FIRST AID: OBJECT OF HEALTH EDUCATION FOR TEACHERS**PRIMEIROS SOCORROS: OBJETO DE EDUCAÇÃO EM SAÚDE PARA PROFESSORES****PRIMEROS AUXILIOS: OBJETO DE LA EDUCACIÓN PARA LA SALUD PARA PROFESORES**

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ABSTRACT

Objective: to evaluate the impact of first-aid education under the knowledge and skills of teachers. **Method:** a bibliographical study, descriptive, integrative review type, with search of articles between the months of November and December 2017, in the databases LILACS, BDENF, and MEDLINE, using the descriptors in Health Sciences School Teachers, First Aid, and Health Education. **Results:** there were included seven studies, published between the years 2008 to 2017. Although it is not notice a pattern of intervention methods in the studies analyzed, the pre-intervention testing showed lower results in relation to the post-intervention tests, which, in their time, presented significant improvement in the average of correct replies. **Conclusion:** the teaching of first aid in health education positively impacts the levels of knowledge and skills of schoolteachers. **Descriptors:** School Teachers; First Aid; Health Education; School Health; Knowledge; Early Intervention.

RESUMO

Objetivo: avaliar o impacto do ensino de primeiros socorros no conhecimento e habilidade de professores. **Método:** estudo bibliográfico, descritivo, tipo revisão integrativa, com busca de artigos entre os meses de novembro e dezembro de 2017, nas bases de dados LILACS, BDENF e MEDLINE, utilizando-se os descritores em Ciências da Saúde *School Teachers*, *First Aid* e *Health Education*. **Resultados:** foram incluídos sete estudos, publicados entre os anos de 2008 a 2017. Embora não se observe um padrão de métodos de intervenção nos estudos analisados, os testes pré-intervenção revelaram resultados inferiores em relação aos testes pós-intervenção que, por sua vez, apresentaram melhoras significativas na média de respostas corretas. **Conclusão:** o ensino de Primeiros Socorros como objeto de educação em saúde impacta positivamente os níveis de conhecimento e habilidade de professores escolares. **Descritores:** Professores Escolares; Primeiros Socorros; Educação em Saúde; Saúde Escolar; Conhecimento; Intervenção Precoce.

RESUMEN

Objetivo: evaluar el impacto de la enseñanza de primeros auxilios en el conocimiento y la capacidad de los docentes. **Método:** un estudio bibliográfico, descriptivo, del tipo de revisión integradora, con búsqueda de artículos entre los meses de noviembre y diciembre de 2017, en las bases de datos, LILACS, BDENF y MEDLINE usando los descriptors en Ciencias de la Salud en inglés: *School Teachers*, *First Aid* e *Health Education*. **Resultados:** se incluyeron siete estudios, publicados entre los años 2008 a 2017. Aunque no es aviso de que un modelo de métodos de intervención en los estudios analizados, las pruebas de intervención mostraron resultados inferiores en relación con las pruebas después de la intervención, que, en su momento, presentaron una mejoría significativa en el promedio de las respuestas correctas. **Conclusión:** la enseñanza de primeros auxilios en educación para la salud afecta positivamente los niveles de conocimiento y habilidad de los maestros. **Descriptores:** Maestros; Primeros Auxilios; Educación en Salud; Salud Escolar; Conocimiento; Intervención Precoz.

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INTRODUCTION

Define First Aid (FA) as the provision of immediate care to victims of accident or sudden illness, in situations where their physical condition is life threatening. In these cases, the rescuer should keep the vital functions and prevent further status of the victim, until the arrival of specialized assistance.^{1,2}

Any trained person can perform the first service; it is not a private action of the health professionals.³ Although there is a spread in the literature of the idea that knowledge and education about FA are restricted to these professionals or those entered the universities.^{4,5}

In Brazil, accidents are the leading cause of death among children aged 1 to 14 and,⁶ in the school environment, these occurrences come assuming a constant concern,⁷ since have been described in the literature, most often in day care centers and preschools, between the aged 0 to 6.⁸

In this context, the school environment appears as a warning to the occurrence of urgency and emergency situations. The possible victims students and teachers likely witnesses of these incidents, making them key pieces to intervene in these events, reducing complications and improving prognosis.⁹ So, teach and popularize FA practices are of fundamental importance in the school environment, especially from the figure of teachers.

Health education is a tool for the promotion of quality of life for joint scientific and popular knowledge. Actually instrumenting the layman and facilitating the incorporation of ideas and practices to everyday life, in order to meet their real needs.¹⁰ In FA, it assumes a key role, because the lack of knowledge of the population can result in numerous problems, such as incorrect handling of victims and the request, sometimes unnecessary help.¹¹

The importance of health education in FA is in need of care of victims who need immediate care and for the need of a quick and qualified assistance. It is understandable that the actions performed on the site of the occurrence of the event contribute to victim's survival.¹²

OBJECTIVE

- To assess the impact of first-aid education on the knowledge and skills of teachers.

METHOD

A bibliographical study, descriptive, integrative review type, held between the months of November and December 2017, covering studies indexed in the databases investigated until 1st December 2017. The integrative review is a research method, which allows the synthesis of multiple studies published, enabling general conclusions,¹³ directing future research,¹⁴ being the widest methodological approach regarding revisions.¹⁵

To do so, we followed by steps 1. Identification of the theme and selection of the research question; 2. Establishment of criteria for inclusion and exclusion; 3. Identification of pre-selected and selected studies; 4. Categorization of selected studies; 5. Analysis and interpretation of results; 6. Presentation of the review/knowledge synthesis.¹³

The guiding question of this study was: What is the impact of first-aid education on the knowledge and skills of teachers?

The search by the studies was conducted in the following databases: Latin American Literature and Caribbean Health Sciences (LILACS), Specialized Bibliographic Database in the area of Nursing (BDENF) and MEDLINE (Medical Literature Analysis and Retrievel System Online), through the Virtual Health Library (VHL). It was the combination of the Health Sciences Descriptors (DeCS) in English: School, Teachers, First Aid, and Health Education, separated by the Boolean operator AND. Opted by the use of descriptors in English, to expand the results, when compared to the amount of studies rescued from their Portuguese and Spanish translations. This strategy did not excluded studies published in Portuguese and Spanish, as it is observed in the results, avoiding the excessive rescue of publications in duplicate.

Established as inclusion criteria, scientific articles available in the databases referred to above, in full, in Portuguese, English, or Spanish, to provide familiarity and relevance with the object of study and the guiding question. There was no timeframe. Deleted duplicates, previous notes publications, editorials, letters to the editor, reflective studies, reports of duplicate publications and experience.¹⁶

Obtained a sample of 96 publications available since 2 number by BEDENF; 14 by LILACS and 75 by MEDLINE. Which were submitted to reading their titles and abstracts, and those identified as relevant

(12), there were read in their entirety in order to confirm the inclusion. There were selected 6 publications, which were submitted for careful review of their references, where

we sought to identify new studies that have not been covered (1 publication) from the above search strategy. As the following flowchart (Figure 1).

Figure 1. Flowchart for selection of the studies included in the review-Maceio, AL, Brazil, 2017.

The extraction of the data, the studies included in the review, there was conducted, from descriptive instrument drawn up in Microsoft Word®, which contemplated the study title, year of publication, country of origin, purpose, main findings, and conclusion of the studies. Have the summary of the findings was in descriptive form including objectives of studies, sample, main results pre-intervention, intervention method, main findings post-intervention and conclusions.

The studies selected were classified in levels of evidence, namely: 1-level meta-analysis of multiple controlled studies; 2-level self-study with experimental design; 3-level study with quasi-experimental design study without randomization with pre and post-test single group, time series or case control; 4-level study with non-experimental design as descriptive correlational and qualitative research or case studies; 5-level report of cases or data obtained in a systematic manner, verifiable quality or program evaluation data; 6-level opinion of reputable authorities based on clinical competence or opinion of the expert committees, including interpretations of the research-based information.¹⁷

RESULTS

There were included seven English language studies (N = 4), Portuguese (N = 2) and Spanish (N = 1), published between 2008 and 2017. Of these, we identified publications originating from Brazil (N = 3), China (N = 1), Spain (N = 1), India (N = 1) and Kuwait (N = 1). These publications had as objective the assessment, identification or verification of the level of knowledge or skill of schoolteachers (professionals responsible for

the education in children’s schools until high school), before and after intervention of health education. The objective was to instrumentalize them to adequate allowance of FA, evaluating the impact of this on various subjects (first aid in general and directed at specific situations - epilepsy and tooth avulsion). In the study, samples were evaluated ranging between 15 and 1067 teachers, being isolated or in comparison to other professional groups.

Figures 1 and 2 present the synthesis of the studies included in this review, as well as its main results, intervention method and conclusions.

Authors	Level of evidence	Objective	Sample	Method
Calandrim Santos Oliveira Massaro Vedovato Boaventura, 2017 ¹⁸	LF, AB, LR, LG, CA, AP, III	Assess the knowledge of faculty and staff about first aid training.	N = 29*	Information about first aid course taught by researchers, with total duration of 2 hours.
Martin RA, 2015 ¹⁹	III	Evaluate the increase in the level of knowledge of first aid of teachers, after an educational intervention.	N = 15	Theoretical-practical intervention for a week, with duration of 4:00/day.
Goel S, Singh Lal V, Singh A, 2014 ²⁰	N, III	Check the knowledge and practices of teachers in relation to epilepsy and estimate the impact intervention on epilepsy in teachers' knowledge and practices.	N = 85	Series of workshops on the management of first aid in epilepsy.
Li F, Sheng Zhang J, Jiang F, Shen X, 2014 ²¹	X, III	Evaluate the effects of first aid training in Pediatrics among teachers.	N = 1067	Paediatric First aid Training for Caregivers and Teachers (PedFACTs), having eight subjects were approached during 4 hours each.
Frujeri Costa Junior, 2009 ²²	MLV, ED, III	Assess the knowledge of different professionals on the management of tooth avulsion, investigating the level of training of those on this subject and the influence of oral health education in emergency management of tooth avulsion. ²¹	N = 102*	Lecture.
Fioruc BE, Molina AC, Júnior WV, Lima SAM, 2008 ¹¹	III	Identify the level of knowledge of the Faculty and staff of the municipal schools of basic education, pre and post training of first aid.	N = 63**	Training on notions of attendance in urgent and emergency situations.
Al-Asfour Andersson L, Al-Jame Q, 2008 ²³	A, III	Assess the level of knowledge about emergency measures for the tooth avulsion in Kuwaiti intermediaries teachers and determine whether a short lecture about tooth avulsion and replanted could improve the knowledge of teachers on this topic.	N = 74	Lecture of 30 minutes on tooth avulsion and redeployment.

Figure 1. Summary of the studies included in the review authors, contemplating level of integrative evidence, objective, sample, and method of intervention. Maceió (AL), Brazil, 2017.

The studies highlighted with an asterisk include a larger sample of subjects. Other professionals also, being possible the identification of results in each class of professionals, so, in this review there was considered for the sample participation of

teachers.^{18,22} The studies received two asterisks included in their sample teachers and other employees, being not possible to differentiate between occupational categories, nor the results by each professional class.¹¹

Study	Main results pre-intervention	Main results post-intervention	Conclusions
18	Average score of 19.43 points (maximum 180) concerning the ability and an average of 2.91 (maximum 10) points relating to knowledge.	After training, the average on skill was 9.17 points and knowledge 174.57 points.	The training is effective, with a significant increase in the percentage of hits after the completion of the course, with professional performance above 90.0% in ratings from the skill and knowledge in first aid in the school environment.
19	The average percentage of correct answers in the survey completed before the educational intervention was 38.6%, and 8 of the participants below	The average percentage of correct answers in the survey after the educational intervention was 76.2%, showing 6 participants below average.	The first aid knowledge presented by teachers, before they were disabled and, in general, all participants increase their knowledge after the intervention, showing a greater tendency on the acquisition of better results in female.

	that average.		
20	The average score, prior to the first-aid management was 1.01 when a child presents crisis at school (maximum 4 score); 0.20 for accident prevention (maximum score: 3); 0.29 for the management when the child becomes unconscious (maximum score 1) and 0.04 when the child falls after a crisis of the so-called "great evil" (maximum score: 1).	After intervention, the average score was 2.92 when a child presents crisis at school; 0.76 to prevent accidents; 0.62 for the management when the child becomes unconscious and 0.65 when the child falls after a crisis of the so-called "great evil".	There was a positive impact resulting from a short-term intervention about the knowledge and skills of teachers.
21	In phase 1, the pre-test period before training, 1,067 people responded with a 21.0 average accuracy of 37 correct answers questions.	In the post-test period (stage 2), the average reached 32.2. In stage 3 (6 months after training), stage 4 (9 months after training) and stage 5 (4 years after training), the average scores of pediatric first aid knowledge were 28.2 and 28.5, 26.6, respectively. There was a statistically significant decrease in the post-test scores for 6 months, 9 months, and 4 years after training.	This study demonstrated that the acquisition of knowledge in the short and long term improves significantly because of participation in PedFACTs and the findings suggest that, despite substantial decreases in long-term knowledge retention knowledge has been modest, but steady.
22	Before educational intervention, the proportion of correct answers was significantly lower when compared with post-intervention answers, for all groups.	The results showed that, for all the questions, the proportion of correct answers was significantly increased after the lecture, in addition, the analysis of specific groups showed a significant increase in correct answers after the lecture to the groups of teachers, physical education professionals, and employees of the bank, for all issues.	After the lecture, could significantly improve the likelihood that the correct measures are taken in cases of tooth avulsion.
11	On average, 37.26% of respondents, before the first aid training, did not know or be incorrect procedures.	In the post-training emergency lines in the various cases presented, this average increased to 83.31%.	It was found that most of the participants in the pre-training demonstrated an insufficient knowledge for performing procedures such as: external bleeding, seizures, fainting, nasal bleeding, tooth avulsion and rescue drive, but in post-training, the learning of the participants, considering that most demonstrated have obtained knowledge to first aid situations.
23	The number of teachers who have obtained adequate knowledge or full (2 and 3 scores) were low in all five categories (general knowledge in avulsion and replanting of primary and permanent teeth, tooth cleaning avulsed before replanting, extraoral time and storage methods a avulsed tooth).	Improving the level of knowledge of teachers was observed in all five categories. With regard to category general knowledge of avulsion and replanting of teeth, teachers with 2 and 3 scores improved from 39% to 97%. The level of knowledge for improvement of primary and permanent teeth rose from 8% to unbundled 71%. When it came to clean a tooth avulsed, improving the level of knowledge has increased from 5% to 93%. The level of knowledge of the importance of time	A lecture followed by discussion appears to be an effective method to increase the knowledge about dental trauma and how it can be treated.

Figure 2- Summary of the studies included in the integrative review contemplating major pre and post intervention results and conclusions. Maceió (AL), Brazil, 2017.

Not noted a pattern of intervention methods in the studies analyzed, being characterized as directed to teachers and educational moments referred to as course, theoretical and practical intervention, lecture, workshop or training. Already in relation to the duration, these educational interventions vary between 30 minutes and 20 hours.

Pre-intervention testing of all studies analyzed showed inferior outcomes post-intervention tests, which in their time showed significant improvement in the average of correct answers, when assessed knowledge or skills in FA. In conclusions, of all articles, pointed the effectiveness of educational interventions, improving knowledge and skills of teachers in identifying an accident, request help, perform CPR, use the automatic external defibrillator, act before situations of external bleeding, convulsions, fainting, nasal bleeding, musculoskeletal injuries, epilepsy and tooth avulsion. Points to need for programs that lead to health education in FA to school environment, given the mixed results observed.

Highlights that in the studies included in this review were, in their methodologies, different timelines for evaluation of knowledge or skills of the teachers after interventions, ranging from immediate assessments, evaluations after 2 months, 3 months, 6 months or 9 months, once to assess the subject until 4 years after the educational intervention.

DISCUSSION

Considering that, in the school environment, teachers have opportunities to witness the occurrence of urgency and emergencies and it is necessary to act;¹² it needs health education in FA with the intent to avoid the complications because of inadequate procedures and aiming at a better prognosis.⁷

Point levels of inadequate knowledge of schoolteachers before different situations that require understanding in FA,²⁴⁻⁶ aware for the need to guide them facing these techniques and studies to clarify the impact of these interventions. In Portugal, study identified that the majority of teachers surveyed knew

how to act in emergencies. However, showed a level of theoretical knowledge less than the operational knowledge. It means that the teachers had more operational knowledge than teoretical.²⁵ To evaluate the knowledge of teachers of elementary public state schools, in Brazil, it was noticed that most teachers participants have no knowledge about the procedures for immediate care in cases of tooth avulsion.²⁵ Before the little knowledge of schoolteachers in FA, in study in India, highlighted the importance of the implementation of educational programs for improving their levels of knowledge.²⁴

In this context, the studies examined in this review contribute to the understanding of the impact of educational interventions; direct the need for implementation of ongoing actions and further studies.

Through different methods of intervention, the studies discussed in this review showed positive results. Comparing to previous results to interventions; as noted the improvement in 90% of the subjects front the average performance for skills and knowledge after a face-to-face course of FA with duration of 2 hours.¹⁸ The average score before was 19.43 points (maximum 180) for skills and 2.91 (maximum 10) for knowledge. After training, the average for skills and knowledge was 174.57 and 9.17 points, respectively.

In another study, a theoretical-practical intervention during a week, lasting 4:00/day, found that participants increased their knowledge, previously classified as disabled.¹⁹ The average percentage of correct responses pre-intervention was 38.6%, and 8 of the participants below that average. On the other hand, the average percentage of correct answers was 76.2% post-intervention, leaving only 6 participants below average.

Using a series of workshops on the management of FA in epilepsy, in a study conducted with Indian teachers, it identified that there was a positive impact on the participants. It became evidenced by the increase in score after the intervention,²⁰ results similar to study in China.²¹ To assess its participants during four stages, in which the latter was after four years of training, it got stable knowledge retention. In the post-test period immediately, the averages reached

32.2. In stages 3 (6 months after training), 4 (9 months after training) and 5 (4 years after training), the average knowledge scores were 28.5 and 28.2, 26.6, respectively.

Brazilian study also identified positive results at the time of post-intervention¹¹. Earlier, on average, 37.26% of respondents did not know nor did incorrect procedures. After intervention, this average increased to 83.31%. These teachers received training on concepts of care in urgent and emergency situations. Brazilian researchers observed that a talk influences positive results as regards the first attendance in cases of tooth avulsion. Still evaluating the ability of teachers to act in situations involving dental trauma, a study conducted in Kuwait is also used as a method of intervention a lecture.²³ In this study it was obtained high scores compared to knowledge pre-intervention.

The sample of teachers of the studies included in this review ranged between 15 and 1067 teachers. The assessment of skills and knowledge in isolated groups of teachers or as compared to other professional groups advancing to the broad understanding of the phenomenon studied. The study that included the largest sample,²¹ also assessed knowledge retention in the long term.

It should be noted that there has not been a pattern of educational interventions applied to studies evaluated, not even a comparison of different methodologies, ranging from a lecture, use of technological resources such as computer, projector and screen, with duration of 30 minutes,²³ until greater duration course with total hours 20 hours.¹⁹

In this context made it impossible for state which of the methodologies discussed educational interventions and applied on selected studies became more effective in retention of knowledge or skills, making necessary subsequent studies comparing different methodologies. However, health education must be observed with closest approach, considered the variables that can influence it. Among these variables, the availability of materials that can be used as a pedagogical resource is very important. It contributes to the formation and training of teachers.⁹ The school environment, background in all studies, makes a positive contribution in this process since it is an important area of health education, to enable to educate through the construction of knowledge resulting from the confrontation of different knowledge.

Also required, reflect on the types of educational interventions with greater depth. The studies analyzed captured these

educational moments as course, theoretical and practical intervention, lecture, workshop, or training, with variable length. These training events and training have some specifics that should be considered by professionals and researchers the methodological design of their intervention.

The workshop is an English term used to define a date back to learning in which an expert talks about a particular subject and can introduce new techniques, through previously established topics.^{27,28} The intention is combining theory and practice, promoting the improvement of participants. The best use of a workshop is aligned to the number of participants; whose maximum recommended that is approximately 30 participants.²⁷⁻⁸

We recommend the duration of 8 to 30 hours total, whose programming must consider the demands of training specified, the profile of the participants, the availability of time, the local infrastructure, and the profile of the instructors or monitors that will facilitate the meeting. It is necessary to emphasize that care in the choice of instructors/leaders is of fundamental importance to the success of the initiative.²⁸

Lectures are educational and character exhibition events, characterized by the presentation of a subject by a specialist to a group of people with common interests, with the goal to provoke reflection, inform and update participants on the topic. At the end, participants can develop questions about the subject. The length should be approximately 1 hour, with the prediction of a time for questions, and may be single or structure in a cycle of lectures.²⁷⁻⁸

Courses are defined as presentation of topics and practical exercises for enabling and improvement of individuals. The duration may vary depending on the content, the availability of the instructors and time. Already the programming, in addition to the requirements mentioned above, must take into account the demands of training listed and the local infrastructure. Again care must be taken in the choice of teachers/leaders is crucial to the success of the initiative.²⁷⁻⁸

Highlights that vague descriptions and use of generic terms regarding the method of intervention, observed in studies, not favored the analysis and measurement of the impact of educational activities are best suited to the promotion of knowledge and skills of teachers assessed. This point should be treated as a warning for subsequent studies.

CONCLUSION

First aid education, as the object of education in health, influences positively on the levels of knowledge and skill of schoolteachers, as well as the retention of the teachings on the subject. The studies justify the need and effectiveness of continuous educational activities still in the school environment. In this way, should encourage future studies that explore the topic, providing scientific basis, instruments, and tools for these practices, improving their effectiveness, and encouraging professionals to dedicate themselves to this activity. Having in mind the impossibility of completing what methodology was more effective in improving knowledge and skills of teachers, suggested further studies to investigate clearly the effectiveness of different approaches.

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