

Educational intervention in first aid for early childhood education professional: a quasi-experimental study

Intervenção educativa em primeiros socorros para profissionais da educação infantil: um estudo quase experimental

Intervención educativa en primeros auxilios para profesionales de la educación infantil: un estudio cuasiexperimental

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ABSTRACT

Objective: To evaluate the effect of a first aid educational intervention on the aptitude, knowledge, and practices of professionals in early childhood education.

Method: Quasi-experimental study of the pre and post-test type carried out in the Brazilian municipality of Três Lagoas, MS. It was developed in three stages: 1) application of an online instrument to assess aptitude, knowledge, and practices about situations that require first aid; 2) educational intervention, with four theoretical meetings online and a face-to-face meeting with practical training; 3) reapplying the questionnaire. Data were analyzed using the McNemar and Bowker tests with a significance level of 5%.

Results: 112 professionals participated. After the educational intervention, there was an increase in the number of correct answers for all questions related to the professionals' feeling of aptitude for all urgent and emergency situations evaluated ($p \leq 0.05$); knowledge regarding concepts related to first aid ($p \leq 0.05$); and practices in situations requiring first aid ($p \leq 0.05$).

Conclusion: The educational intervention provided a significant improvement in the aptitude, knowledge, and practices of the participants. In this way, the relevance of educational actions on this theme is verified, emphasizing the importance of intersectoriality, in which health and education professionals articulate strategies to optimize first aid training actions.

Descriptors: Health education. Accident prevention. School health services. Teacher training.

RESUMO

Objetivo: Avaliar o efeito de uma intervenção educativa de primeiros socorros na aptidão, conhecimento e práticas de profissionais da educação infantil.

Método: Estudo quase-experimental do tipo pré e pós-teste realizado no município brasileiro de Três Lagoas, MS. Foi desenvolvido em três etapas: 1) aplicação de instrumento online para avaliar aptidão, conhecimento e práticas diante de situações que necessitam de primeiros socorros; 2) intervenção educativa, com quatro encontros teóricos online e um presencial com simulações práticas; 3) reavaliação. Os dados foram analisados utilizando os testes de McNemar e Bowker, com nível de significância em 5%.

Resultados: Participaram 112 profissionais. Após a intervenção educativa, houve aumento no número de acertos de todas as questões relacionadas ao sentimento de aptidão dos profissionais para todas as situações de urgência e emergência avaliadas ($p \leq 0,05$); ao conhecimento em relação aos conceitos relacionados aos primeiros socorros ($p \leq 0,05$); e às práticas em situações que necessitam de primeiros socorros ($p \leq 0,05$).

Conclusão: A intervenção educativa proporcionou melhora significativa na aptidão, conhecimento e práticas dos participantes. Dessa forma, verifica-se a relevância das ações educativas sobre essa temática, ressaltando a importância da intersetorialidade, em que profissionais da saúde e da educação articulam estratégias para otimizar as ações de formação em primeiros socorros.

Descritores: Educação em saúde. Prevenção de acidentes. Serviços de saúde escolar. Capacitação de professores.

RESUMEN

Objetivo: Evaluar el efecto de una intervención educativa en primeros auxilios sobre las aptitudes, conocimientos y prácticas de los profesionales de la educación infantil.

Método: Estudio cuasiexperimental pre y postest realizado en el municipio brasileño de Três Lagoas, MS. Se desarrolló en tres etapas: 1) aplicación de un instrumento en línea para evaluar aptitudes, conocimientos y prácticas en situaciones que requieren primeros auxilios; 2) intervención educativa, con cuatro encuentros teóricos online y uno presencial con simulaciones prácticas; 3) reevaluación. Los datos se analizaron mediante las pruebas de McNemar y Bowker con un nivel de significancia del 5%.

Resultados: Participaron 112 profesionales. Después de la intervención educativa, hubo aumento en el número de respuestas correctas para todas las preguntas relacionadas al sentimiento de aptitud de los profesionales para todas las situaciones de urgencia y emergencia evaluadas ($p \leq 0,05$); conocimientos sobre conceptos relacionados a primeros auxilios ($p \leq 0,05$); y prácticas en situaciones que requieren primeros auxilios ($p \leq 0,05$).

Conclusión: La intervención educativa proporcionó una mejora significativa en las aptitudes, conocimientos y prácticas de los participantes. De esta manera, se verifica la relevancia de las acciones educativas sobre este tema, destacando la importancia de la intersectorialidad, en la que profesionales de la salud y la educación articulen estrategias para optimizar las acciones de formación en primeros auxilios.

Descriptores: Educación en salud. Prevención de accidentes. Servicios de salud escolar. Formación del profesorado.

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■ INTRODUCTION

First aid aims at the recovery or maintenance of the vital functions of the individual who presents a clinical or traumatic event, through immediate measures provided to the victim⁽¹⁾. Many of these events are emergencies, in which the first care provided becomes essential for the outcome favorable to the patient's life⁽²⁾.

All places where people move and live together are conducive to first aid. Notwithstanding, the school context presents itself as a space where scenes of trauma and clinical complications frequently occur that require the presence of people capable of Basic Life Support (BLS)⁽³⁾.

Injuries are a leading cause of childhood morbidity and mortality globally⁽⁴⁾. A study carried out in the Brazilian capitals showed that schoolchildren between zero and 19 years old represent 45.7% of consultations for external causes in emergency services⁽⁵⁾. As children spend part of the day in schools, there have been concerns about building a safe and healthy environment in preschools⁽⁶⁾.

Even so, teachers' knowledge of first aid demonstrates a wide theoretical deficit⁽²⁾. Approximately one-third of the teachers participating in a study said they had not taken a discipline corresponding to first aid during graduation, a context that provides an aggravation to attend to trauma and other urgent emergencies in the school environment⁽⁷⁾.

This data demonstrates the importance of better-prepared teachers and collaborators for first aid care, making them an essential part of assisting children and adolescents who are victims of accidents in the school environment, seeking to reduce complications and improve prognosis⁽⁷⁾. Recent studies have shown that educational interventions on first aid in schools are effective in increasing the knowledge and practices of teachers on the topic⁽⁸⁻¹²⁾.

Thus, given the demands related to first aid in educational institutions, effective training on the subject must be promoted for the professionals of these institutions, which must be done in an interprofessional manner and with a theoretical and practical approach, so that they can develop the ability to act safely and appropriately in the face of emergencies⁽⁵⁾.

First aid training in schools is incipient in developing countries⁽¹¹⁾ such as Brazil, which reinforces their importance. We hypothesized that a theoretical-practical intervention on first aid will improve the aptitude, knowledge, and practices of professionals in early childhood education and, consequently, improve the performance of first aid procedures for victims of accidents in the school environment.

This study aimed to evaluate the effect of a first-aid educational intervention on the aptitude, knowledge, and practices of professionals in early childhood education. The study's differentials are the assessment of aptitude, knowledge, and practices; as well as the realization of a theoretical-practical intervention.

■ METHOD

Design

This is a quasi-experimental study of the pre and post-test type, evaluating a single group, with a quantitative approach. This type of study is characterized by performing an intervention, but without randomization or a control group, applying a test to the participants before and after the intervention in order to assess its effectiveness.

The constructs evaluated were aptitude, knowledge and practice. Aptitude was assessed in order to know whether the person felt prepared to provide first aid in an urgent and emergency situation⁽¹³⁾. Knowledge is the state of being familiar with some concept, it arises especially from learning and training and is based on practice⁽¹³⁻¹⁴⁾. The practice considered the initial management of children in an urgent and emergency situation⁽¹⁵⁾.

Ethics approval

The project was approved by the Human Research Ethics Committee of the (CAAE 20536919.5.0000.0021; nº 3.678.543). Data collection occurred after reading the Free and Informed Consent Term (FICT) and the participants' consent.

Participants

The study scenario was the Child Education Centers (CECs) in the municipality of Três Lagoas, Mato Grosso do Sul (MS), Brazil. The city's Municipal Education Network has 19 CECs, totaling 701 employees. Professionals who work in the CECs in direct contact with children participated in the study, among them coordinators, teachers, principals, school assistants, interns, and child education assistants.

The selection of the CECs for the study and the sample selection were for convenience. The municipality's Department of Education suggested units that had a greater need for health education on first aid, and that employees had easy access to the internet to participate in the research. Five CECs

were selected to participate in the study, which corresponds to a total of 195 employees. The directors passed on the contacts of the employees working in these units, and all of them were invited to participate. After the invitation, 132 professionals were accepted, however, 20 did not complete the intervention for personal reasons and the final sample was 112 participants, which corresponds to 57.4% of the total. The 112 participants attended all stages of the intervention.

The inclusion criteria were: being over 18 years of age; being a professional who works directly with children in the CECs, in the city of Três Lagoas, MS. Employees who were on sick leave, vacation or time off and who did not participate until the end of the training were excluded.

Data collection

Data collection took place remotely, with the help of the Google Forms application. The questionnaire link was sent to the WhatsApp number and/or e-mail addresses of the participants. Data were collected in three stages: in the first, the data collection instrument was applied to assess participants' knowledge of first aid (from September 20th to 23rd, 2020); then, the educational intervention was carried out (between October 1st and November 12th, 2020); and in the third stage, immediately after the intervention, the data collection instrument was reapplied (from November 13th to 16th, 2020).

The questionnaire included sociodemographic data, experience, and specific knowledge about first aid. During the planning of the study, a validated questionnaire was not available in Portuguese. Thus, two nurses with expertise and experience in urgency and emergency took charge of elaborating the questions. Initially, a search of the literature was carried out to verify which questions would be relevant to contain in the instrument. The questions regarding the knowledge and of professionals about first aid were elaborated according to the Basic Life Support Protocol of the Mobile Emergency Care Service (SAMU)⁽¹⁶⁾, the American Heart Association Guidelines⁽¹⁷⁾, and other studies with a similar theme^(7,10). The questionnaire was composed of closed and open questions. The open questions were related to the professionals' knowledge and practice about urgency and emergency situations, and the answers were categorized to allow a quantitative analysis of the data. Finally, face validation of the questionnaire was carried out with the participation of ten employees who work in schools, requesting an opinion on the content and clarity of the questionnaire, in which everyone approved the questionnaire, and no change was

made. This validation procedure had already been carried out in a previous study on the subject⁽²⁾.

The following data was collected:

- Sociodemographic: sex, age, marital status, number of children, function in the CEC, education.
- First aid experience: Have you participated in any training on first aid? How long did the training last? Do you need to know more about first aid? Does your school have a first aid kit?
- Variables related to the aptitude: Do you feel able to provide care in situations of bleeding/fever/injuries/burns/convulsion/fainting/choking/falling or trauma/cardiopulmonary arrest/electric shock/accident by a venomous animal?
- Specific knowledge: Open questions were asked about the knowledge of the concepts related to first aid (What is a fever/burn/convulsion /fainting/choking/trauma/cardiopulmonary arrest/accident by a venomous animal?).
- Variables related to practice: Open questions about practice were elaborated in the face of urgency and emergency situations that require first aid (What do you do when you have a fever/bleeding injury/nosebleed/burn/convulsion/faint/choking/falling or trauma/cardiopulmonary arrest /accident by a venomous animal?).

The open questions were collected in the Google forms form, and were then exported to Excel. The open questions were analyzed in detail, based on the Basic Life Support Protocol of SAMU⁽¹⁶⁾ and the American Heart Association Guidelines⁽¹⁷⁾, by two nurses with expertise and experience in the emergency area and emergency, and categorized as: correct, partially correct, incorrect and do not know. The analysis was carried out by each researcher separately, and the divergent results were discussed together and agreed.

Procedure

The planning and implementation of the educational intervention were carried out by four nurses with experience in the area, two dentists, and 12 medical students.

The educational intervention took place between October and November 2020, consisting of theoretical and practical training. Initially, to facilitate communication, WhatsApp groups were created for each CEC. Five weekly meetings were held, four of which were online and transmitted by

video classes on YouTube, with discussion to clarify doubts through the chat on the website itself. At the time of transmission, the participants identified themselves with their full names in the chat, and the researchers were responsible for controlling the frequency. The final meeting was in person, held in each of the five CECs separately, with practical training and closing of the intervention. The practical demonstration

of the maneuvers was carried out on simulator mannequins (adult and pediatric dolls for cardiopulmonary resuscitation) and all participants underwent practical training on the Heimlich and Cardiopulmonary Resuscitation (CPR) maneuvers on adult and child dolls. In this meeting, participation was controlled by an attendance list.

The intervention followed the outline shown in Table 1:

Table 1 – Schedule of activities carried out in the educational intervention in first aid, Três Lagoas, MS, Brazil, 2020.

Meeting	Stages	Activity	Modality	Duration
Pre-test	First	Online survey		
1	Second	Introduction contents to first aid, emergency services, vital signs, fever, seizure and fainting.	Online video lesson	1 hour
2		Choking contents, cardiopulmonary arrest and first aid box.	Online video lesson	1 hour
3		Contents of accidents by venomous animals, intoxication and trauma.	Online video lesson	1 hour
4		Contents of injuries, hemorrhages, electric shock, and burn.	Online video lesson	1 hour
5		Contents of vital signs, fainting, convulsion, choking (adult and pediatric), cardiorespiratory arrest (adult and pediatric), hemorrhages, and trauma.	Face-to-face meeting	2 hours
Post-test	Third	Online survey		

Data Analysis

The data was analyzed using the R program. A descriptive analysis of the data was performed, using absolute and relative frequencies. Next, the agreement between the responses before and after the educational intervention was analyzed. For this purpose, symmetry tests were used (McNemar for the variables with two categories and Bowker for the others). The final level of significance assumed was 5%.

■ RESULTS

Of the 112 professionals who participated in the study, 96.4% were female, 61.6% had a partner, 66.9% had completed

higher education, and of these 46.4% had graduate degrees. The average age of the participants was 38.5 ($\pm$ 9.81) years. Most responded that they had never participated in previous training on first aid (53.6%) and all felt the need to know more about the topic (Table 2).

According to Table 3, there was a statistically significant increase in the professionals' feeling of aptitude after the educational intervention for all evaluated urgency and emergency situations ($p < 0.05$). The percentage of professionals who did not feel fit and started to feel after the educational intervention was high. In relation to burns, seizures, fainting, falls / traumas, cardiorespiratory arrest and accidents with venomous animals, there was an increase of more than 50% in the percentage of professionals who started to consider themselves apt after the intervention.

Table 2 – Sociodemographic characteristics of the participants (n = 112), Três Lagoas, MS, Brazil, 2020.

Variable	Frequency (%)
Sex	
Male	4 (3.6)
Female	108 (96.4)
Age (years, mean ± standard deviation)	
19 to 29	22 (19.6)
30 to 39	38 (33.9)
40 to 49	35 (31.3)
50 to 59	14 (12.5)
60 to 67	3 (2.7)
Marital status	
With partner	69 (61.6)
Without partner	43 (38.4)
Number of children	
0	26 (23.2)
1	34 (30.4)
2	34 (30.4)
3	11 (9.8)
≥4	7 (6.2)
Occupation Child Education Centers (CEC)	
Director	3 (2.7)
Coordinator	3 (2.7)
Teacher	54 (48.2)
Child education attendant	27 (24.1)
School assistant	7 (6.2)
Trainee	16 (14.3)
Others	2 (1.8)

Table 2 – Cont.

Variable	Frequency (%)
Education	
Complete elementary school	1 (0.9)
Incomplete high school	3 (2.7)
Complete high school	10 (8.9)
Incomplete higher education	23 (20.5)
Complete higher education	23 (20.5)
Postgraduate	52 (46.4)
Participated in previous training on first aid	
Yes	52 (46.4)
No	60 (53.6)
How long has the training been	
Less than 1 year	5 (4.5)
Between 1 and 3 years	15 (13.4)
Between 3 and 5 years	14 (12.5)
More than 5 years	18 (16.1)
Did not answer	60 (53.6)
Feel the need to know more about first aid	
Yes	112 (100.0)
The unit you work in has a first aid kit	
Yes	61 (54.5)
No	51 (45.5)

Table 4 shows that after the intervention there was an increase in the percentage of correct answers regarding concepts related to first aid, for all situations ($p < 0.05$). There are a high percentage of professionals with partially correct answers before the intervention and who switched to correct

after the intervention. It is noteworthy that 49.1% of the sample had a partially correct response to burns before the intervention, and responded correctly after the intervention. As with the seizure theme, 34.8% responded partially correct before the intervention, and correctly after the intervention.

Table 3 – Feeling of aptitude to provide care in urgent and emergency situations before and after the educational intervention, Três Lagoas, MS, Brazil, 2020.

Variable	Before intervention		Post-intervention		p-value
	Yes	No	Yes	No	
	n (%)	n (%)	n (%)	n (%)	
Bleeding	70 (62.5)	42 (37.5)	109 (97.3)	3 (2.7)	<0.0001
Fever	100 (89.3)	12 (10.7)	111 (99.1)	1 (0.9)	0.0009
Injury	75 (67.0)	37 (33.0)	109 (97.3)	3 (2.7)	<0.0001
Burn	41 (36.6)	71 (63.4)	101 (90.2)	11 (9.8)	<0.0001
Convulsion	34 (30.4)	78 (69.6)	102 (91.1)	10 (8.9)	<0.0001
Fainting	40 (35.7)	72 (64.3)	102 (91.1)	10 (8.9)	<0.0001
Choking	54 (48.2)	58 (51.8)	104 (92.9)	8 (7.1)	<0.0001
Falls/traumas	32 (28.6)	80 (71.4)	103 (92.0)	9 (8.0)	<0.0001
Cardiorespiratory arrest	21 (18.8)	91 (81.2)	85 (75.9)	27 (24.1)	<0.0001
Electric shock	19 (17.0)	93 (83.0)	98 (87.5)	14 (12.5)	<0.0001
Accident with a venomous animal	31 (27.7)	81 (72.3)	102 (91.1)	10 (8.9)	<0.0001

Table 4 – Knowledge about the concepts of situations related to first aid before and after the educational intervention, Três Lagoas, MS, Brazil, 2020.

Variable*	Before intervention		Post-intervention		p-value
	Correct	Partially correct	Correct	Partially correct	
	n (%)	n (%)	n (%)	n (%)	
Fever	51 (45.5)	36 (32.1)	77 (68.8)	34 (30.4)	<0.0001
Burn	41 (36.6)	63 (56.2)	97 (86.6)	11 (9.8)	<0.0001
Convulsion	23 (20.5)	47 (42.0)	93 (83.0)	15 (13.4)	<0.0001
Fainting	77 (68.8)	24 (21.4)	107 (95.5)	4 (3.6)	<0.0001
Choking	74 (66.1)	23 (20.5)	106 (94.6)	5 (4.5)	<0.0001
Trauma	31 (27.7)	52 (46.4)	68 (60.7)	35 (31.2)	<0.0001
Cardiorespiratory arrest	39 (34.8)	27 (24.1)	95 (84.8)	11 (9.8)	<0.0001
Accident with a venomous animal	76 (67.9)	29 (25.9)	96 (85.7)	13 (11.6)	0.0241

* only the percentage of "correct" and "partially correct" answers was presented.

There was also an increase in the number of correct answers after the intervention in relation to the practice of professionals in situations that require first aid ($p < 0.0001$) (Table 5). There was a high percentage of professionals with partially correct answers before the intervention and

who became correct after the intervention. It is noteworthy in this case that 36.6% of the sample that responded partially correct in relation to the theme cardiorespiratory arrest before the intervention, responded correctly after the intervention.

Table 5 – Evaluation of the participants' practice towards urgent and emergency situations that need first aid before and after the educational intervention, Três Lagoas, MS, Brazil, 2020.

Variable	Before intervention		Post-intervention		p-value
	Correct	Partially correct	Correct	Partially correct	
	n (%)	n (%)	n (%)	n (%)	
Fever	57 (50.9)	35 (31.2)	99 (88.4)	12 (10.7)	<0.0001
Bleeding wound	58 (51.8)	40 (35.7)	92 (82.1)	19 (17.0)	<0.0001
Epistaxis	15 (13.4)	33 (29.5)	79 (70.5)	27 (24.1)	<0.0001
Burn	44 (39.3)	22 (19.6)	93 (83.0)	18 (16.1)	<0.0001
Convulsion	52 (46.4)	12 (10.7)	106 (94.6)	6 (5.4)	<0.0001
Fainting	36 (32.1)	23 (20.5)	103 (92.0)	9 (8.0)	<0.0001
Choking	34 (30.4)	29 (25.9)	93 (83.0)	19 (17.0)	<0.0001
Fall/trauma	21 (18.8)	41 (36.6)	83 (74.1)	27 (24.1)	<0.0001
Cardiorespiratory arrest	10 (8.9)	46 (41.1)	100 (89.3)	11 (9.8)	<0.0001
Accident with a venomous animal	20 (17.9)	29 (25.9)	68 (60.7)	41 (36.6)	<0.0001

* only the percentage of "correct" and "partially correct" answers was presented.

DISCUSSION

A total of 112 professionals who work in early childhood education participated in the study, and of these, the majority (53.6%) reported not having received any first aid training. In view of this reality, it is perceived the great importance of providing knowledge to these professionals, so that they know how to deal with accidents that happen in the school context. In several studies, a percentage of professionals are observed who do not participate in any training on this

theme^(3-4,10-11). According to the findings of a review, the fact of having already participated in first aid training can increase the likelihood of continuous training for a lifetime⁽¹⁸⁾.

In a survey conducted in Iran with teachers, 95.9% of the participants were willing to learn about first aid⁽³⁾, corroborating this study in which everyone said they felt the need to learn about the topic. It is evident that education professionals are aware of the need to know about first aid.

Some factors may hinder the population's adherence to participate in first aid training. People report that it is difficult

to find a course in stores that fits their schedule and budget. A strategy to facilitate access, seriously integrate the course into the work schedule, organizing the shortest ones that can be planned for a longer period. Another strategy is to combine online training with face-to-face training⁽¹⁸⁾, an initiative adopted in this study to train professionals.

In our study, the teaching method used was theoretical practices, it is noteworthy that this method proved to be efficient in teaching first aid, being the most used in teaching schools and considered one of the most effective for this purpose⁽¹⁹⁾. First aid training must be permanent, and the use of acquired methodologies favors both the acquisition of theoretical knowledge and skills^(2,6).

An important barrier and the main concern of laypeople in administering first aid is the fear of doing something wrong. First aid training contributes to greater empowerment of participants, both in terms of knowledge and practical skills, which impacts having a positive attitude in the face of an emergency situation⁽⁵⁻⁷⁾. With the training given to the participants, it was possible to observe an improvement in the professionals' feeling of aptitude in providing care in emergencies.

In India, an intervention carried out with 150 primary school teachers found that the post-test scores required a significant gain of knowledge in relation to first aid⁽¹¹⁾. Other research that also carried out educational intervention in first aid obtained satisfactory results with improved knowledge of teachers on the topic^(6,8,10). For these studies, knowledge is raised in all the questions obtained.

General first aid skills can be remembered more easily, but many specific specifications, such as CPR, are more difficult to retain. Knowledge of first aid techniques obtained during training is associated with greater confidence in skills⁽¹⁸⁾. A study carried out in Egypt indicated a necessary improvement in the knowledge and practice of teachers in relation to first aid after the implementation of the training program, with emphasis on questions about epistaxis, wound, fracture, and fainting⁽⁹⁾. This study emphasizes the improvement of the professionals' practice toward an emergency.

A qualitative study carried out with teachers of early childhood education and elementary education in public schools revealed that their experience in first aid actions is based on popular beliefs, deficits in knowledge, and family experiences, which are reflected in inadequate behaviors or in the failure to provide initial assistance in an urgent and emergency situation at school⁽⁵⁾. Thus, it is observed the importance of educative for people to be able to review their conduct based on common sense.

Inappropriate and practices towards people who have a seizure crisis can be harmful. Conducts performed when approaching this patient, such as placing an object in the mouth, or stabilizing them by force, can cause fractures and other complications. These practices are adopted as a result of insufficient knowledge of how to deal with these patients. Studies carried out with teachers found relatively low levels of knowledge and negative practice in these situations⁽²⁰⁻²¹⁾. Research that evaluated the before and after, showed that health education actions can improve the knowledge and of teachers in relation to the seizure crisis and facilitate the correct management of first aid^(10, 20), data also found in our study.

Burns tend to be more frequent in children aged 0 to 1 year, especially from hot substances and objects⁽²²⁾. Ignorance about the proper procedure in this situation can lead to inappropriate behaviors such as applying ointments, eggs, margarine, toothpaste, creams, traditional herbs, or other products to burned skin, or just not providing assistance and waiting for medical care^(10, 23). Studies have shown a significant increase in correct answers after the intervention in the responses on first aid related to burns⁽⁸⁻¹⁰⁾.

Loss of consciousness, despite being a condition frequently observed in childhood, is a situation in which most caregivers do not know how to act. Among the inappropriate actions, some potentially dangerous ones stand out, such as shaking the child, putting water on the face, slapping and blowing on the face⁽²⁴⁾. After training in first aid, it was noticed that in all the evaluated items (aptitude, knowledge, and practice) in relation to the fainting situation, there was a significant improvement.

Falls and local trauma stand out as the most common accidents in childhood due to several factors that put children in dangerous situations, such as not having fully developed reflective and balance skills, in addition to curiosity in exploring the environment^(22, 25). The fall presents itself as one of the main mechanisms of trauma, which can cause innumerable injuries that can leave sequelae or lead to death⁽²⁵⁾. Inadequate practices in assisting the victim of a fall or trauma can result in irreversible damage⁽²⁵⁾. The performed intervention provided the participants with greater confidence in the management of the child victim of a fall or trauma.

Despite improvements in emergency medical services and hospital treatment for patients with sudden cardiac arrest, one of the most effective ways to increase survival in this situation is the rapid onset of CPR by those close to you. Training of school-age children in cardiopulmonary resuscitation is already mandatory in five countries in Europe

and recommended in 16 other countries. The World Health Organization (WHO) has endorsed the statement by the KIDS SAVE LIVES movement on the importance of CPR training programs. In these countries, health professionals or teachers are responsible for providing training to schoolchildren⁽²⁶⁾. However, this is not a reality in many countries, where teachers lack knowledge about CPR^(8,10,27). First aid intervention studies found significant improvement in relation to CPR learning^(8,10,28) data that corroborates our investigation.

In Brazil, accidents involving venomous animals are considered the first cause of human poisoning. Agility in service and identification of the animal are essential for a better prognosis of the victim⁽²⁹⁾. According to the results of our research after the training, there was a significant improvement in the number of correct answers regarding the question of accidents involving venomous animals. Health education activities can improve awareness of the risks of accidents by venomous animals and significantly reduce treatment costs if people seek immediate treatment without practicing inappropriate first aid or ineffective traditional treatments⁽³⁰⁾.

The results show the need to train professionals in the educational field in first aid and support the planning of public policies that integrate the areas of health and education. In this space, nurses play a prominent role in implementing health education actions on first aid for employees working in early childhood education⁽²⁸⁾. First aid training for teachers and other school staff should be included in the school calendar, in order to provide these professionals with the opportunity to be trained in this theme⁽¹⁰⁾. This training should include common situations that require first aid in schools, such as those covered in our intervention (e.g. fever, bleeding, burns, convulsion, fainting, choking, trauma, cardiopulmonary arrest, accident by a venomous animal). In addition, the efficiency of the method used in the training was shown, consisting of theoretical classes (online video classes) and practical classes, which can be replicated in other studies. Using these strategies can ensure that the aptitude, knowledge, and practices of professionals in early childhood education improve.

This study has some limitations: the questionnaire has not been validated, which harms the correlation with other studies, but it was prepared in accordance with the Basic Life Support Protocol of SAMU⁽¹⁶⁾ and with the American Heart Association Guidelines⁽¹⁷⁾; and despite efforts to include as many participants as possible, the sample was not as comprehensive, so broader studies are recommended. Another limitation is related to the short period between the intervention and the post-test, as it does not make it

possible to measure the retention of the topics for a longer period. Despite these limitations, the results were satisfactory and showed the effectiveness of the first aid training carried out with these professionals.

■ CONCLUSION

The training with a theoretical-practical approach offered to early childhood education professionals provided a significant improvement in the feeling of aptitude in assisting emergencies, in the knowledge about concepts related to first aid, and in the practical skills towards situations that need first aid. The intervention can be replicated in other studies and can also be applied in the context of early childhood education schools by health professionals.

In this way, the relevance of educational actions on this theme is perceived, emphasizing the importance of intersectoriality, in which health professionals, especially the nurse, must be engaged in working with education professionals as a strategy to optimize theoretical-practical first aid training actions.

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