

FIRST AID TRAINING FOR KINDERGARTEN PROFESSIONALS: A CASE REPORT

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ABSTRACT: This article evaluated the results of an educational intervention in first aid on the knowledge of professionals working in a daycare center in a Quilombola community. Methods: An experimental, non-randomized study based on pre- and post-intervention, with a single group, from March 2022 to September 2022. Pre- and post-intervention observations were carried out using a semi-structured questionnaire to assess professionals' knowledge of concepts and some of the main first aid maneuvers in the context of early childhood education. Results: Five women (50%) and five men (50%) participated in the intervention. The majority reported having witnessed first aid situations and denied having received training on the subject in the last ten years. Regarding first aid knowledge, the first application of the questionnaire showed little theoretical knowledge of the topics \bar{x} 3.6 (\pm 1.26). However, after the second workshop, the percentage of correct answers increased significantly \bar{x} 8.5 (\pm 1.43). Conclusion: Health education strategies focused on the prevention of accident complications in the school environment are effective and necessary. We emphasize that the workshops for Quilombola professionals qualify them as allies in the defense and protection of life in the community.

KEYWORDS: First Aid; Teacher Training; Public Health.

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TREINAMENTO DE PRIMEIROS SOCORROS EM PROFISSIONAIS DE INFÂNCIA: RELATO DE CASO

RESUMO: Este artigo avaliou o resultado de uma intervenção educativa em primeiros socorros sobre o conhecimento de profissionais que atuam em uma creche de uma comunidade Quilombola. Métodos: Um estudo experimental, não randomizado, baseado em pré e pós-intervenção, com grupo único, de março de 2022 a setembro de 2022. Foram realizadas observações pré e pós-intervenção utilizando um questionário semiestruturado para avaliar o conhecimento dos profissionais sobre conceitos e algumas das principais manobras de primeiros socorros no contexto da educação infantil. Resultados: Cinco mulheres (50%) e cinco homens (50%) participaram da intervenção. A maioria relatou ter presenciado situações de primeiros socorros e negou ter participado de treinamento sobre tema nos últimos dez anos. Quanto ao conhecimento em primeiros socorros, a primeira aplicação do questionário mostrou pouco conhecimento teórico dos temas \bar{x} 3,6 ($\pm 1,26$). Porém, após o segundo workshop a percentagem de acertos aumentou consideravelmente \bar{x} 8,5 ($\pm 1,43$). Conclusão: estratégias de educação em saúde focadas na prevenção de complicações decorrentes de acidentes no ambiente escolar é eficaz e necessária. Destacamos que as oficinas para profissionais Quilombolas os qualificam como aliados na defesa e proteção da vida na comunidade. **PALAVRAS-CHAVE:** Primeiros Socorros; Treinamento de Professor; Saúde Pública.

FORMACIÓN EN PRIMEROS AUXILIOS PARA PROFESIONALES DE KINDERGARTEN: REPORTE DE UN CASO

RESUMEN: Este artículo evaluó los resultados de una intervención educativa en primeros auxilios sobre los conocimientos de los profesionales que trabajan en una guardería de una comunidad Quilombola. Métodos: Estudio experimental, no aleatorizado, de pre y post-intervención, con un solo grupo, desde marzo de 2022 a septiembre de 2022. Se realizaron observaciones pre y post-intervención mediante un cuestionario semiestruturado para evaluar la actuación de los profesionales. Conocimiento de conceptos y algunas de las principales maniobras de primeros auxilios en el contexto de la educación infantil. Resultados: Participaron de la intervención cinco mujeres (50%) y cinco hombres (50%). La mayoría refirió haber presenciado situaciones de primeros auxilios y negó haber recibido capacitación sobre el tema en los últimos diez años. En cuanto a conocimientos en primeros auxilios, la primera aplicación del cuestionario mostró poco conocimiento teórico de los temas \bar{x} 3,6 ($\pm 1,26$). Sin embargo, después del segundo taller, el porcentaje de respuestas correctas aumentó significativamente \bar{x} 8,5 ($\pm 1,43$). Conclusión: Las estrategias de educación en salud enfocadas a la prevención de complicaciones de accidentes en el ámbito escolar son efectivas y necesarias. Destacamos que los talleres para profesionales Quilombolas los califican como aliados en la defensa y protección de la vida en la comunidad. **PALABRAS CLAVE:** Primeros Auxilios; Formación de Profesores; Salud Pública.

INTRODUCTION

The school context is conducive to the occurrence of accidents, especially among children, due to the risks inherent in this space and the way they interact with it, a condition that is reinforced by children's characteristic interest in exploring the world and

knowing their potential to challenge themselves with new skills (SILVA *et al.* 2019). School-age children are more likely to have unintentional accidents while playing at school. Teachers have the primary responsibility for the well-being of students. They are the first point of contact and the responsible party when children are injured. However, studies show that educators have a lack of knowledge about first aid (GALINDO *et al.* 2018).

The lack of information about what procedures can be performed in urgent and emergency situations, as well as the lack of information about qualified first aid, can cause harm and aggravate existing injuries, increasing the possibility of serious sequelae; therefore, learning about first aid would help people to act more safely in such situations (SALIM *et al.* 2022). First aid is the first and immediate measures given to victims of accidents or sudden illness, with risk of death, outside the hospital environment, performed by any person, trained or lay, to guarantee life, provide well-being and avoid aggravating conditions existing injuries until qualified assistance arrives (NAÇÕES UNIDAS, 2023).

Regarding first aid, in the Brazilian educational system, training on this topic took the form of Law No. 13,722/18, Brazilian legislation based on the case of a child who suffocated during a school field trip (BRASIL, 2018), which established that employees of kindergartens and basic education schools, as well as any type of recreational facility for children, should be trained in first aid (PORFIRIO *et al.* 2018). Health education has been configured over time as one of the strategies of public power to ensure the development of disease control and prevention policies, especially among marginalized populations (FIORUC *et al.* 2008).

In Brazil, studies report that the identification and use of health care is directly related to geographic socioeconomic vulnerability, such as poverty, belonging to groups with a historical profile of exclusion/discrimination, such as Quilombolas, indigenous peoples, and people with disabilities (QUARESMA *et al.* 2019). It is very difficult to see that a country has the capacity for equality for all, but in reality, it does not happen (MARCATO *et al.* 2015). The equitable distribution of health education interventions is essential to reduce systematic inequalities in the population, especially among socially disadvantaged groups such as the Quilombolas (QUARESMA; STEIN, 2015), and ultimately contribute to the goals of sustainable development (NAÇÕES UNIDAS, 2023).

The theoretical empowerment of first aid in isolated rural communities, such as Quilombolas, indigenous peoples, and riverine communities, in terms of health care, not

only expands the range of theoretical skills of teachers/staff, but also gives them an even more prominent role as agents of protection and defense of the lives of community members. The lack of studies on vulnerable populations plays a critical role in promoting health equity by ensuring that everyone, regardless of socioeconomic status, ethnicity, gender, age, or geographic location, has equal access to health care and opportunities for well-being (QUARESMA *et al.*, 2022).

Therefore, given the scarcity of articles that address the issue in Quilombola communities, this study aimed to evaluate the outcome of an educational intervention in first aid on the knowledge of professionals working in a kindergarten in a Quilombola community.

METHODS

Study Design and Research Context

An experimental study (THIESE, 2014) of the pre- and post-test type was carried out in a Quilombola school in the northern region, Tocantins state, Brazil, working in early childhood education. The data collection, previously planned in the school, took place in two sessions. The data collection was carried out by scientists of the League of Urgent and Emergency (LAUEM) and supervised by the coordinating professor, experienced in studies with vulnerable communities, from March to September 2022.

Participants, Sample Size, and Ethical Aspects

There are about 140 students enrolled in the institution and about 13 staff members. Before starting the data collection, it was confirmed with the school coordinator and teachers that they had not received any previous training in first aid, so that there would be no bias in the results. Convenience sampling included 10 professionals who agreed to participate in the study and were able to attend the data collection phases. The study was approved by the community leaders and the Ethics Committee of the Federal University of Tocantins (CAAE: 52871221.0.0000.5519), according to the ethical guidelines recommended in Brazil.

Interventions

In the first meeting, the purpose and relevance of the research were explained verbally to the professionals and their consent was obtained. From the first meeting, a pre-test instrument developed by the League of Urgency and Emergency of the Federal

University of Tocantins (LAUEM-UFT) was used through reading and previous analysis of bibliographies. The instrument is composed of ten objective multiple-choice questions that reveal behaviors that must be taken in situations of first aid, namely: convulsion, fainting, dizziness, choking and cardiorespiratory arrest. Then they started two workshops on basic first aid concepts, each lasting four hours. The educational activities were developed at the school by monitors (nursing students) from LAUEM-UFT, trained by a professional from the Brazilian Mobile Emergency Service and supervised by the principal investigator.

The educational activities consisted of lectures, exercises and videos that addressed the behavior in situations of cardiorespiratory arrest, choking, dizziness, seizures and fainting. In these activities, the concepts of biosafety and scene safety were emphasized, explaining their importance for rescuers to avoid contamination or becoming victims. After the theoretical exposition, the professionals practiced their knowledge on simulator mannequins and on their own colleagues. At the end of the workshops, a post-test instrument with the same questions was used to verify the assimilation of the information obtained by the professionals on the subject approached and to evaluate the percentage of errors and correct answers to the questions.

Statistical Analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 21.0 for Windows. Knowledge before and after the workshops was analyzed using absolute and relative frequencies. The results were presented in descriptive tables.

RESULTS

The group of study participants consisted of eight teachers and two staff members of the kindergarten, being (n=5; 50%) women and (n=5; 50%) men, where the majority (n=8; 80%) reported having witnessed an urgent and emergency situation that required first aid, but reported not having participated in any training on the subject in the last ten years (n=9; 90%). Regarding knowledge of first aid in the first workshop, the frequency of correct answers showed that they had little theoretical knowledge of the topics covered, but after the second workshop, the percentage of correct answers increased significantly.

In the first workshop (Table 1), 90% of the questions in the pretest had percentages less than or equal to 50% correct Q1 (40%), Q2 (40%), Q3 (30%), Q4 (30%), Q5 (50%),

Q6 (30%), Q7 (50%), Q8 (30%), and Q10 no hits. Knowledge of CRP maneuvers in adults (Q8) and children (Q10) shows how management, especially in children, needs to be improved. In the post-test, questions about cardiorespiratory arrest remained low. The mean number of correct answers increased from 3.6 (± 1.26) to 5.7 (± 2.31).

Table 1 – Ratio of the percentage of correct answers to the questions before and after (pre and post-test) of the educational intervention of workshop 1. Santa Teresa – (TO), 2022.

| Variable | Pre | | Post | |
|--|------------------------|---------------|------------------------|---------------|
| | Incorrect n (%) | Correct n (%) | Incorrect n (%) | Correct n (%) |
| Q1. Convulsion | 6 (60) | 4 (40) | 2 (20) | 8 (80) |
| Q2. Choking | 6 (60) | 4 (40) | 3 (30) | 7 (70) |
| Q3. Fainting | 7 (70) | 3 (30) | 2 (20) | 8 (80) |
| Q4. Cardiopulmonary arrest | 7 (70) | 3 (30) | 6 (60) | 4 (40) |
| Q5. Choking | 5 (50) | 5 (50) | 4 (40) | 6 (60) |
| Q6. Convulsion | 7 (70) | 3 (30) | 9 (90) | 1 (10) |
| Q7. Fainting | 5 (50) | 5 (50) | 3 (30) | 7 (70) |
| Q8. Cardiopulmonary arrest | 7 (70) | 3 (30) | 4 (40) | 6 (60) |
| Q9. Cardiopulmonary arrest adults and children | 4 (40) | 6 (60) | 5 (50) | 5 (50) |
| Q10. Cardiopulmonary arrest child | 10 (100) | - | 3 (30) | 7 (70) |
| | Correct mean (\pm) | | Correct mean (\pm) | |
| | 3.6 (1.26) | | 5.7 (2.31) | |

Source: Prepared by the authors (2023)

In the second workshop (Table 2), there was an increase in the number of correct answers ($\geq 70\%$) for most of the content covered, except for cardiopulmonary arrest, which showed 50% assertiveness among the participants. The mean number of correct answers increased from 6.1 (± 1.59) to 8.5 (± 1.43).

Table 2 – Ratio of the percentage of correct answers to the questions before and after (pre and post-test) of the educational intervention of workshop 1. Santa Teresa – (TO), 2022.

| Variable | Pre | | Post | |
|--|------------------------|---------------|------------------------|---------------|
| | Incorrect n (%) | Correct n (%) | Incorrect n (%) | Correct n (%) |
| Q1. Convulsion | 3 (30) | 7 (70) | 1 (10) | 9 (90) |
| Q2. Choking | 4 (40) | 6 (60) | 1 (10) | 9 (90) |
| Q3. Fainting | 2 (20) | 8 (80) | 1 (10) | 9 (90) |
| Q4. Cardiopulmonary arrest | - | 10 (100) | - | 10 (100) |
| Q5. Choking | - | 10 (100) | 1 (10) | 9 (90) |
| Q6. Convulsion | 5 (50) | 5 (50) | 3 (30) | 7 (70) |
| Q7. Fainting | 9 (90) | 1 (10) | 1 (10) | 9 (90) |
| Q8. Cardiopulmonary arrest | 7 (70) | 3 (30) | 5 (50) | 5 (50) |
| Q9. Cardiopulmonary arrest adults and children | 4 (40) | 6 (60) | 1 (10) | 9 (90) |
| Q10. Cardiopulmonary arrest child | 5 (50) | 5 (50) | 1 (10) | 9 (90) |
| | Correct mean (\pm) | | Correct mean (\pm) | |
| | 6.1 (1.59) | | 8.5 (1.43) | |

Source: Prepared by the authors (2023)

DISCUSSION

The results of this study, whose participants were teachers and staff of a nursery school, showed a lack of training in first aid, which was reflected in a majority of incorrect answers in the evaluation questionnaires on the topics: cardiorespiratory arrest, choking, dizziness, convulsions and fainting. Regarding the knowledge of first aid, most of the participants reported having no training, as found in studies conducted in Ethiopia 58.9% (WORKNEH *et al.* 2021) and Iran 60.3% (ADIB-HAJBAGHERY; KAMRAVA, 2019), in contrast to other countries with higher rates, such as Spain 57% (ABELAIRAS-GOMÉZ *et al.* 2020) and Saudi Arabia 80.96% (ALSHAMMARI, 2021). This discrepancy may be due to differences in knowledge, first aid training, and levels of educational legislation.

In Brazil, the need for the applicability of the Lucas Law (BRASIL, 2018) represents a step forward in guaranteeing the safety and health not only of students, but also of workers and the community in general. Despite the existence of the law, both actions and studies dealing with its implementation in schools are scarce. This is even more evident when these subgroups come from vulnerable communities, such as the quilombolas, where health education actions must take into account a mosaic of different needs, such as poverty, belonging to groups with a historical profile of exclusion/discrimination, and living in places far from large centers (QUARESMA *et al.* 2022).

The equitable distribution of health education is essential to achieve the goals established in the Sustainable Development Goals, especially Sustainable Development Goals 3 and 4, which define quality health and education (PERIN *et al.* 2022). Regarding the topics studied, literature (SALIM; 2022) highlights that the most common incidents in the school environment are: fainting, seizures and cardiorespiratory arrest, among others, which is in line with the topics covered in this study. When caring for a fainting or convulsing victim, similar results were observed before and after training, with an average learning rate of more than 80% (BÖTTIGER *et al.* 2020). Therefore, attention and training should be given to equipping teachers with evidence-based first aid knowledge for accidents in the school environment.

Similar results were found for lower performance in cardiopulmonary arrest in the posttest, and the main factors that teachers perceived as limiting the quantity and quality of first aid training were insufficient specification of learning objectives in the curriculum, many other competency objectives, lack of first aid manikins, and lack of training as first aid instructors (ILHA *et al.* 2021).

In 2015, the international initiative Kids Save Lives “Children saving lives” (BÖTTIGER *et al.* 2020; BÖTTIGER, 2015), with the support of the World Organization, proposed an additional direction that includes the young public as a force in the multiplication of knowledge acquired in cardiac arrest situations (BÖTTIGER *et al.* 2017). The Kids Save Lives worldwide campaign was implemented for the first time by a group of associate professors, researchers and graduate students from multidisciplinary areas at the University of São Paulo (NAKAGAWA *et al.* 2019). The implementation of the Lucas Law in Brazil represents an opportunity to take advantage of this international and national movement to train the school community (teachers, professionals, and students) in first aid and qualify them as instructors for their students, who will grow and can keep the acquired skills for the rest of their lives.

All in all, the better performance presented by the participants in the post-test (administered after the first aid training) could mean that the provision of first aid training with professionals from the kindergarten has a positive effect on the knowledge and intention to practice the provision of first aid services to Quilombola students. In addition, the study highlighted the importance of promoting health actions with Quilombola populations through university-community integration. The execution of these activities by university students contributes to the training of these future professionals, since the knowledge of the specificities of this population and the conditions of access to health education builds the knowledge of academics about the studied population.

The study proposal demonstrates the commitment and the contribution of the public university in the respect of the “Lucas Law”, as well as in the integration of teaching-research-extension through permanent training such as scientific initiation programs, academic leagues and/or groups/nucleus/research observatories.

Our study has important limitations. The sample size limits the ability to extrapolate the results found in this study, but due to the lack of national studies on the subject, especially among populations with a history of segregation and scientific abandonment. Another fact was the impossibility of analyzing the impact of the educational intervention on the management of first aid situations in the long term. It is recommended that future research consider evaluating the practical skills of teachers/staff in real emergency situations, expanding the sample to include different levels of education, and conducting longitudinal studies to assess the retention of acquired knowledge over time and its impact on first aid practices in Quilombola schools.

However, this study is the first to insert the topic in the Quilombola community in Tocantins, integrating the university-community, which makes this an important parameter for similar studies, as well as strengthening the insertion of health education activities in schools for vulnerable populations.

CONCLUSION

Established training in first aid can increase the spectrum of management of situations involving immediate health measures among school community teachers. Also, bringing first aid knowledge closer to Quilombola school educators and employees has a greater proportion as these professionals are residents of this community, which qualifies them as allies in the defense and protection of the lives of people in the community.

The synergy established between university institutions and remote communities is proving to be an essential facet in exploring and solving complex health problems affecting these marginalized populations. This strategic alliance facilitates the application of vast academic expertise and research resources in a highly contextualized manner, enabling an evidence-based approach to the specific needs of these communities.

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