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Original Article

EFEITOS DE OFICINA EDUCATIVA SOBRE PREVENÇÃO E CUIDADOS À CRIANÇA COM ENGASGO: ESTUDO DE INTERVENÇÃO

EFFECTS OF AN EDUCATIONAL WORKSHOP ABOUT PREVENTION AND CARE OF CHOKING IN CHILDREN: AN INTERVENTION STUDY

EFECTOS DEL TALLER EDUCATIVO SOBRE PREVENCIÓN Y CUIDADO DEL ATRAGANTAMIENTO EN NIÑOS: ESTUDIO DE INTERVENCIÓN

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RESUMO

Objetivo: Avaliar o efeito de uma oficina educativa sobre prevenção e cuidado à criança com engasgo no conhecimento de profissionais da saúde e da educação infantil. **Métodos:** Estudo quase-experimental com pré e pós-teste, e abordagem quantitativa conduzido em um centro assistencial filantrópico e uma escola de educação infantil. A intervenção foi composta, por oficina educativa teórico-prática, sobre prevenção e atendimento à criança com engasgo. O conhecimento dos participantes foi avaliado, por meio de questionário com nove itens antes e depois da intervenção. **Resultados:** Participaram do estudo 36 indivíduos, sendo 22 profissionais da educação infantil e 14 profissionais da saúde. Verificou-se aumento de 29,9% no conhecimento dos participantes após a oficina. A média de acertos no questionário passou de 5,7 para 8,3 com diferença significativa (p<0.01). **Conclusão:** As oficinas educativas ampliaram o conhecimento dos profissionais da saúde e educação infantil na prevenção e atendimento à criança com engasgo, destacando o cuidado à saúde da criança, por meio de ações intersetoriais.
Descritores: Primeiros Socorros; Saúde da Criança; Educação em Saúde; Enfermagem Pediátrica.

ABSTRACT

Objective: to evaluate the effect of an educational workshop on prevention and care for choking in children on the knowledge of health professionals and early childhood educators. **Methods:** it is a quasi-experimental study with pre and post-test, and a quantitative approach conducted in a philanthropic assistance center and a school for early childhood education. The intervention consisted of a theoretical-practical educational workshop on prevention and care for choking in children. The participants' knowledge was assessed using a questionnaire with nine items before and after the intervention. **Results:** 36 individuals participated in the study: 22 childhood educators and 14 health professionals. There was a 29.9% increase in participants' knowledge after the workshop. The average number of correct answers in the questionnaire went from 5.7 to 8.3, with a significant difference (p <0.01). **Conclusion:** the educational workshops expanded the knowledge of health professionals and early childhood educators in the prevention and care of choking children, highlighting the role in child health care through inter-sectoral actions.
Descriptors: First Aid; Child Health; Health Education; Pediatric Nursing.

RESUMEN

Objetivo: evaluar el efecto de un taller educativo sobre prevención y cuidado de niños con atragantamiento en el conocimiento de los profesionales de la salud y la educación de la primera infancia. **Métodos:** estudio casi experimental con pre y posprueba, y enfoque cuantitativo realizado en un centro de asistencia filantrópica y una escuela de educación infantil. La intervención consistió en un taller educativo teórico-práctico sobre prevención y cuidado de niños con atragantamiento. El conocimiento de los participantes se evaluó mediante un cuestionario con nueve ítems antes y después de la intervención. **Resultados:** 36 personas participaron en el estudio, 22 de ellas de educación infantil y 14 de profesionales de la salud. Hubo un aumento del 29,9% en el conocimiento de los participantes después del taller. El número promedio de respuestas correctas en el cuestionario pasó de 5.7 a 8.3, con una diferencia significativa (p <0.01). **Conclusión:** los talleres educativos ampliaron el conocimiento de los profesionales de la salud y la educación de la primera infancia para prevenir y ayudar a los niños con atragantamiento, destacando el papel de las enfermeras en la atención de la salud infantil a través de acciones intersectoriales.
Descriptores: Primeros Auxilios; Salud del Niño; Educación en Salud; Enfermería Pediátrica.

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INTRODUCTION

Foreign body airway obstruction or choking is a major cause of infant mortality, affecting mainly children aging one to three years-old [1]. It is an event caused by partial or complete occlusion of the air passage between the upper airways and the trachea by a foreign body such as food, currency, bladder or toy [1].

In Brazil, airway obstruction by a foreign body represents a serious public health problem in the pediatric population [2]. In 2016, suffocation was the third leading cause of death from accidents among children and adolescents in the country [3]. The characteristics of the child's development in the first years of life, such as exploring the world through the oral route, the short distance between the incisor teeth and the base of the tongue, the greater respiratory rate and the small caliber of the airways increase the risk of this disease in this population [2].

For the promotion and protection of children's health, basic pediatric life support must be part of an effort by both society and public programs and policies that invest in improving the knowledge of health professionals and lay people like professionals of childhood education on prevention and care for children who are victims of choking or cardiopulmonary arrest. Thus, it is essential to train the population regarding prevention, airway clearance maneuvers, immediate cardiopulmonary resuscitation if necessary, and access to emergency services [4].

A study carried out to assess the knowledge and skills on cardiopulmonary resuscitation before and after training in basic life support with doctors and nurses working in primary care, revealed that only 37.5% of the 32 nurses and doctors had already participated in any training of urgency/emergency and only 21.9% had satisfactory experiences in caring for victims of cardiopulmonary arrest [5]. Knowledge about basic life support for infants and children is essential for health and education professionals, highlighting specific skills for the care of the pediatric population, ensuring effective airway opening, ventilation and circulation [6]. Therefore, it is necessary to invest in the permanent education of health and education professionals in order to improve their knowledge and skills in basic life support, especially in the prevention and care of the child victim of choking and consequent cardiopulmonary arrest.

In this sense, the international consensus [7] of experts revealed that the essential items to be evaluated in the knowledge of lay people about the care for the victim of foreign body airway obstruction include the identification of the different stages of the obstruction, assessment of the level of consciousness, how to call for help, how to perform the technique of back blows and chest or abdominal compressions, according to the child's age, identify loss of consciousness, initiate cardiopulmonary resuscitation, assess breathing and ventilate the victim [7]. Simulation practices are valid and reliable for teaching and assessing these skills in lay people [8] and health professionals [9]. Realistic simulation represents an effective teaching method for the acquisition of knowledge, in addition to promoting self-confidence and satisfaction as a teaching method among health professionals and students [9].

Corroborating the evidence regarding the essential items to be evaluated in the knowledge related to airway clearance by a foreign body and considering the simulation of care as a valid and reliable way to teach the subject, in the present study, the objective was to evaluate the effect of an educational workshop, in the knowledge of health professionals and professionals of early childhood education on prevention and care for children who are victims of choking or airway obstruction.

METHODS

It is a quasi-experimental study with pre and post-test and a quantitative approach. The study was conducted from August to October 2017, in a public school of early childhood education and in a primary health care clinic of a philanthropic assistance center, which primarily serves families with children in early childhood and pregnant women, both located in the city of São Paulo. The demand for educational workshops came from professionals in early childhood education and from the direction of the health clinic.

The educational workshops were held in the workplaces of the professionals, with the participation of one to ten professionals per workshop. Each subject participated in a workshop, which was held at their workplace on different days and times, with the same structure and content, so that most professionals could participate.

The convenience sample consisted of health and education professionals. The inclusion criteria were to be a health or education professional working at the assistance center or at the early childhood education school. The exclusion

criterion adopted was not to participate in the educational workshop, after completing the questionnaire to assess knowledge related to the theme.

The workshop lasted from 60 to 90 minutes and was divided into two stages. In the first stage, approximately 30 minutes, a conversation circle and dialogued exposition on the theme was carried out, seeking to reflect with the participants on aspects they knew about the theme and to share knowledge. The media resource used for this stage was developed by the authors according to the recommendation of the Brazilian Society of Cardiology [10] and the American Heart Association [4].

The content presented, in this stage, included the epidemiology of suffocation deaths in Brazil, its main causes and prevention strategies at home and at school, the identification of signs of partial and total obstruction in children, the sequence of attendance including maneuvers for airway clearance in infants and children older than one year-old until puberty, telephones and services to call for help, assessment of level of consciousness and cardiopulmonary resuscitation maneuvers for cases where the child loses consciousness, as well as what not to do with the child who had choking. While the contents were discussed with the participants, a demonstration of the maneuvers, using children's mannequins, was carried out.

The second stage of the workshop involved simulating the service, using children's mannequins that were arranged on mattresses on the floor. Each researcher demonstrated the service and then supervised a pair of participants. This stage lasted approximately 30 to 60 minutes, allowing the sharing of knowledge and the simulation of assistance more than once per participant.

At the end of the educational workshop, educational leaflets and folders were prepared for the participants, prepared by the research team, which brought the theoretical and practical content covered in the educational workshop.

The participants' characterization variables included age, sex, occupation, length of professional experience and previous participation in training on the topic. The intervention was represented by the educational workshop, and as this is a quasi-experimental study, all study subjects were submitted to the intervention.

The dependent variable was the participants' knowledge about prevention and care for the child victim of choking. Such knowledge was assessed one week before and one week after the educational workshop, using a questionnaire consisting of nine items. The nine items of the questionnaire that assessed the participants' knowledge dealt with the definition, prevention strategies and identification of foreign body airway obstruction signs, airway clearance maneuvers in infants and children older than one year-old until puberty, the assessment of the level of awareness to recognize a cardiopulmonary arrest, and cardiopulmonary resuscitation maneuvers for infants and children older than one year until puberty.

The questionnaire about the participants' knowledge on the topic was developed by the researchers and validated by three lay judges and three experts. The questionnaire obtained a level of agreement of 91.2%, calculated using the percentage of absolute agreement between the judges (number of agreements divided by the total number of evaluations). The values that are greater than 70% indicate a good degree of consensus among the judges [11]. The lay judges assessed multiple choice statements and assertions for clarity in language. Judges were chosen in such a way that they represent frequent occupations in early childhood schools and health services and that they deal directly with the public, such as executive secretary, teacher and security.

The validation of the questionnaire by the expert judges was performed in terms of clarity in the language and the correct description of the assessed item. Regarding the profession of expert judges, all of them are nurses. The first judge is an assistant nurse at an adult and child emergency room at a public hospital in the city of São Paulo and instructor in basic life support. The second is a nurse, a specialist in the operating room and a professor at a technical nursing school in a large private hospital in São Paulo. The third judge is a nurse, master and doctor of science, professor at the Department of Pediatric Nursing at a federal public university in São Paulo.

The data were stored in a Microsoft Excel spreadsheet and analyzed using software R. The categorical variables were presented according to absolute and relative frequencies, and the numerical variables, according to descriptive statistics with mean, standard deviation, minimum and maximum. The normality of the data distribution was analyzed by the distribution

of the asymmetry and kurtosis of the curve, considering normal values between -2 and 2. For association analysis, a significance level of 5% was considered, and Wilcoxon tests (TW) were performed. , Fisher's exact and Chi-square.

The project was approved by the Ethics and Research Committee of the Federal University of São Paulo (CAAE: 71271417.0.0000.5505) and meets the recommendations of Resolution CNS 466/2012. All participants were informed and signed the Free and Informed Consent Form.

RESULTS

36 professionals participated in the study, of these 14 (38.9%) are health professionals who work in a philanthropic assistance center and 22 (61.1%) are education professionals working in a public early childhood school.

As for the characteristics of the participants, the average age was 42.4 years-old, with a minimum of 20 years-old and a maximum of 67 years-old. Regarding the length of professional experience, the average was 15.6 years, ranging from one to more than 40 years. The other characterization data of the participants are shown in Table 1.

Table 1 – Characterization of study participants regarding sex, occupation, training and previous experiences. São Paulo (SP) - Brazil, 2017.

Characteristics of the participants	N	%
Gender (n=36)		
Female	24	66
Male	12	34
Health professionals' occupation (n=14)		
Nurse	4	28,6
Dentist	3	21,4
Nutritionist	2	14,3
Nursing technician	2	14,3
Social assistant	1	7,1
Nutrition assistant	1	7,1
Pharmacist	1	7,1
Education professionals' occupation (n=22)		
Teacher	5	22,7
Support service	8	36.4
Pedagogical assistant	3	13,6
Manager or administrative assistant, executive secretary	5	22,7
Not specified	1	4,5
Previous training about choking (n=36)		
Yes	2	5,6
No	34	94,4
Previous training on cardiopulmonary resuscitation (n=36)		
Yes	7	19,4
No	29	80,6
Previous experience in helping a choking victim (n=36)		
Yes	4	11,1
No	32	88,8
Previous experience in helping a victim in CPR (n=36)		
Yes	1	2,7
No	35	97,3

Subtitle: CPR – Cardiopulmonary resuscitation. Source: Research data.

The minority of participants had previous training on the topic or experience in caring for a choking or cardiopulmonary arrest victim. It was also found that the two professionals who had this training, one is a nurse and the other a dentist, and among the seven who had already completed the training, five were health professionals, two dentists, one nurse, one technician in nursing and a nutritionist, and two were education professionals, being a teacher and a school receptionist. Among the participants who reported having helped choking victims, two were nurses, one was a teacher and one was a school administrator. The only professional who claimed to have assisted a victim of cardiopulmonary arrest was a nurse.

Regarding the assessment of participants about the educational workshop, 33 (91.6%) rated it as excellent and 3 (8.3%) as good. All (n = 36/100.0%) considered the theme to be important. Regarding the effect of the educational workshop on the participants' knowledge about

the prevention and care of the child who is a victim of choking, it was found that the average number of correct answers in the questionnaire before the workshop was 5.7 and after it was 8.3 with a statistically difference significant (p = 0.000003).

Table 2 - Distribution of correct answers by professionals before and after educational workshops on care for children victims of foreign body airway obstruction.São Paulo (SP) - Brazil, 2017.

Questions	Hits before the intervention n (%)	Hits after the intervention n (%)	Increment percentage %	Value of p
Question 1. What is choking? Answer: Choking is when a food or other object gets stuck in the throat blocking the passage of air to the lungs	30 (83,3)	32 (88,9)	5,6	0,74[F]
Question 2. How to prevent choking in children? Answer: Offer cut or mashed food into small pieces.	33 (91,7)	36 (100,0)	8,3	0,24[F]
Question 3. The signs that the child is completely choked are: Answer: The child cannot cough or cry and his lips are purple.	33 (91,7)	36 (100,0)	8,3	0,24[F]
Question 4. The maneuvers to disengage a baby under one year old are: Answer: Give 5 strokes in the middle of the baby's back and do 5 chest compressions with two fingers in the middle of the chest	17 (47,2)	32 (88,9)	41,7	0,0003[F]
Question 5. The maneuvers to disengage children older than one year until puberty are: Answer: Hug the child from behind, close one hand and grab the closed hand with the other hand, then do quick compressions above the child's navel.	21 (58,3)	31 (86,1)	27,8	0,017[F]
Question 6. The signs that a child is in cardiac arrest are: Answer: The child does not respond (does not cry, does not move) and does not breathe.	32 (88,9)	36 (100,0)	11,1	0,115[F]
Question 7. To help a child stopping cardiorespiratory, it is recommended: Answer: To perform 30 chest compressions and 02 ventilatio	9 (25,0)	33 (86,4)	61,4	0,0001[F]
Question 8. To perform chest compressions in a baby under one year old in cardiorespiratory arrest is due to: Answer: Place two fingers in the middle of the chest, just below the nipple line.	19 (36,4)	32 (88,9)	52,5	0,0007[F]
Question 9. To perform chest compressions in children older than one year-old until puberty, you must: Answer: Place the palm of a hand, just below the nipple line.	10 (27,7)	29 (80,6)	52,9	<0,001[Q]

Subtitle: [F]- Fischer's exact test; [Q] – Chi-square. Source: Research data.

In the data in Table 2, it is clear that the participants' knowledge increased by 29.9%, on average, considering the nine questions assessed. The knowledge with the highest number of correct answers by the participants, after the educational workshop, was related to the maneuvers to help the child with airway obstruction and the victim of cardiopulmonary arrest. There was a greater increase in knowledge regarding the relationship between the number of chest compressions and the number of rescue breaths for a rescuer, attending a victim of cardiopulmonary arrest, as well as regarding cardiac compression maneuvers in children under one year old and in those older than a year until puberty.

Regarding the knowledge of health and education professionals about the prevention and care of children with choking, before the intervention, the average number of correct answers among health professionals was 6.6 and that of education professionals was 5.0, this result was statistically significant (p = 0.001). After the intervention, the average number of correct answers among health professionals was 8.6, and educators, 8.0, and this result was not statistically significant (p = 0.32).

DISCUSSION

The findings of the present study revealed that the educational workshops contributed to the expansion of the knowledge of health and education professionals on the prevention and care of children who are victims of airway obstruction due to foreign bodies. After the

workshops, the participants' knowledge on the topic increased by approximately 30%, especially related to the care of the child who loses consciousness due to foreign body airways obstruction and then needs cardiopulmonary resuscitation. These findings highlight the nurse's role as a health educator and articulator of inter-sectoral actions for the protection and promotion of children's health.

Similar results were reported in a study carried out with nursing professionals who evaluated theoretical and practical training on basic life support, revealing that the professionals' knowledge went from 4.1 points to 7.3 points after training, increasing 33% [12]. Another study that aimed to compare knowledge before and after a 20-hour mini-course on pre-hospital care maneuvers in basic life support for new entrants from a public medical university showed that the average number of correct answers went from 20.1 to 24, 3 with a statistically significant difference ($p < 0.01$). As for issues related to the initial care of victims of accidents and home emergencies, there was an increase of 42.2% after training [13].

Regarding the importance of investing in inter-sectoral actions, a study that was developed by nursing graduates who held educational workshops with 10 primary school teachers from a municipal school in Pará identified that educators were not prepared to act in situations of risk to the child's health, including choking. After rounds of conversation and practices based on the Basic Life Support protocol, educators felt welcomed and capable of coping with such situations. Thus, we highlight that partnerships between health and education professionals are promising in terms of preventing accidents in the school environment [14].

The literature points out that theoretical knowledge in first aid is important so that professionals recognize the signs and symptoms presented by a child with choking or cardiopulmonary arrest and perform the maneuvers effectively. In addition, it is known that knowledge and experience are directly related to the survival of patients suffering from choking and/or cardiopulmonary arrest. However, investment in training professionals for these services is still not a priority and satisfactory [5,12,15].

In this regard, in 2004 the American Heart Association recommended the inclusion of basic life support in the school curriculum of high school students and the goals to be established so that all teachers and students receive training in cardiopulmonary resuscitation in accordance with the guidelines of the International Liaison committee on Resuscitation [16]. However, in Brazil, there is still no legislation that ensures the incorporation of this content as a mandatory part of the school curriculum [17].

There is evidence that medical professionals, nurses and physiotherapists have insufficient knowledge in relation to basic life support, particularly related to the recognition of a cardiopulmonary arrest, delaying the response time and the start of cardiopulmonary resuscitation maneuvers. In addition, the lack of updating for the care of cardiopulmonary arrest is common among professionals who do not often deal with this situation, which influences the agility in identifying the situation and quality of care [18-19]. However, our results showed that the knowledge of health professionals before the intervention was greater than that of education professionals, demonstrating that there is perpetuation of knowledge, despite the average of success being 6.6, and that after the intervention, both health and education professionals obtained close accuracy averages, equaling the knowledge of professionals, regardless of whether they are health professionals and have already undergone previous training.

An example of an initiative to disseminate knowledge on the subject includes an education program in cardiorespiratory resuscitation of an extension project at the Federal University of Ceará, founded in 1996, with the aim of expanding the knowledge about cardiopulmonary arrest to all professionals, academics and laypeople, through theoretical-practical classes [20].

Our results point to the need to strengthen professionals working in health services and the school environment regarding their knowledge and skills in the prevention and care for children who are victims of choking. In this sense, permanent health education is built from knowledge of the work environment and daily problems found in reality, overcoming gaps and improving the health work process. Permanent health education aims to transform professional practices and the organization of work itself. In addition, its bases are the health needs of people and populations, social control in health and reorganization of sectoral management [20].

Studies conducted in other countries have demonstrated the importance of continuing education related to basic life support [18-19]. A retrospective study conducted in Tuzla, Bosnia and Herzegovina, evaluated 772 records and identified that the main complications resulting from choking are related to late and erroneous diagnosis. The authors recommend carrying out educational measures, such as public education campaigns, to prevent this problem and decrease choking-related mortality [21].

Some limitations of the present study involve the small sample and the absence of other tests, after the intervention to assess content retention. However, the study innovates by proposing an intervention that promotes the permanent education of health and education professionals regarding the care of child victims of choking.

CONCLUSION

This work generated evidence on the effectiveness of an inter-sectoral educational intervention aimed at promoting children's health. The knowledge of health professionals and early childhood education about prevention and care for children who are victims of airway obstruction, due to foreign bodies, increased after the educational workshop, with the average of correct answers for the questionnaire questions being significantly higher after the intervention.

Theoretical-practical workshops on prevention and care for children with airway obstruction, due to foreign bodies, represent an effective strategy in the permanent education of health and education professionals, so that they can contribute to the promotion and protection of the health of children. Therefore, public policies and programs of an inter-sectoral nature are necessary for the dissemination of knowledge related to the theme to society.

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