

First aid as an object of health education for municipal school professionals

Primeiros socorros como objeto de educação em saúde para profissionais de escolas municipais

Primeros auxilios como objeto de educación en salud para profesionales de escuelas municipales

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Abstract: Objective: to analyze the knowledge of municipal school professionals after the educational practice of first aid service in childhood. **Method:** quasi-experimental, quantitative study. For data collection, a questionnaire on first aid in childhood was employed, applied before and after an educational practice with 88 professionals. In the data analysis, the percentage of correct answers for each question and the average percentage of full correct answers were adopted. McNemar and Wilcoxon tests were adopted. **Results:** after the educational practice, there was a significant increase in the percentage of correct answers in six questions, a reduction in correct answers in one question, and no change in two questions, numbering 30% the increase in knowledge acquisition. **Conclusion:** the level of professionals previous knowledge about first aid was relatively low, however there was a significant knowledge acquisition after the educational practice, which may contribute to the primary care for the victim with quality.

Descriptors: First Aid; Health Education; Knowledge; Nursing; School Professor

Resumo: Objetivo: analisar o conhecimento dos profissionais de escolas municipais após a prática educativa de atendimento de primeiros socorros na infância. **Método:** estudo quase-experimental, quantitativo. Para a coleta de dados, utilizou-se um questionário sobre primeiros socorros na infância, aplicado antes e após uma prática educativa com 88 profissionais. Na análise dos dados, adotou-se o percentual de acertos para cada questão e a

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média percentual de acertos totais. Aplicaram-se os testes McNemar e Wilcoxon. **Resultados:** após a prática educativa, houve aumento significativo no percentual de acertos em seis questões, redução do acerto em uma questão e não alteração em duas questões, totalizando em 30% o acréscimo da retenção de conhecimento. **Conclusão:** o nível de conhecimento prévio dos profissionais sobre primeiros socorros foi relativamente baixo, entretanto observou-se uma apreensão de conhecimento significativa após a prática educativa, que poderá contribuir para o atendimento inicial de qualidade à vítima.

Descritores: Primeiros Socorros; Educação em Saúde; Conhecimento; Enfermagem; Professores Escolares

Resumen: **Objetivo:** analizar el conocimiento de los profesionales de las escuelas municipales después de la práctica educativa de primeros auxilios en la infancia. **Método:** estudio cuasi experimental, cuantitativo. Para la recolección de datos se utilizó un cuestionario sobre primeros auxilios en la infancia, aplicado antes y después de una práctica educativa con 88 profesionales. En el análisis de datos se adoptó el porcentaje de aciertos de cada pregunta y la media porcentaje de aciertos total. Se aplicaron las pruebas de McNemar y de Wilcoxon. **Resultados:** después de la práctica educativa, hubo un aumento significativo en el porcentaje de respuestas correctas en seis preguntas, una reducción en las respuestas correctas en una pregunta y ningún cambio en dos preguntas, totalizando en 30% el aumento en la retención de conocimiento. **Conclusión:** el nivel de conocimiento previo de los profesionales sobre primeros auxilios fue relativamente bajo, sin embargo, hubo una retención de conocimiento significativa después de la práctica educativa, lo que puede contribuir para una atención inicial de calidad a la víctima.

Descriptor: Primeros Auxilios; Educación en Salud; Conocimiento; Enfermería; Maestros

Introduction

First aid is defined as the immediate care provided to the victim of any age who is injured or not in accidents, quickly, aiming at a faster recovery and maintenance of life until the arrival of a specialized medical service.¹ First aid can be applied by anyone present in the scene, lay or not, as long as they have a basic theoretical or practical knowledge to act.

In Brazil, accidents in the school environment have been described in the literature and occur more frequently among the 0 to 6 year old age group,² reflecting on preventable epidemiological data from the Ministry of Health, which highlight 158.657 deaths from external causes in childhood in 2017.³ Taking into account that in this period of life most of the time is spent at school, it becomes a warning place for accidents to occur.

The accident involving a student, in addition to causing inconvenience to the school, can bring problems related to legal responsibility if immediate help is not proven. The Brazilian Penal Code explains that omission for relief or not to ask for relief from a specialized medical

service is deemed as a crime.²⁻⁴ However, when witnessing an accident involving children, the desire to save them is the feeling that leads everyone,² nonetheless, studies emphasize that the lack of theoretical/practical knowledge during care generates numerous problems, such as the child's panic condition and erroneous manipulation, impairing the clinical outcome.⁵

Despite the subject relevance, first aid is still undervalued in educational institutions, both public and private, being restricted, in most cases, to health places.² However, the Law 13.722/2018, of October 4, which came into force on April 2, 2019, made it mandatory to train professors and public and private school employees in basic and early childhood education to work in emergency situations with children and adolescents.⁶

This is the moment when the role of the nurse professionals must be considered, who, among their skills, present health education as one of their instruments, capable of generating changes in the population's health profile, which can contribute to the teaching of first aid in school environments.^{1,5} Therefore, this paper aims to analyze the knowledge of professionals from municipal schools after the educational practice of first aid in childhood.

Method

This is a quasi-experimental study, with data quantitatively analyzed, developed with professionals from municipal schools in a northern city of the state of Paraná, in partnership with the Municipal Department of Education. All 11 municipal schools in Bandeirantes took place in the study, and among them a nonprobability sampling was obtained under convenience of 88 professionals. The data collection began with scheduling, via phone call, the educational practice, and a date was scheduled according to the availability of each school.

Thus, those professionals who made themselves available were individually approached in a classroom, informed about the research objectives, and invited to participate in it, in addition to receiving the Written Informed Consent Form.

For data collection, a questionnaire developed by the researchers was used, for sociodemographic characterization, and questions related to the theme “first aid in childhood”, both applied in two moments, before and after the educational practice. The following sociodemographic variables were addressed: sex, age, educational status and function. For the pre-test and the post-test, nine objective questions, of multiple-choice type and only one correct alternative, were made, applied individually and without help from the researchers.

The specific topics covered in the questionnaire and during educational practices were: Complete and Partial Airway Obstruction, Cardiopulmonary Arrest, Seizures, Burns, Perforations and Cuts, which had the American Heart Association, 2015;⁷ the Pre Hospital Trauma Life Support, 2017⁸; and the Brazilian League of Epilepsy of the Ministry of Health, 2018⁹ as theoretical references.

The educational practice took place through a theoretical lecture with practical demonstrations, in a dialogical way, lasting approximately one and a half hours. The collection period happened from September 2018 to March 2019. The inclusion criteria were: professionals team working in municipal schools; and full participation in educational practice (pre-test; educational practice; post-test). The exclusion criteria were: professionals who were on leave, vacation or absence on the day of collection. After data collection, a database was built in a Microsoft Office Excel for Windows spreadsheet, in which data were organized by independent double-entry accounting.

For professionals’ knowledge comparison before and after the educational practice, the percentage of correct answers for each question and the average percentage of full correct answers in the questionnaire were analyzed. The McNemar and the Wilcoxon tests were used, respectively.¹⁰

The latter test was used because the data were tested for normality, and the hypothesis of normal distribution in both moments was rejected. Significance level of $\leq 0,05$ was adopted.

The research was developed in compliance with all the ethical precepts of the Guidelines and Norms Regulating Research Involving Human Beings (Resolution of the National Health Council No. 466/12), under the authorization of the Committee on Research Ethics of the State University of Northern Paraná, with opinion No. 2,697,287, prized and approved on June 6, 2018. Along with these instruments, the participants of the research were given the Written Informed Consent Form, which was signed authorizing their voluntary participation in the research.

Results

The Table 1 shows the sociodemographic characteristics (gender, age, educational status and function) of the 88 professionals participating in the research.

Table 1 – Sociodemographic characteristics of primary education professionals in municipal schools – Bandeirantes, PR, Brazil, 2019

Variable	(n)	(%)	Average	Standard deviation
Gender				
Male	1	1,1		
Female	87	98,9		
Age				
20-35 years	28	31,8		
36-50 years	47	53,4	41,1	9,2
> 51 years	13	14,7		
Educational Status				
Primary	1	1,1		
Secondary	2	2,3		
Higher	84	95,5		
Function				
Professor	69	78,4		
Principal	5	5,7		
Office	1	1,1		
Inspection	1	1,1		
General helper	6	6,8		
Driver	1	1,1		
Coordination	4	4,5		

There was a variation in age from 22 to 63 years, with a 41,16 average (SD±9,21). The prevalences were: female gender (98,9%), higher education (84; 95,5%) and professor function (69; 78,4%). The data referring to the professionals knowledge about first aid are presented in Table 2.

Table 2 – Descriptive analysis of the questionnaire variables for primary school professionals in municipal schools in relation to first aid in childhood, taking into account the total amount of correct answers before and after the educational practice – Bandeirantes, PR, Brazil, 2019

Variable	Pre-test		Post-test		p value*
	n	%	n	%	
1. In case of cardiopulmonary arrest, it must be performed: A: 100-120 chest compressions/minute	7	8,0	83	94,3	< 0,01
2. In case of suspected cardiopulmonary arrest, what to do? A: Check responsiveness, call SAMU (192) and perform chest compressions	84	95,5	85	96,6	1,00
3. Gagging signs are: A: Shortness of breath and bluish skin	78	88,6	53	60,2	< 0,01
4. In which burn classification is the injury painless? A: Third-degree	22	25,0	80	90,9	< 0,01
5. Among the procedures performed on burns, there are: A: Cooling the area with water or compress	48	54,5	84	95,5	< 0,01
6. With regard to perforations and cuts, you must: A: Wash the area with soap and water	36	40,9	75	85,2	< 0,01
7. Signs of a seizure are: A: Sudden loss of consciousness and body tremors	78	88,6	83	94,3	0,23
8. In case of a seizure, what should you do? A: Lay the person with the head on side	46	52,3	84	95,5	< 0,01
9. What to do in case of gagging on a child older than 2 years: A: Stand or kneel behind the child, wrap your arms around her waist and apply stomach compressions	66	75,0	84	95,5	< 0,01

Subtilte: *McNemar test.

There was a significant increase in the percentage of correct answers after the educational practice in six of the nine questions (1, 4, 5, 6, 8 and 9), a reduction in the percentage of correct answers in Question 3 and a maintenance of correct answers frequency in two questions (2 and 7). It must be mentioned that in these two questions more than 88% of the professionals already had knowledge on the subject.

Table 3, on the other hand, presents the average of correct answers in the knowledge test on first aid in childhood before and after educational practice.

Table 3 – Average percentage of correct answers in the knowledge test of elementary school professionals from municipal schools regarding first aid in childhood – Bandeirantes, PR, Brazil, 2019

Statistics	Before	After
Average (DP)	58,71 ± 14,58	89,77 ± 12,40
Medial	55,55	88,89
Minimum and maximum	22,22; 88,89	22,22; 100
Normality test * (p value)	< 0,001**	< 0,001**

Subtitle: *Kolmogorov-Smirnov test. ** The normality hypothesis is rejected.

The comparison of the average percentage of correct answers in the knowledge test is shown in Figure 1.

Figure 1 – Comparison, before and after the educational practice, of the average percentage of correct answers in the knowledge test about first aid in childhood applied to primary school professionals in municipal schools – Bandeirantes, PR, Brazil, 2019

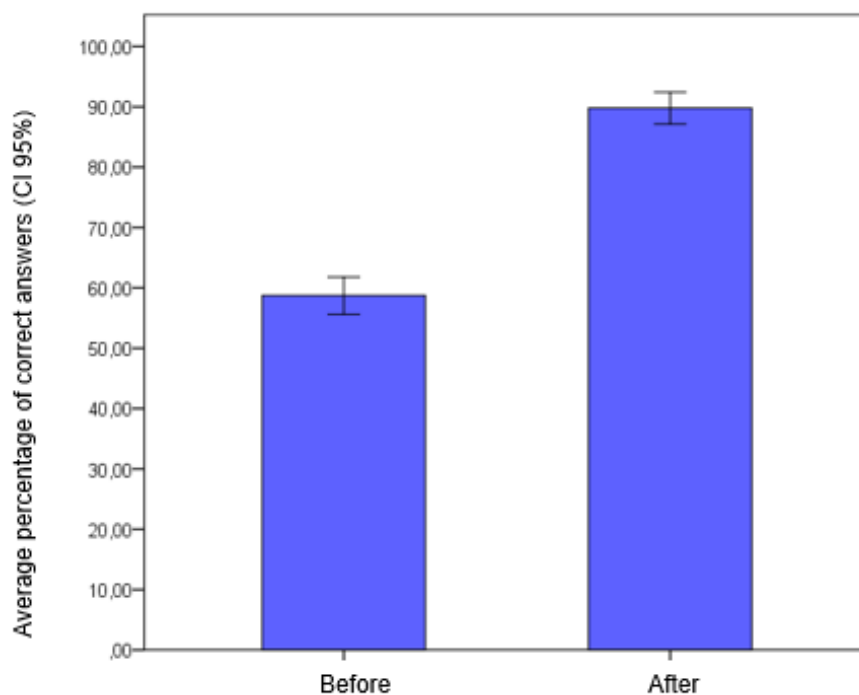


Figure 1 presents the percentage of correct answers after the educational practice offered to professionals who work with elementary school children and shows a significant increase in the average, with a difference of 31,06% (95% CI: 27,1; 34,51) and p-value <0,001 (Wilcoxon test). In addition to the statistical significance, the expansion of their knowledge on the subject is emphasized due to the absolute increase of approximately 30%.

Discussion

After analyzing the data, it was found that the predominantly female percentage agrees with other studies performed in São Paulo (SP) with professors or professionals from municipal, state and private schools.¹¹⁻¹² In the context of professions historically headed to the female gender, the teaching area stands out as "natural", that is, the woman would choose the profession because it is considered a calling for her, as she would have the gift of motherhood, giving rise to adequate teaching qualities.¹³

It was noted that most professionals take the professor function (78,4%); and, in the school environment, they are the professionals who remain in greatest touch with students.¹⁴ Therefore, they are more likely to experience accidents in this environment, which makes it necessary to train them in first aid, in order to minimize the time of primary care and prevent future sequelae. However, there is no investment directed to the first aid execution among these professionals, remaining a lack of preparation that generates nervousness and insecurity, resulting in the failure to provide the primary assistance or in the poor handling of the victim.¹¹

In this context, the analysis of prior knowledge showed that most professors was not previously trained in relation to first aid in childhood. Studies developed in Ethiopia and in Brazil found similar data, justifying the need to include this topic in the professor's academic resume.¹⁴⁻¹⁵

As for the pre-test questionnaire, an average percentage of 58,71% of correct answers was found, a value very close to that found in the literature (66,8%), in which a structured questionnaire

was also used to assess the previous knowledge of professionals about first aid in childhood.¹⁵ Accordingly, a maximum score was observed in a task carried out at the children's recreation center, in Campinas-SP, where 52,1% of the 150 professionals reported previous knowledge.¹⁶ This result differs from the one with 284 Physical Education professors, revealing that only 19,4% of them had a good level of knowledge in urgency or emergency situations in childhood.¹¹

It is essential to provide all professionals who work in the school with simple theoretical/practical learning of actions that can save lives, as recommended by the National Safety Council.¹⁷ Nurses are key pieces in the role of training lay people who work with children, giving them a minimum of knowledge. This is especially true for this professional class, which multiplies knowledge, considering health education as a knowledge lever for all.^{1,5,18}

Among the main causes of accidents related to the age group analyzed, there was an expressive increase in the percentage of correct answers after educational practice in six of the nine questions addressed, which include the themes: ratio of compressions in cardiopulmonary arrest; classification and care for the burn victim; acting in a seizure or gagging crisis; and notions about perforation or cuts.

When witnessing a probable cardiac arrest, the primary conduct will be: check responsiveness, call SAMU (192) and perform chest compressions. In this regard, the professionals had excellent previous knowledge, represented by 95,5% of correct answers in the pre-test. In comparison with other studies, the opposite was found in research conducted in Brazil and in Nigeria, which stated a deficit in knowledge in the school environment about cardiopulmonary resuscitation practices.^{15,19}

Nevertheless, referring to the professionals' previous knowledge, regarding chest compressions during cardiopulmonary resuscitation and the importance of performing it at a speed of 100-120 compressions per minute, the result of the question presented a worrying percentage of only 8% hits. In this case, inadequate knowledge may negatively influence survival

rates.¹⁹ However, after the educational practice, there was a positive advance in the knowledge acquisition, which evolved to a percentage of 94,3% of correct answers.

Another important emergency is the seizure crisis, which promotes loss of consciousness associated or not with partial or generalized involuntary muscle contractures, requiring immediate action and specific precautions to prevent greater damage.²⁰ It is advised that, during the crisis, the victim be laid down with the head on side to prevent bronchoaspiration; in addition, this move will serve as a measure of comfort for the patient.²¹

On this subject, a positive result was found in this study: 88% of the professionals already had previous knowledge for the seizure or epileptic seizure identification. In order to provide care to this victim at the time of the crisis, only 52,3% of the participants would know how to act correctly, but with a significant increase in the percentage (95,5%) after the educational practice. On the other hand, studies carried out on the identification and handling in epileptic seizure crisis revealed that the largest proportion of respondents acted inappropriately before training on the topic.^{15,22}

A reduction in the percentage of correct answers was identified in the question that addressed the recognition of obstructed airways. This fact may be linked to a failure of the researchers during the educational practice, which may not have clearly and concisely evidenced the difference between the signs of complete or partial obstruction, creating conflict in the understanding of the professionals and, consequently, leading to reduction in the percentage of correct answers on this issue. This result differs from a study in which 79% of respondents were able to recognize an airway obstruction, the question with the highest percentage of correct answers.¹²

Conversely, the professionals pointed out satisfactory knowledge prior to the educational practice of 75%, evolving to 95,5% after the practice, with regard to the action in a proven case of choking in a child older than 2 years, which had a similar result (70,1%) when previous knowledge with public school professors is assessed.¹⁵

Burns occur with less intensity in childhood, but they can cause temporary physical disability and even sequelae, depending on size, seriousness, and non-primary emergency care.²³ Regarding the procedures to be performed before this accident, the professionals showed significant success in the post-test (95,5%). The same results were found (96,9%) in professionals working in seven special needs schools for children, adolescents and young people with disabilities in Mato Grosso after intervention.²⁴

The incidence rates of cuts are frequent, especially in a school environment, that allows many children to live in the same place.²³ The results after the educational practice were positive, totaling 85,2% on this topic.

The study pointed out a relevant improvement in knowledge acquisition after educational practice, when comparing the pre-test (58,7%) and the post-test (89,7%) questionnaires. This converges with outcomes that also found positive results after interventions,^{6,18-19} due to the ability to manifest health knowledge and the applicability of first aid in potential situations in a school environment.

In 2019, a survey carried out in Brazil aimed to assess the knowledge of professors working in public and private elementary schools on first aid: the multiple linear regression model proved that professors working in the private network and those who received training along their formation obtained better evaluation score.¹⁵

Before the referenced discussions, it is evident that the training proposals involving health and education on first aid are still a challenge. So, popularizing theory and practice during the first aid approach and action is fundamental in the school environment. Conversely, because the educational practice took place during school hours, it was not possible for all professionals in the units to be trained, generating a limitation in the research and making it necessary to carry out a new project so that the others are included, given the importance of the theme.

Conclusion

The research revealed that the knowledge level in first aid by professionals from municipal schools was relatively low before educational practice. This knowledge needed to be improved, since the investment in this teaching-learning process allows correct and quality care to the victim, until the arrival of the specialized emergency service.

Research participants were willing and aware of the importance in gaining knowledge about first aid in childhood given by health professionals, resulting in effective training, as showed by the significant increase in the average of correct answers in the pre-test and in the post-test, with a difference of 31,06%.

Moreover, the nurse inset in the school scenario in the process of educational activities in health building presents itself as a key element in strengthening the relationship between the health area and the school, considered a very necessary action to face the situations that affect children and adolescents.

Considering the risk factors to which children in the school environment are exposed, it is necessary that managers encourage the training in first aid of these professionals, especially professors, so this theme can be added as mandatory in the pedagogical plan, which increases the probability to reduce the damage caused by childhood accidents.

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