Revista Brasileira em Promoção da Saúde
e-ISSN:1806-1230
Description of experiences
DOI: 10.5020/18061230.2019.8255

BASIC NOTIONS OF FIRST AID: EXPERIENCE REPORT ON A RURAL EXTENSION PROJECT

Noções básicas de primeiros socorros: relato de experiência de um projeto de extensão rural

Nociones básicas de primeros auxilios: relato de experiencia de un proyecto de extensión rural

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ABSTRACT

Objective: To report on the experience of Nursing students enrolled in a Tutorial Education Program (*Programa de Educação Tutorial – PET*) towards the development of training on the basic notions of first aid in rural areas. **Data synthesis:** This is an experience report on the practical experience of nursing students enrolled in the PET of a university in the Central Region of the State of Rio Grande do Sul (RS), Brazil, towards the development of training on first aid for rural producers. The activities took place from August 2016 to December 2017. Meetings were held in the municipalities of Toropi, Dilermando de Aguiar, Ivorá, Silveira Martins and Faxinal do Soturno, located in the central region of RS. The subjects addressed were: electric shocks, accidents with venomous animals, pesticide poisoning, burns, airway obstruction, drowning and cardiorespiratory arrest (CRA). The activities performed outside the university through extension programs are believed to provide the student with complementary training as a health professional and promote health education actions, and facilitate access to information for rural populations who often have low levels of knowledge due to difficult access. **Conclusion:** Educational actions such as those described in this report make it possible to exchange knowledge among the people involved and hence promote the dissemination of knowledge about emergency situations and also the development of skills related to nursing practices. Training the lay population on this subject is extremely important for initial care in emergency situations.

Descriptors: Health Education; Nursing; Rural Population; First aid; Cardiopulmonary resuscitation.

RESUMO

Objetivo: *Relatar a experiência de discentes do Programa de Educação Tutorial (PET) da graduação em Enfermagem no desenvolvimento de capacitações acerca de noções básicas de primeiros socorros em área rural.* ***Síntese dos dados:*** *Trata-se de um relato de experiência a partir da vivência prática de discentes do PET Enfermagem de uma universidade da região central*

Received on: 08/07/2018
Accepted on: 01/28/2019

do estado do Rio Grande do Sul (RS), Brasil, no desenvolvimento de capacitações acerca dos primeiros socorros para produtores rurais. As atividades ocorreram de agosto de 2016 a dezembro de 2017. Realizaram-se encontros nos municípios de Toropi, Dilermando de Aguiar, Ivorá, Silveira Martins e Faxinal do Soturno, localizados na região central do RS. Os temas abordados foram: choques elétricos, acidentes com animais peçonhentos, intoxicação por agrotóxicos, queimaduras, obstrução de vias áreas, afogamento e parada cardiorrespiratória (PCR). Acredita-se que atividades extramuros da universidade, promovidas por meio de projetos de extensão, propiciam ao discente complementar a sua formação, enquanto profissional da saúde, ao mesmo tempo que fomentam as ações de educação em saúde, facilitando o acesso à informação de populações rurais, caracterizadas, muitas vezes, com baixo nível de conhecimento devido ao difícil acesso. ***Conclusão:*** *Ações educativas, como as descritas neste relato, possibilitam a troca de saberes entre os envolvidos, promovendo a disseminação de conhecimento acerca das situações de emergência e também o desenvolvimento das habilidades relacionadas às práticas de enfermagem. A capacitação da população leiga nesse assunto possui extrema importância no atendimento inicial em situações de emergência.*

Descritores: *Educação em Saúde; Enfermagem; População Rural; Primeiros Socorros; Reanimação Cardiopulmonar.*

RESUMEN

Objetivo: *Relatar la experiencia de discentes del Programa de Educación Tutorial (PET) del grado de Enfermería para el desarrollo de capacitaciones sobre las nociones básicas de primeros auxilios en la zona rural.* ***Síntesis de los datos:*** *Se trata de un relato de experiencia a partir de la vivencia práctica de los discentes del PET Enfermería de una universidad de la región central del estado de Rio Grande do Sul (RS), Brasil, para el desarrollo de las capacitaciones sobre los primeros auxilios para los productores rurales. Las actividades se dieron entre agosto de 2016 y diciembre de 2017. Se realizaron encuentros en los municipios de Toropi, Dilermando de Aguiar, Ivorá, Silveira Martins y Faxinal do Soturno localizados en la región central de RS. Los temas abordados fueron: los choques eléctricos, los accidentes con animales pezoñentos, la intoxicación por agrotóxicos, las quemaduras, la obstrucción de las vías aéreas, el ahogamiento y la parada cardiorrespiratoria (PCR). Se cree que las actividades extramuros de la universidad que son promocionadas por los proyectos de extensión permiten el discente complementar su formación de profesional sanitario a la hora que fomentan las acciones de educación en salud que facilita el acceso a la información de poblaciones rurales caracterizadas muchas veces por el bajo nivel de conocimiento a causa del acceso difícil.* ***Conclusión:*** *Acciones educativas como las descritas en ese relato permiten el cambio de saberes entre los involucrados promocionando la diseminación del conocimiento sobre las situaciones de emergencia y también el desarrollo de las habilidades relacionadas con las prácticas de enfermería. La capacitación de la población lega en el tema tiene extrema importancia para la atención inicial de situaciones de emergencia.*

Descriptores: *Educación en Salud; Enfermería; Población Rural; Primeros Auxilios; Reanimación Cardiopulmonar.*

INTRODUCTION

According to data from the World Health Organization, external causes are responsible for 9% of total mortality. The main causes of these deaths are: poisoning, drowning, burns, electric shocks, traffic accidents, suicides, falls and homicides. The most affected people are young individuals aged 15-29 years[1]. In Brazil, the rate of deaths from external causes is 13% and they are the third leading cause of death, behind only noncommunicable and communicable diseases, respectively[1].

External causes of morbidity and mortality are described in chapter XX of the 10th revision of the International Classification of Diseases (ICD-10) and are defined as trauma, injuries and health harms of sudden onset caused by violence, poisoning or extrinsic causes[2,3]. This group also includes traffic, household and work-related accidents; emergency situations resulting from falls, drowning, poisoning and burns, and environmental-related conditions (caused by mechanical, chemical, thermal, electrical, and/or radiation exposure)[4].

Although occurrences of emergency situations are frequent, first-aid training is not widespread, as most people are unaware of basic first-aid techniques[5].

Lack of training can be compounded when associated with hard-to-reach places, such as rural communities. Access difficulties are present in a variety of contexts, whether in large urban centers, where resources are available, or in places with low levels of assistance, such as rural areas, where emergency care training are even more necessary[6].

Thus, at any time one can be surprised by an emergency situation requiring immediate help; therefore, the quality of the first aid offered is important to increase the chances of survival and minimize the worsening of the clinical status of the individual until the arrival of the specialized service at the place. To this end, knowledge about how to provide help and make the right decisions when evaluating the status of the victims and the place where they are and

requesting adequate help – always respecting their limitations – is necessary for the entire population as inadequate first-aid care practice is related to the damage that inadequate care may cause[5].

First-aid can be defined as the immediate care that must be given quickly to a person, whether they are a victim of an accident or a sudden illness whose clinical condition puts them at risk of death. The objective of this service is to maintain vital signs and ensure life until the arrival of specialized care[5].

Although access to health is a recognized right, there are barriers that make it unfeasible, such as sociocultural and socioeconomic constraints, limited information on health needs and health rights, and limited availability of services[7]. When it comes to access to health services in rural areas, the problems are even greater. In addition to the restrictions outlined before, geographical and spatial factors make access to health services even more difficult.

In this regard, emphasis is placed on the relevance of the problem based on the principle that training and empowering the population in different scenarios can be a strategy for correct prevention, evaluation and conduct in a first approach, thus leading to a decrease in health harms and injuries in emergency situations[8].

Thus, health education is an effective tool to disseminate learning and autonomy regarding life care as it allows the development and improvement of health promotion and disease prevention. Educational activities make it possible to understand and help solve health problems in society and improve quality of life[9].

The great impact of deaths from external causes on the morbidity and mortality rates of the country's population ends up being a public health problem. This led to the creation of the National Policy for Reduction of Morbidity and Mortality from Accidents and Violence in 2001, which highlights the principles of health promotion in relation to the population's capacity to develop, improve and maintain healthy conditions and habits[10]. One of its guidelines refers to the expansion and consolidation of first aid.

Although external causes are one of the main causes of mortality, they do not always result in death. Sometimes accidents due to external causes lead to hospitalization of the victims, which may lead to temporary or permanent incapacities and health consequences[11]. Therefore, health promotion becomes indispensable as it enables health professionals to dialogue with the population, making everyone protagonists in the protection and quality of life and health, thus resulting in both individual and community empowerment[12].

Considering that the rescuer can be a lay person, it is important to have health education projects. For example, first aid training in the extra-hospital context, and especially outside the university, including the rural environment, allows that first aid care will be provided in the most correct way, for the status of the victim can be worsened by incorrect procedures[13].

Based on these considerations, this study aimed to report on the experience of Nursing students enrolled in a Tutorial Education Program (*Programa de Educação Tutorial – PET*) towards the development of training on the basic notions of first aid in rural areas.

DATA SYNTHESIS

This is an experience report on the practical experience of nursing students enrolled in the PET towards the development of training on first aid for dwellers of rural areas. The project to which these activities are linked is titled "Rural Extension" and was created in the year 2016 based on a partnership between the PET programs of the School of Electrical Engineering School and the School of Nursing of the Federal University of Santa Maria (*Universidade Federal de Santa Maria – UFSM*).

The university is headquartered in the municipality of Santa Maria and has other three campi outside of headquarters in the cities of Frederico Westphalen, Palmeira das Missões and Cachoeira do Sul. According to data from the institution, UFSM currently has 130 undergraduate programs, 103 graduate programs and one postdoctoral program. In addition, it offers 27 post-secondary technical programs and five secondary programs[14].

The project counts on the participation of two other PET programs – Dentistry and Physical Education. The union between the different areas of knowledge strengthens the project and the activities developed as it allows to approach several gaps within society[15]. This project aims to train rural dwellers in a simple and easy-to-understand way so that they can carry out appropriate procedures in a first approach to the victims in the most varied possibilities of emergencies that the rural environment can trigger.

Thus, we sought to promote knowledge exchange between rural dwellers in the cities of the countryside of Rio Grande do Sul and university students. In addition to integrating students with society, university extension allows to combine teaching and research in the search for knowledge sharing[16].

The Rural Extension project was initially developed through electrical installations workshops that addressed issues such as safety and energy efficiency with the aim of improving the quality of the electrical installations of rural producers and their families. The aim was to inform producers about safety methods when working with electricity. On the other hand, the producers reported their experiences of emergency situations in which first aid care was needed. Faced with that, the Electrical Engineering students enrolled in the project felt the need to add specialized knowledge in their workshops when addressing health security, therefore partnering up with the nursing students.

The activities developed by the PET Nursing students consisted of the teaching, instruction and training of basic first aid concepts in everyday situations in rural areas. Sometimes people do not have the necessary knowledge to provide first care and they do not know the correct way to proceed in emergency situations. Knowledge and understanding of and training on the most correct and effective approach are essential in these situations. The evaluation of the victim and the form of care in the first moment can save lives and/or prevent further damage[13].

In this regard, knowledge about first aid is necessary in different population groups as such situations may occur in the most varied scenarios, including rural areas. Thus, discernment about this theme is of paramount importance, not only for health professionals, but also for the different social and professional segments[15].

Based on this assumption, the activities were previously organized through meetings with all the members of the PET groups and the issues addressed consisted of the distribution of tasks. The municipalities where the activities were carried out were Toropi, Dilermando de Aguiar, Ivorá, Silveira Martins and Faxinal do Soturno, located in the central region of Rio Grande do Sul. These municipalities were chosen because they were the hometowns of some of the students who participated in the activity, which facilitated the previous contact with the administrative entities of the city. In case there was no one related to the community, the members of the PET Electrical Engineering group were in charge of contacting the local city hall and presenting the proposal and the requirements that the city should fulfill in order to participate.

The target audience of the activities included farmers living in the rural community of the municipalities mentioned above. The inclusion criterion was being a farmer; and the exclusion criteria were being underage and not being accompanied by the parents. The number of participants was determined based on the capacity of the space offered by the municipality. An average of 10 farmers participated in each meeting, totaling an average of 50 farmers, including men and women who were previously invited by the city hall and interested in participating.

A total of five meetings were held; there was one meeting in each city and all the cities were close to the city that headquartered the university. The activities took place during the second academic term of 2016 and during the year 2017. Each meeting lasted approximately five hours.

The dissemination of the project among the dwellers and the organization of the space to carry out the activity and coffee break was the responsibility of the municipal representatives. The displacement of the participants of the project to the city was carried out via transportation ceded or rented by the educational institution.

The members of the PET Nursing group organized their presentation within the time limit of one hour and a half, which was the pre-determined duration of the meeting. This duration was set with the aim of ensuring a better organization of the afternoon and allowing each PET group to have the time to plan their activities. Illustrative slides were used in order to facilitate participants' visualization of the activity and were interspersed with the speeches of the students.

The techniques presented by the PET Nursing students were related to the following themes: electric shocks, accidents with venomous animals, poisoning by pesticides, burns, obstruction of the airways, drowning and cardiorespiratory arrest (CRA). The presentation involved the participation of the public and manikins created by the group itself were used to demonstrate practical first aid maneuvers. Finally, practical activities were carried out in a dynamic and simple way. For instance, the participants were asked to perform cardiopulmonary resuscitation (CPR) and the Heimlich maneuver, thus facilitating learning.

It should be noted that the PET group developed an evaluation tool consisting of simple and rapid-fire questions that covered the contents, the audiovisual presentation, the dynamic activities and the participants' knowledge about the subject. In addition, the participants were allowed to make suggestions if they wanted to. This tool allowed feedback on the activities and aimed at continuous evaluation and improvement of the project.

As this is an experience report and there is no exposure of the participants, it was not necessary to have this study approved by a Research Ethics Committee. The extension project in which the activities were developed

is registered in the Projects Office of the Communication Center, Department of Electronics and Communication (*Departamento de Eletrônica e Comunicação – ELC*) under Registration No. 042870.

To ensure a better understanding the themes addressed, the following subitems will address the themes discussed with the participants.

Cardiorespiratory Arrest

When addressing cardiorespiratory arrest (CRA), the participants were presented with its concept, signs and symptoms, and information on how to deal with this emergency situation. The transmission of knowledge about first aid is an important factor for the quality of immediate care provided to victims of incidents as the rescuer may be a person of the general population. Therefore, training these individuals means giving them confidence to act. In addition, when individuals are trained and safe, they offer better quality care, thus minimizing the sequelae resulting from inadequate first aid[13].

In addition, the substantial increase in chronic conditions, especially those affecting the circulatory system, such as heart failure (HF) and acute myocardial infarction (AMI), is a public health problem that points to failures in health promotion. Both diseases can lead to CRA and, in that case, correct cardiopulmonary resuscitation (CPR) can decrease mortality rates and the chances of the victim developing some sequelae. Thus, it is important to addressing and improve knowledge about this theme in the community, especially among people living in rural areas where there is a greater delay in the arrival of specialized services, which can have consequences[17]. A study of the Mobile Emergency Care Service (*Serviço de Atendimento Móvel de Urgência – SAMU*) in the city of Teresina showed that ambulance travel time to the call location in rural areas is nearly 20 minutes longer than that in urban areas[18].

In addition to the CPR, the PET Nursing students taught how to clear airways using the Heimlich maneuver, which is designed to expel objects or liquids that may be choking the victim. CPA is intrinsically related to airway obstruction when it occurs in children, i.e., airway obstruction can trigger CRA[17]. Therefore, it is necessary to clear the airways in addition to performing CPR.

While addressing this theme, the participants were allowed to perform the techniques on each other and hence could identify the correct place to apply the force during the maneuver and the correct way to position and move the hand. Regarding CPR, interactive manikins made by the members of the PET Nursing group were used to better illustrate the correct technique, i.e., the correct positioning of the body and hands and the depth and frequency of compressions.

These activities allowed the participants to experience a real simulation of first aid situations. Thus, it was an interactive and dynamic proposal that allowed a better understanding of the themes addressed and the performance of resuscitation and anti-choking maneuvers.

Pesticide Poisoning

For 10 years Brazil has ranked first in use of chemicals, such as pesticides, in the world. There was a significant increase in the distribution of this input, which is an aggravating factor for public health as these substances present high levels of environmental and human toxicity, both through labor activity and through the consumption of agricultural products[19].

According to data from the Pesticide Residues in Food Analysis Program (*Programa de Análise de Resíduos de Agrotóxicos em Alimentos – PARA*), 38.3% of the analyzed foods presented pesticide residues within the Maximum Residue Limit (MRL) established by Anvisa. In addition, 1.11% of the monitored samples pose potential acute risk to health[20]. With regard to exogenous intoxication cases reported to SINAN, there were 3,859 cases of agricultural pesticide poisoning and 1,469 cases of household pesticide poisoning in 2017[21].

Given that, the main forms of pesticide poisoning were presented as the severity of the case varies according to the active ingredient in the product, the absorbed dose and the way the exposure occurred. Thus, it is fundamental to empower the individuals who handle these products as the risks inherent to contamination are many and complex and may result in the development of serious diseases such as cancer[22].

In addition, there was a moment of conversation with farmers about ways to prevent pesticide poisoning, which basically consists of the use of personal protective equipment (PPE). At that moment, the importance of its use was emphasized, as it is known that PPE is often not used for the handling of pesticides, generally because they are uncomfortable and because of excessive heat when wearing coveralls[23].

Data from the literature indicate that farmers often do not use PPE because they believe that wearing long clothing, hats and boots while handling pesticides protects them from the harmful effect of these products. However, such idea is wrong[23]. Therefore, the presentation of PPE for the use of pesticides became fundamental during the activity, with emphasis being placed on its need and use. The students used illustrative images that demonstrated each equipment, the form of use and its role in the prevention of pesticide poisoning.

Finally, with regard to the theme herein described, the participants were briefly taught how to proceed in cases of pesticide poisoning. This part of the activity consisted in discussing the main procedures performed in case of acute exposure to pesticides and how to identify the signs and symptoms of chronic exposure.

When acute poisoning occurs through the skin, the main recommendations are: wash the skin with running water and soap for at least ten minutes; in the case of contact with eyes, wash them with running water for at least fifteen minutes; and take off the clothes and store them in a plastic bag to prevent them from coming in contact with other people or animals. In case of poison inhalation, it is recommended to loosen clothing and remove the victim from the area and bring them to an airy environment. In case of oral poisoning, the instructions on the label should be read to check whether it is recommended to induce vomiting. In addition, it should be noted that in all cases of acute exposure to pesticides, the victim should be referred to a specialized health service after first aid[24].

Also, according to the health surveillance manual for populations exposed to pesticides, the main signs and symptoms of acute poisoning are: headache, dizziness, nausea, vomiting, muscle twitching, respiratory distress and disorientation. Chronic poisoning includes symptoms such as reversible paresis and paralysis, pancytopenia, and neuropsychological disorders[24].

Bringing nursing students close to this population enables the rural producers to be trained and sensitized to the correct handling of pesticides, thus allowing them to be more attentive to the signs and symptoms of poisoning[25]. For each case, the conduct may be different; however, referral to an emergency room or hospital is necessary in all cases for investigation and clinical evaluation, always remembering the importance of reporting which pesticides were used[24].

Electric Shock

In this regard, the activities carried out were focused on teaching farmers what to do in cases of electric shock, such as turning off the electric current, calling SAMU, and checking if the person is in CRA and bleeding. The activities also addressed the severity of the electric shock, which is determined by various factors depending on its source (e.g. outlet or lightning), power, point of entry and exit, and duration. Consequences such as burns, spasms, cardiac alterations and even CRA were also addressed.

Handling electricity requires precautions, which are unknown or neglected by the majority of the population[26]. Electric shock does not produce changes with serious consequences if it does not exceed critical values. However, when these values are exceeded, intense muscle contractions occur and may make the person unable to move away from the electrical source, which can cause asphyxiation and death if the chest is affected[26].

Statistical data show that there were 1387 electric accidents (electric shock, short circuit fires and atmospheric discharges) in 2017. Of the cases of electric shock in 2017, 627 were fatal. Of these, 98 occurred in the southern region and 37 occurred in the state of Rio Grande do Sul. With regard to the locations of fatal electric shock accidents, 218 occurred in the household and 50 in rural areas, which demonstrates the lack of guidelines targeted at this population.

Data on fatal electric injuries at work in 2017 show that 72 deaths were among farmers (third highest rate) and that many deaths occurred while handling and installing well pumps and suction pumps[27]. Thus, it is important to teach farmers safety techniques to perform electrical installations, such as making sure that the power source is off and that the wires used are suitable for the required voltage, among others. In addition, the data show that the reality in which the rural population is inserted requires training and instructions to act in the face of emergency related to electric shock, thus emphasizing once again the importance of first aid in the life of these people.

Given that, attention should be drawn to the pillars of health education, which transcends the verticality of information and involves knowledge sharing. The experiences of the participants are heard and judged as important for the joint construction of knowledge. This methodology increases the confidence transferred from the participants to the students, thus promoting the possibility of adherence to the practices and, consequently, behavior changes[28].

Thus, in addition to the active participation and positive feedback from the participants in relation to first aid training, the activity allowed the students to experience the rural population and interact with students of other programs, which

is not possible in the formal curriculum of their program. In addition, the activity fosters creativity in the development of the workshop and the technical and scientific deepening of the themes addressed, thus constituting an important exercise for the personal and professional development of those involved.

This experience allowed students to get closer to the rural population and allowed the rural community to have contact with first aid care. During the meetings, the importance of extension activities targeted at his population group was noticed.

It is important to emphasize the need for actions, such as the one herein described, to address the subject, and it is necessary to foster the development of preventive measures in order to: promote health, contribute to the reduction of deaths and hospitalizations due to external causes and, consequently, reduce expenses generated to the health sector resulting from these factors, which can be avoided through health education.

Finally, it should be noted that although the activities were carried out with local population, the general characteristics of the rural populations are similar even in different regions of the country. Therefore, it is believed that similar activities can and should be carried out with audiences from other Brazilian municipalities. In addition, the results generated from this experience contribute to highlight the importance of carrying out activities with the rural population in undergraduate nursing programs and delivering health services to this population, especially those focused on health promotion and disease prevention.

Regarding the limitations, the small number of producers who participated in the activities should be highlighted. This fact is related to the activities and demands of rural life, as producers often have to work on the weekends because of the greater work load in seasonal periods due to planting and harvesting. In addition, another limitation is the fact that the extension program was not integrated into a concomitant research. Thus, it is suggested that PET groups combine research, teaching and extension in their activities.

CONCLUSION

Training the population for first aid is indispensable for the accomplishment of initial care in emergency situations. Thus, their awareness about the theme becomes relevant as early access to specialized services increases survival and inoperability during evaluation and diagnosis of the situation may worsen the situation even more.

Educational activities like this enabled the exchange of knowledge between students and community, thus promoting the dissemination of knowledge about emergencies among the participants. In addition, it provided students with the development of educator and facilitator skills, which are fundamental for nurses' work.

The development of this project by the PET groups transcends the walls of the university and enables the knowledge obtained in the university to reach the population, thus providing a direct return to the general community. The collective and active construction provided mutual benefits so that community and students learned and shared knowledge for the growth and improvement of health.

In this regard, further studies and educational activities focused on health promotion should be carried out with rural populations to address first aid care. This is justified by the increase in accidents in communities in the countryside, where first interventions are often carried out incorrectly by individuals with little knowledge based on common sense and hence worse the situation, thus increasing the chances of death.

An objective, simple and easy-to-understand training is an efficient strategy to empower the populations of the countryside and teach a correct and fast initial approach, which can change the outcome of those who need care before the arrival of specialized services.

ACKNOWLEDGEMENTS

To the *Tutorial Education Program (Programa de Educação Tutorial – PET)* of the School of Nursing of the Federal University of Santa Maria (*Universidade Federal de Santa Maria*).

CONTRIBUTIONS

Caren da Silva Bertoldo, Catiele Piccin, Daiana Cristina Wickert, Jordana Lima Silva, Victória dos Quadros Severo Maciel, Oclaris Lopes Munhoz and **Maria Denise Schimith** contributed to the study design and conception; acquisition, analysis and interpretation of data; writing and/or revision of the manuscript.

FUNDING SOURCES

National Fund for Education Development (*Fundo Nacional de Desenvolvimento da Educação – FNDE*).

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How to cite: Bertoldo CS, Wickert DC, Maciel VQS, Piccin C, Silva JL, Munhoz OL et al. Noções básicas de primeiros socorros: relato de experiência de um projeto de extensão rural. Rev Bras Promoç Saúde. 2019;32:8255.