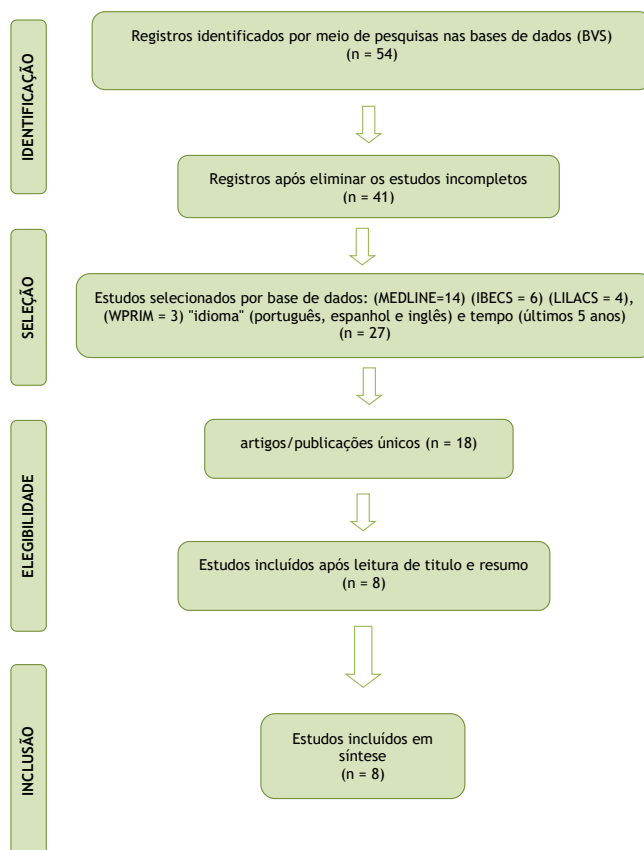
For the selection of studies, an evaluation form was used based on inclusion criteria: publications from the last five years, open-access availability, and texts in Portuguese, Spanish, or English. Exclusion criteria included theses, dissertations, pilot studies, and editorials. Before selecting the studies, a calibration process was conducted to ensure consistency in the application of the criteria.

This study followed the Cochrane guidelines (Higgins *et al.*, 2019), which include: pre-planning the information to be collected; using standardized forms to ensure consistency and minimize errors; conducting data extraction independently by two reviewers to reduce bias and increase the reliability of collected data; establishing clear procedures to resolve discrepancies between reviewers; maintaining records of the entire data extraction process; assessing the methodological quality of studies; and using appropriate tools and software to facilitate data extraction and organization.

Thus, articles were selected based on their relevance to the research objective through title analysis, abstract review, and full-text reading. The evaluation followed eligibility criteria to identify relevant studies, and pertinent information was recorded in an electronic spreadsheet using Microsoft Excel software (Microsoft Corporation, WA, USA),

including author, year, country, study design, and investigated outcomes. The study selection process is summarized below (Figure 1).

Figure 1 – Flowchart of the Study Selection Process.



Source: Developed by the authors (2023).

Initially, in the identification phase, 54 records were found through searches conducted in the databases indexed in the BVS. Then, after excluding incomplete records, 41 studies were retained for the selection phase.

In the selection phase, the studies were filtered by database, language (Portuguese, Spanish, and English), and time frame (last five years), resulting in 27

selected articles, distributed as follows: MEDLINE (14), IBECs (6), LILACS (4), and WPRIM (3). Subsequently, duplicates were removed, leaving 18 unique articles.

In the eligibility phase, an analysis of the titles and abstracts of the 18 articles was performed, from which 8 studies met the pre-established criteria and were included in the final stage. Finally, in the inclusion phase, these 8 selected studies were used in the synthesis of the review results.

3 Results and Discussion

Of the 8 selected studies, which were published between 2018 and 2021, 5 utilize a cross-sectional design, one is a prospective observational study, and 2 are quasi-experimental studies (Table 2).

Table 2 – Summary of Included Studies

Author (year), country	Study Type	Objective	Conclusion
(Abelairas-Gómez <i>et al.</i> , 2020), Spain	Cross-sectional study	Evaluate the knowledge of first aid (PP. AA.) among preschool and elementary school teachers and parents of children in these educational stages.	The majority of teachers and parents who participated in a survey demonstrated a lack of knowledge regarding basic life support (BLS). However, both teachers and parents agreed on the inclusion of content related to First Aid, BLS, and Airway Obstruction due to Foreign Objects in school curricula. To achieve this objective, it would be necessary to provide prior training to teachers and integrate this content into university-level training programs.

(Acevedo <i>et al.</i> , 2020), Chile	Descriptive cross-sectional	Assess the level of preparation of schools and physical education teachers in preventing sudden death (MS) and providing basic life support, including the availability and use of automated external defibrillators (AED).	The physical education teachers surveyed showed deficiencies and a lack of up-to-date knowledge in basic life support preparation, including the use of AEDs. Taking a course is the only requirement to increase the willingness to perform cardiopulmonary resuscitation (CPR) maneuvers. To ensure adequate basic life support, it is necessary to have properly trained professionals and the availability of an AED, as well as appropriate planning and a rapid response in the event of sudden death.
(Oliveira <i>et al.</i> , 2021), Brazil	Quantitative, cross-sectional, and descriptive	Verify the percentage of correct responses from education professionals in problem-solving situations related to basic life support.	The introduction of a first aid training program in schools is valuable in preparing education professionals and students for emergency care. It increases the chances of survival, promotes accident prevention, and reduces the harm caused by improper handling of the victim. This study demonstrated the importance of spreading knowledge about first aid in schools, providing an educational environment that forms conscious and responsible citizens capable of dealing with emergencies. This practice can prevent long-term effects and save lives.
(Alhejaili <i>et al.</i> , 2020), Saudi Arabia	Cross-sectional study	Evaluate the knowledge and attitudes regarding basic life support skills among female teachers in Al-Madinah, Saudi Arabia.	The female teachers showed low knowledge and skills in basic life support (BLS). However, they demonstrated a positive attitude toward training in cardiopulmonary resuscitation (CPR). It is recommended that basic life support

(Chen <i>et al.</i> , 2019), China	Prospective observational study	Assess the current knowledge of CPR among Chinese primary and secondary school teachers, previous training, and attitudes toward CPR education.	training be mandatory for all citizens, especially to certify teachers, who are responsible for student safety in schools. It is important that BLS training centers are conducted by qualified healthcare professionals to ensure high-quality training. Furthermore, regular BLS training should be mandatory to acquire the necessary skills.
(Jorge-Soto <i>et al.</i> , 2019), Spain	Cross-sectional observational study	Evaluate the knowledge of future basic education teachers regarding basic life support (BLS) and their willingness to include this content in school lessons.	In summary, Chinese primary and secondary school teachers possess basic knowledge of cardiopulmonary resuscitation (CPR) but lack a precise theoretical understanding of the subject. More than half of them have undergone prior CPR training and showed great interest in participating in and conducting training in this area.
(Navarro-Patón <i>et al.</i> , 2018), Spain	Quasi-experimental study	Assess the learning outcomes of basic life support (BLS) in laypersons after three different formative experiences.	A brief practical training session is effective in improving knowledge and self-confidence in basic life support (BLS) and cardiopulmonary resuscitation (CPR) skills among future teachers. It is recommended that BLS training be included in university curricula for teachers, aiming to effectively engage them in BLS training for school-age children.
			The training program with feedback devices showed the best results in the quality of chest compressions, followed by the traditional course and the audiovisual method. These superior results were observed in both men and women. All

three training methods achieved the goal of reducing defibrillation times.

(Pichel López <i>et al.</i> , 2018) Spain	Quasi-experimental study	Quantitatively assess the quality of CPR-B performed by schoolteachers after a brief and simple training program.	The results indicate that it is possible to train teachers in BLS even with time and material resource limitations. This should encourage the comprehensive training of these teachers, making it possible to systematically implement BLS training in schools.
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Source: Developed by the authors (2023).

Based on the data presented in the table, it is evident that all the studies aimed to assess the knowledge, learning, or preparedness level of education professionals, and the conclusions reinforce the need to integrate BLS content into school curricula to prepare education professionals to respond adequately to emergencies, contributing to the safety and well-being of the school communities.

In this regard, Abelairas-Gómez *et al.* (2020) point out that both teachers and parents agree on the inclusion of BLS-related content in school curricula. However, for the implementation of this content to be effective, having legislation that regulates it is not the only necessary measure; the mere inclusion in the school curriculum does not necessarily mean that teachers are aware of it, and their lack of training may contribute to the omission of this content due to a lack of confidence in their competence.

Oliveira *et al.* (2021) add that accidents are common, especially in school environments, making it essential to provide preliminary training to teachers and other professionals so that they can respond effectively in emergency situations, employing appropriate first aid techniques, which can be defined as the immediate care given to a victim before specialized help arrives.

For Jorge-Soto *et al.* (2019), the inclusion of teachers as key players in training schoolchildren in BLS has been endorsed by international initiatives such as Kids Save



Lives, which emphasize the role of teachers as facilitators and/or trainers due to their pedagogical capabilities.

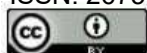
In fact, Pichel López *et al.* (2018) show that, after a brief training program conducted in Spain, 81 teachers from private management public schools were able to perform the BLS sequence and carry out chest compressions with quality comparable to that presented by professionals responsible for treating cardiac arrest victims.

In the study by Navarro-Patón *et al.* (2018), conducted with 124 primary education teacher training students at the University of Santiago de Compostela in Spain, the absence of prior BLS knowledge was used as an inclusion criterion. Three different teaching programs were implemented: a traditional course, an audiovisual approach, and the use of feedback devices. Among these methodologies, training with feedback devices yielded the best results in terms of chest compression quality, followed by the traditional course, and lastly, the audiovisual method.

In the study by Alhejaili, Alghamdi, and Al-Dubai (2020), conducted in Al-Madinah (Saudi Arabia) in 2019, it was found that teachers, community members, and university students in Saudi Arabia had insufficient knowledge about BLS, but demonstrated a positive attitude toward participating in training in this area. The importance of BLS training centers being led by qualified healthcare professionals was emphasized, ensuring the provision of high-quality programs and the effective acquisition of the necessary skills.

It is important to highlight, as noted by Chen *et al.* (2019), that CPR knowledge and prior training of teachers are crucial for their willingness to teach CPR and the quality of their teaching. Chinese primary and secondary school teachers have basic knowledge of CPR but lack a precise theoretical understanding of the subject.

Chen *et al.* (2019) emphasize that, by empirically observing the school environment, episodes of accidents and other health-related incidents involving students, educators, and other staff members become evident. In this context, when faced with situations requiring quick actions, the question arises regarding the appropriate conduct to be adopted in providing first aid, highlighting the importance of training education professionals to effectively handle emergencies.





Acevedo *et al.* (2020), in a study conducted in Santiago, Chile, investigated the competence of physical education teachers in preventing sudden death (SD) and providing BLS, also addressing the availability and use of automated external defibrillators (AED). Of the 97 teachers surveyed, most did not feel capable of performing CPR, despite 70% having completed a course on the topic. Knowledge of AED use was uniformly insufficient. These results highlight that physical education teachers are inadequately prepared and outdated in BLS, including AED usage, reinforcing the need for continuous and more comprehensive training in this area.

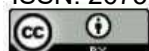
Based on the above, it is understood that schools need to be thoroughly prepared to face situations that require first aid intervention and promote the well-being of the school community, without compromising the teaching and learning process of the students.

4 Final Considerations

This study aimed to demonstrate the relevance of training teachers and staff in basic first aid knowledge in the school environment, highlighting its importance in promoting a safe space that is prepared for emergencies involving the physical well-being of students. To achieve this, a systematic literature review was conducted.

The findings indicated that a lack of knowledge about first aid is a common reality in the school environment, affecting teachers, staff, and the school community in general. Even in contexts where there are regulations requiring training, there are deficiencies in both implementation and the awareness of those involved regarding the importance of this knowledge. However, training, when conducted practically and with the use of appropriate tools, was shown to be effective in ensuring the acquisition of necessary skills to handle school emergencies, thereby enabling the promotion of a safer environment.

It also became evident that structured and well-planned training programs are essential for acquiring skills in BLS. Methodologies that include feedback devices yielded better results in terms of the quality of interventions performed by participants. Finally, it was understood that training teachers and staff in first aid is essential to meet legal





requirements and, above all, to establish a culture of prevention and responsibility within the school environment.

Thus, this study reinforces the importance of future research focused on the implementation of large-scale training programs and the analysis of their effectiveness in preventing accidents. Furthermore, it suggests the development of public policies that promote continuous training and integrate first aid training into educational curricula, aiming to consolidate a safer and more prepared school environment.

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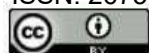
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