

The relevance of addressing basic life support for students in public and private schools

A relevância em abordar suporte básico de vida para estudantes em escolas públicas e privadas

La relevancia de abordar el soporte vital básico para estudiantes en escuelas públicas y privadas

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RESUMO

Objetivo: Investigar a relevância da abordagem de suporte básico de vida aos estudantes nas escolas públicas e privadas. **Método:** Trata-se de um trabalho constituído através de um estudo descritivo, exploratório, por intermédio de uma revisão sistemática, utilizando estratégias qualitativas de pesquisa. Ao todo, nove artigos foram escolhidos, cujos critérios foram inclusão, exclusão e éticos. Posteriormente houve a leitura dos textos completos e descarte de conteúdos que fugiam da temática. Utilizou-se como base de dados a Biblioteca Virtual em Saúde e a PUBMED (Serviço da U. S. National Library of Medicine). **Resultados:** Verificou-se que os estudantes que tiveram contato com a temática Suporte Básico de Vida, por meio de simulações e questionários, se mostraram mais preparados para salvar vidas, prevenir acidentes e reduzir danos. Visto que, as emoções e o desenvolvimento de habilidades foram diretamente ligadas, pois, as emoções positivas contribuíram para maior adesão das informações e desenvolvimento de habilidades. **Considerações Finais:** Assim sendo, os estudantes entendem a relevância de abordar esse assunto e com treinamento contínuo nas escolas a longo prazo irá manter a expertise dos alunos, garantindo chances altas para salvar uma vida.

Descritores: Suporte básico de vida; Escolas; Ensino.

ABSTRACT

Objective: To investigate the relevance of the basic life support approach to students in public and private schools. **Method:** This is a work constituted through a descriptive, exploratory study, through an integrative review, using qualitative research strategies. In all, nine articles were chosen, whose criteria were inclusion, exclusion and ethical. Subsequently, the complete texts were read and contents that deviated from the theme were discarded. The Virtual Health Library and PUBMED (Service of the U.S. National Library of Medicine) were used as a database. **Results:** It was found that students who had contact with the theme Basic Life Support, through simulations and questionnaires, were more prepared to save lives, prevent accidents and reduce harm. Since emotions and skill development were directly linked, as positive emotions contributed to greater adherence to information and skill development. **Final considerations:** Therefore, students understand the relevance of addressing this subject and with continuous training in schools in the long term, students' expertise will be maintained, guaranteeing high chances of saving a life.

Descriptors: Basic life support; Schools; Teaching.

RESUMEN

Objetivo: Investigar la pertinencia del abordaje de soporte vital básico para estudiantes de escuelas públicas y privadas. **Método:** Este es un trabajo constituido a través de un estudio descriptivo, exploratorio, a través de una revisión integradora, utilizando estrategias de investigación cualitativa. En total, se eligieron nueve artículos, cuyos criterios fueron de inclusión, exclusión y éticos. Posteriormente, se leyeron los textos completos y se descartaron los contenidos que se desviaban del tema. Se utilizó como base de datos la Virtual Health Library y PUBMED (Service of the U.S. National Library of Medicine). **Resultados:** Se constató que los estudiantes que tuvieron contacto con el tema Soporte Básico de Vida, a través de simulacros y cuestionarios, estaban más preparados para salvar vidas, prevenir accidentes y reducir daños. Dado que las emociones y el desarrollo de habilidades estaban directamente relacionados, las emociones positivas contribuyeron a una mayor adherencia a la información y al desarrollo de habilidades. **Consideraciones Finales:** Por lo tanto, los estudiantes entienden la relevancia de abordar este tema y con la formación continua en las escuelas a largo plazo, se mantendrá la experiencia de los estudiantes, garantizando altas posibilidades de salvar una vida.

Descriptores: Soporte vital básico; Escuelas; Enseñanza.

Introduction

Basic Life Support (BLS), also known by the English term as Basic Life Support (BLS), is a set of actions performed on a victim of cardiorespiratory arrest, in order to increase the chances of survival. Its realization can be provided by volunteers, so that the subject to perform knows and understands the process to provide care appropriately.¹

Cardiorespiratory arrest (CRP) is established as a suspension of the electrical and mechanical activity of the heart muscle, converting the dynamism of the body into stagnation and generating a total structural crisis², thus, the BLS in the face of CRP, in addition to requiring skill and efficiency in the conduct, it is essential that a quick approach be made to the patient, since, after 10 minutes in CRP the body can suffer acidosis process and severe cellular dysfunction, especially of the vital organs (brain, heart, liver and lung) and consequently, the chances of survival fall drastically.³

With regard to quality care for BLS, survival chains are recommended for the necessary attitudes in a CRP, whether in the extra-hospital or in-hospital environment. Leading to extra-hospital cardiorespiratory arrest (PCREH), the chain is guided by six links: the first links include the BLS, activation of the emergency medical service; high-quality cardiopulmonary resuscitation (CPR); and defibrillation with the automated external defibrillator (AED).⁴

For basic support to begin to be provided, it is extremely important that students recognize that there is something wrong going on in the environment in which they are inserted, since about 50% of CRP cases are attended by an adolescent or child without an adult nearby.⁵ In addition, elementary school students because they are older, they can have a better perception of what a PCR is, as well as some can have a prior notion of the action that will need to be performed.⁶

Some know that cardiorespiratory arrest is that the heart stops beating, others that it is when the person stops breathing and the minority knows that it is when both stop doing their function and another part does not know what it is. Referring to the attitude that should be taken during the PCR, most understand that they need to call a responsible or call for emergency.⁷

The inefficiency of schools in relation to the first actions to be taken in these cases is great, because most of the people who are present do not know, do not feel safe to provide the first care, or are very nervous and end up not having the most rational question that the situation requires.⁸

As for the theoretical degree, some know what it is about and what to do. This deficit occurs because schools do not invest in measures and professionals to teach to spread the necessary knowledge about basic life support to teachers, students and other employees.⁸

Schools should use their space to teach about health education, so that students can acquire knowledge and skills and thus master what to do in cases of CRP and provide appropriate care. Activities, simulations and lectures are pertinent didactic means to assist students and teach, considering that the guidelines of the American Heart Association (AHA) emphasize the need for BLS training for the general public and its inclusion as mandatory in the school curriculum.⁹

The learning of basic life support is of paramount importance for everyone, including students, which is a public more susceptible to witness certain emergency situations, such as even a simple choke, so knowledge leaves them able to achieve a better resolution.¹⁰

It is worth mentioning that the national congress in 2015 proposed a bill (PL 2822/15) that would add to the Law of Guidelines and Bases of National Education (Law No. 9394/96) the mandatory training of teachers and students in first aid techniques (PS)¹¹⁻¹². Later in the year 2018 Law No. 13722/18, known as Lucas Law, requiring training in basic notions of PS of teachers and employees of basic education education. The fact is that despite these initiatives, their applicability remains unproductive, since PL 2822/15 was filed and Law No. 13722/18 does not contain express repeal.

In view of this, public institutions, despite having the resources to enrich the unit, lack management related to health promotions, with about 82% of public school students being low-income students, whose lack access to knowledge, learning and practice of certain issues external to the school grid, especially directed to the BLS¹³. Given this, how relevant would be the qualification of these students in public schools focused on BLS?

In this sense, this article aims to investigate the relevance of the basic life support approach to students in public and private schools.

Method

The present work followed the principles of descriptive and exploratory study, through a systematic review, which is a research elaborated from material already published, consisting mainly of: books, magazines, publications in journals and scientific articles, newspapers, bulletins, monographs, dissertations, theses, cartographic material, with the objective of putting the researcher in direct contact with all material already written on the subject of the research.¹⁴

The guiding question: how relevant would be the qualification of these students in public and private schools focused on BLS?; was instructed by the PICO strategy (Chart 1) in which it is established by: Population (P); Intervention (I); Context of the result (Co).¹⁵

Chart 1- PICO Strategy. 2023.

Acronym	Definition	Aplication
P	Population	Students
I	Intervention	Knowledge of Basic Life Support (BLS)
Co	Context	Promotion of sapience

The study spanned a period of 10 months (October/2022 to June/2023). The following collections were used: LILACS (Latin American and Caribbean Literature in Health Sciences); BDENF (Nursing Database); SCIELO (Scientific Electronic Library Online); MEDLINE (International Literature of the Medical and Biomedical Area), present within the VHL (Virtual Health Library) database and PUBMED (U.S. National Library of Medicine Service).

According to the VHL platform, a total of 16 (sixteen) articles were found using the following keywords as descriptors: "Basic Life Support",

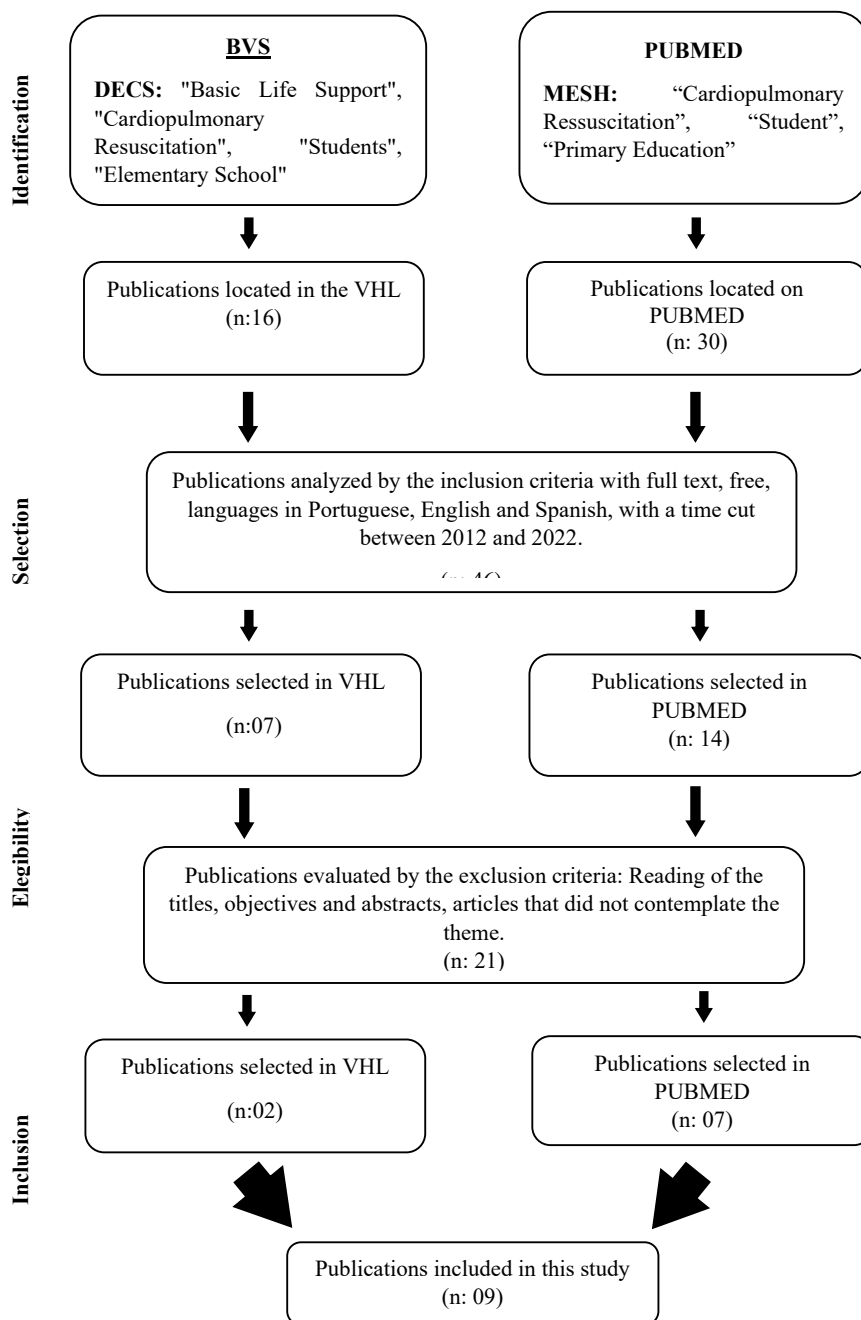
"Cardiopulmonary Resuscitation", "Students", "Students", "Elementary School", selected by the Health Sciences Descriptors (DECS). According to the PUBMED database, 30 (thirty) articles were found with the descriptors: "Cardiopulmonary Resuscitation", "Student", "Primary Education", selected by the Health Sciences Descriptors (MESH). In both databases, the Boolean operator "AND" was crossed.

The inclusion criteria for study adherence were: articles published in full in full and free texts, documents present in the languages Portuguese, English and Spanish, published between the years 2012 to 2022, studies with students who refer to studying between elementary school and high school and articles that contemplated research with qualitative strategies. In view of the implementation of these criteria, according to the applicability of the PRISMA strategy, within the VHL were found 07 (seven) articles, already direct from PUBMED, were identified 14 (fourteen) articles.

The exclusion criteria used for agreement of the study were: reading of the titles, reading of the objectives and abstracts, studies that brought only the qualification of teachers or training provided to university students. In view of the exclusion criteria, 02 (two) articles remained in the VHL and within the PUBMED, a total of 07 (seven) articles were found. Totaling 09 (nine) articles that will be analyzed by this work, in which its synthesized selection is presented in Figure 1.

The present study did not need to be submitted to the Ethics and Research Committee (CEP), since it does not involve humans and animals directly or indirectly, respecting the principles of Resolution 466/12 of the National Health Council (CNS)¹⁶. There was a commitment to cite the authors in compliance with Law No. 9,610, of February 19, 1998¹⁷, which regulates copyright. Thus, all the authors cited are properly referenced, used in the study respecting the Brazilian Regulatory Standard (NBR 6023) which provides for the elements to be included and guides the compilation and production of references.¹⁸

Figura.1-Search selection of studies: PRISMA flowchart, Salvador, BA, 2023.



Results

Regarding the investigation and analysis of the selected works, the age of the adolescents who participated in the respective studies is between 07-19 years, and they are distributed between the 5th year of elementary school to the 3rd year of high school in public and private schools. The low level of knowledge and skill in BLS refers to the need to insert training continuously for fixation and explanation of learning directed to PCR, and its main results are directed in Chart 2.

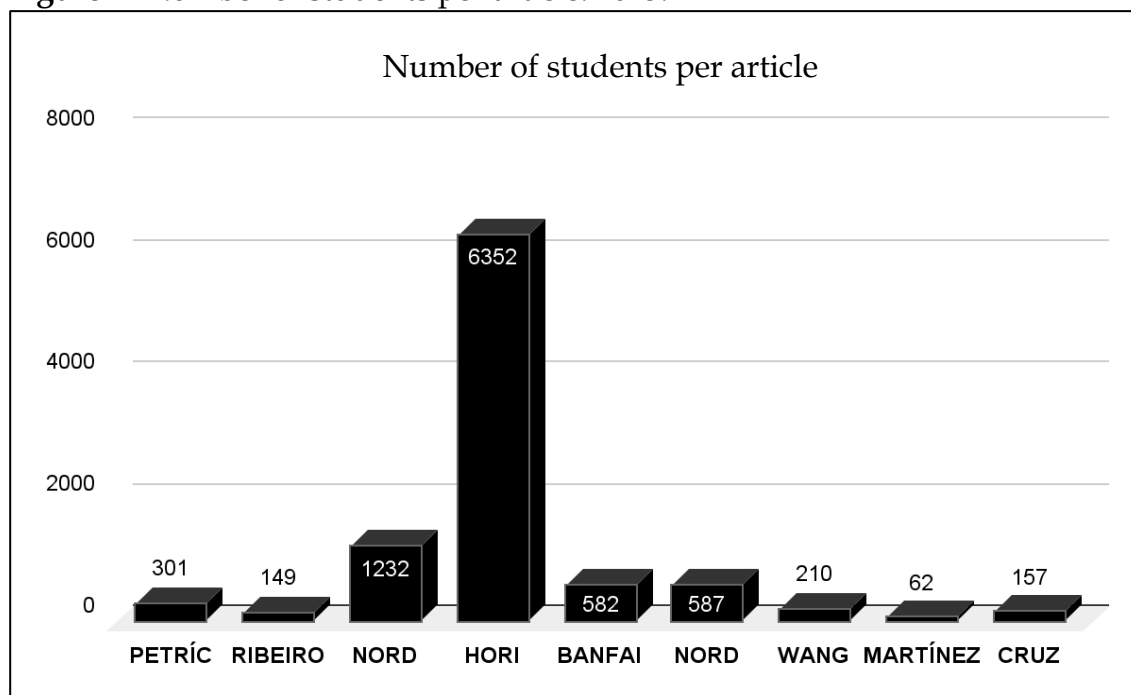
Chart 2- Synthesis of information on the studies included in the Systematic Review, Salvador, BA, 2023.

N	Author/ Year/Periodical/Country	Title	Methodology and Main results
01	PÉTRIC et al. 2013. Croatian Medical JournalCroatia	Students' and parents' attitudes toward basic life support training in primary schools	Quantitative study with the application of a questionnaire. The results were analyzed using SPSS, version 19. The questionnaires were answered by 301 students and 361 parents. The attitude of the students was significantly more positive than that of the parents (U=29.7, P<0.001). The greatest fear perceived by the students in relation to the application of BLS was of harming the person who needed BLS.
02	RIBEIRO et al. 2013. Brazilian Society of Cardiology. Brazil.	Medical Students Teach Cardiopulmonary Resuscitation to Elementary Students	Experience report. Results: Preadolescents can influence parents and motivate behavioral changes, considering that the teaching of CPR encourages discussion about the risk factors of cardiac arrest and how this can prevent it
03	NORD et al. 2016, BMJ Open, Switzerland.	Effect of mobile application-based versus DVD- based CPR training on students' practical CPR skills and willingness to act: a cluster randomised study	Randomized cluster study with 1,232 seventh graders. The willingness to act and the practical skills of CPR were evaluated after 6-month training. Referring to CPR skills, it was found that the DVD-based group that had 50 min to perform the test was superior and presented better performance. After 6 months of training, both had improvement in compression depth from baseline to follow-up.
04	HORI et al. 2016. J- STAGE, Japan.	Cardiopulmonary Resuscitation Training in Schools: A Comparison of Trainee Satisfaction among Different Age Groups	This is an observational study that took place over 3 years. The results showed that students aged 10 to 11 responded better to BLS training than students aged 12 to 16.
05	BANFAI et al. 2017. Emergency Medicine Journal. Hungary	The year of first aid': effectiveness of a 3-day first aid programme for 7- 14-year-old primary school children	Quantitative study of longitudinal cohort, with school students. According to the data collection, there was notably a low level of knowledge and ability in BLS and the other situations exposed to the students. After the training the knowledge and skill improved significantly in all categories and remain still after 4 months.
06	NORD A et al. 2017.BMJ Open. Sweden	Effect of two additional interventions, test and reflection, added to standard cardiopulmonary resuscitation training on seventh grade students' practical skills and	A randomized cluster trial. At 6 months, groups T and O scored 32 (3.9) and 30 (4.0) points, respectively (p<0.001), while the RT group scored 32 (4.2) points (not significant when compared to T). There were no significant differences in willingness to act between groups after 6 months.

		willingness to act: a cluster randomised trial	
07	WANG et al. 2021 Emerg Med Int, Republic of china/ Taiwan	Learning Effectiveness Assessment between Primary School Students and Adults in Basic Life Support Education	This is a retrospective study with students of the sixth grade of elementary school. There was a difference in scoring and statistics in the pre- and post-test, but there was no statistical difference in the quality of CPR and in the knowledge of the AED.
08	MARTÍNEZ et al. 2021 Medicine (Baltimore)	Basic life support training programme in schools by school nurses: How long and how often to train?	62 students were evaluated and trained for 4 months in a quasi-experimental cohort study. After the training there was an improvement in the results, regarding the performance of the BLS sequence, use of the automatic external defibrillator, quality of chest compressions and ventilations, except for the evaluation of the 10-second breathing evaluation technique and the quality of CPR.
09	CÁRDENAS-CRUZ et al. 2021. European Review for Medical and Pharmacological Sciences. Spain.	Adapting evaluation method of skills acquisition in basic cardiopulmonary resuscitation among year 5 and year 6 primary school pupils during the COVID-19 lockdown: a pilot study	Longitudinal descriptive study. 60% of the students responded positively, the skills that were acquired most effectively were: 1) knowledge of the anatomical site where cardiac massage should be applied; 2) knowledge of the emergency phone number to call and how to make the call; 3) knowledge of how long to continue CPR. After evaluating the training and questionnaire, they showed a high level of skill acquisition and good self-perception of their ability to act in a PCR situation.

Discussion

The present study was analyzed by nine studies, with a total of 9,632 students evaluated, in which dissimilar amounts of students were used throughout the analysis, given the teaching methods and limitations of each investigation. In view of all the articles analyzed, the amount of students is described. (Figure 2).

Figure 2- Number of students per article. 2023.

In view of the above, the divergence in student participation occurs previously due to the time of training and study, considering that the large number evaluated took the course in three years¹⁹, while another study occurred in only four months²⁰. The figure shows information only on the participation of students, not applying the amount of teachers.

Everything that is learned is influenced and organized by emotions, involving expectations, preferences and self-esteem²¹. In this way, emotions in the learning process can safely stimulate students' abilities, allowing greater confidence and self-efficacy to emerge in the accomplishment of the instructed assignment.²² Proof of this is that the feelings and emotions witnessed by the students in each experimental analysis converted from pre-training fear and insecurity to greater post-training confidence and security. Being reported by researchers¹⁹, elementary school students felt pleasure during the practice, generating positive emotions, in which consequently a high achievement potential was obtained at the time of their evaluation.

The opposite is also true, since high school students portrayed not having the same pleasure during training, directly impacting on the execution of their skills, having a significant drop in their results in relation to students with positive emotions¹⁹.

In the analysis of this study it was seen that the school environment can contribute a lot to the learning of BLS, in view of this, there was the inclusion of training in schools in order to prepare students for possible occurrences, to know the degree of knowledge and skills of the same. The students were evaluated and acquired this learning and practice through monitoring, questionnaires, training and the technique of seeing and practicing.^{19,20,23-28}

It was noticeable that after the didactics, in addition to the increase in theoretical and practical skills and knowledge, there was also a greater desire for training and training in BLS. In this way it is visible the effectiveness of training

in schools, the sharing of theoretical content and the positive impact it causes in the lives of students, whether to make use of what they have learned inside or outside schools.^{19,20,23-28}

The authors' approach focused on the theme of BLS training programs was similar, emphasizing the importance of bringing this subject to the students so that they begin to better understand what it is about and leave the training prepared to provide adequate help when they are faced with an emergency situation.^{19,20,23-28}

Each training uses the time that will be necessary and effective for training the students, so there was a variation in the training time in each school. Some used hours²⁸, others chose to use days²⁴, but the vast majority preferred to do a training between 4 to 6 months and after that they do the pre and post test method to be able to make an analysis of the learning and skills acquired²³.

As previously exposed, the training in BLS for school-age children, most of the articles bring the information that all students were evaluated according to their anthropometric characteristics, so students under 12 years of age are not able to perform quality chest compressions, because they cannot reach the adequate depth. Precisely because of their weight and height, although they perform the step by step correctly¹⁹⁻²⁰.

Elementary students have the ability to learn, retain information, knowledge and ability to reproduce the maneuvers that were taught throughout the training, and has the influence of their naivety, was noted enthusiasm in learning BLS, however, from 13 years was considered the ideal age to be able to perform compressions effectively. Thus, they were able to instruct the younger students in the future, until they were able to perform the compressions as expected.^{20,23,27,28}

A percentage of the students claimed that they felt more confident to act in a situation of cardiac arrest, after the training received, most answered the questionnaire made that they would perform the cardiac massages and compressions if a friend suffered CRP, in relation to a stranger, some felt more fearful, but there was not so much difference between the results obtained in both cases.²³

An individual's self-efficacy can affect a person's performance. Self-efficacy refers to a person's confidence in their own ability (not in the actual capacity) in a given situation²⁹. The experiences collected between the articles suggest the relevance of continuously addressing the teaching of BLS in schools, taking into account that students' knowledge drops in intensity as they were reassessed months later in post-test. Since repetition reinforces memories, recruiting more and more nervous circuits to reinforce storage³⁰. That said, it is explicit that long-term continuous training will maintain students' expertise, ensuring high chances to save a life³¹.

Different methodologies reached the same common denominator, which occurred in the greater efficiency of the students after the trainings. However, in this study it was not possible to measure which method obtained greater efficacy. Only 11% of the study corresponds to research conducted in Brazil, for this reason, the data presented help to guide new studies and do not suggest that they are used as distinct strategies in Brazilian schools. Given the methodology used in a systematic review, this study is unable to perform investigations and process data involving direct contact with humans.

Final Considerations

According to the scientific literature, basic life support is measures taken immediately outside the hospital environment according to the patient's need at that moment, such as avoiding aggravation of injuries, maintaining stability of vital signs, performing quality CPR, thus, according to the knowledge acquired, everyone becomes able to act responsibly with the situation exposed.

Conditioned by the active methodologies applied in each school, students from public and private schools report having obtained confidence and courage to successfully address the situation in PCR. Being that the emotions and the development of skills are directly linked, therefore, the positive emotions were important relation for the development of skills. Elementary school students have characteristics of greater learning and replication of information, even so, students under 12 years of age were unable to perform compressions with the appropriate depth, related to their anthropometric measurements, however, with regard to theoretical knowledge, it was the age below 12 years with better results.

That said, learning about BLS is of paramount importance for the whole society, population, regardless of age, level of education, social class, because knowledge gives more chances of survival to the patient, especially in schools and / or colleges, which are institutions more conducive to events like this, therefore, the ability to help the other is enrichment for oneself and for society.

Therefore, the more studies, research, ways to multiply this knowledge and training for students, will be extremely relevant to their experience inside and outside the school, generating a positive impact on their lives and making them more prepared and safe for any situation that may happen.

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