



Strengthening Community Service Collaboration Through Basic Life Support (BLS) Training

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Abstract. The community service project aims to enhance public knowledge and skills in providing immediate assistance during cardiac emergencies. Conducted in collaboration with the Indonesian Emergency and Disaster Nurses Association (HIPGABI) North Sumatra and the Regional Crisis Center Team North Sumatra, this program focuses on training participants in the fundamental techniques of Basic Life Support (BLS), including cardiopulmonary resuscitation (CPR) and the use of automated external defibrillators (AEDs). The training is specifically designed for the congregation of HKBP Resort Kwala Bekala Church. The involvement of HIPGABI North Sumatra and the Regional Crisis Center Team North Sumatra brings expertise and professionalism, ensuring that the training adheres to national standards and best practices in emergency response. The outcomes of this training are expected to strengthen community resilience and preparedness in dealing with health emergencies in Medan and the surrounding areas.

Keywords: Basic Life Support, Community Preparedness, Emergency Response.

1. INTRODUCTION

Cardiac arrest cases are inseparable from the poor condition caused by cardiovascular disease. Where cardiovascular disease is still a global threat as the number one cause of death worldwide [1]. This is shown by data from [2] which shows that around 17.5 million people in the world die from cardiovascular disease or 31% of the 56.5 million deaths worldwide. Meanwhile, based on Basic Health Research data [3], the incidence of cardiovascular disease in Indonesia is increasing from year to year. At least, 15 out of 1000 people or around 2,784,064 individuals in Indonesia suffer from heart disease with cardiac arrest. The incidence of cardiac arrest in Indonesia is around 10 out of 100,000 normal people under the age of 35 and reaches around 300,000-350,000 incidents per year [4].

Data from North Sumatra Province, especially Medan City, data obtained by researchers from one of the hospitals in Medan City from January to October 2022, cardiac arrest patients reached 64 people. In the midst of the high death rate due to cardiovascular disease, cardiac arrest can occur and can lead to death if cardiac arrest victims do not get proper help in the emergency phase (golden period) [5]. Where 40% of the 325,000 deaths per year

due to sudden cardiac arrest in the United States do not have time to get adequate help. The life expectancy of sudden cardiac arrest sufferers is highly dependent on the competence of the rescuer and the time needed to evacuate to the hospital for OHCA patients. Even in the most ideal conditions, only about 20% of OHCA patients can survive after being discharged from the hospital. In another study conducted at a hospital in New York City, only 1.4% of OHCA patients survived after being discharged [6].

The right first aid in dealing with victims of cardiac arrest and respiratory arrest is to perform basic life support (BLS). Basic life support is the initial treatment for victims of cardiac arrest and respiratory arrest. Basic life support includes several skills, namely recognizing sudden cardiac arrest, asking for help immediately, performing cardiopulmonary resuscitation, and even in some countries have introduced the use of AED (Automatic External Defibrillator). Basic life support (BLS) in the general public includes danger, response, shout for help, circulation, and recovery position [AHA, 2020]. All of these can be taught to anyone according to their capacity as basic medical knowledge to save someone's life with cardiac arrest [7].

Knowledge of basic life support, especially in cases of cardiac arrest, is very important and must be known by all levels of society considering the role of the general public as first aiders, especially those who are close to the location of the victim who is experiencing cardiac arrest [8]. The process of conveying information about basic life support can be applied to adolescents as part of the general public [Buamona, Kumaat and Malara, 2017]. In 2010, adolescents who are part of the general public numbered around 1.1 billion people in the world [2]. The Ministry of Home Affairs (Kemendagri) recorded that the population of Indonesia was 273.88 million people, and of them the number of adolescents was 65.82 million, which is equivalent to 24% of the total population in the country throughout this year. North Sumatra is a province with a significant percentage of adolescents, especially in the city of Medan, which is one of the areas with a fairly high adolescent population in 2022.

One effective way to improve a person's knowledge is through health education. In accordance with the theory of health education, this education is the application of science in the field of health that aims to improve the knowledge, attitudes, and practices of individuals, groups, and communities. Based on observations, there was a significant increase in knowledge from a low level to sufficient, even to good, when health education was provided. This can be seen from the change in respondents' understanding after being given information about the definition of cardiac arrest, causes, signs, and symptoms of cardiac arrest, as well as an explanation of Basic Life Support (BLS), its objectives, and implementation steps. Education also includes when cardiopulmonary resuscitation (CPR) can be stopped, for example when

the victim begins to show signs of life, professional medical personnel arrive, or the rescuer is too tired to continue. During the learning process, participants not only listen to information, but are also actively involved through simulations and direct practice. The results show that respondents' knowledge has increased, proving that health education can have a positive impact in preparing the community to be more responsive in dealing with emergency situations such as cardiac arrest. Basic life support (BLS) training was chosen to be implemented at the HKBP Resort Kwala Bekala Medan Church. The selection of the church as the location for this training was based on several strategic considerations. First, the HKBP Church has a fairly large and active congregation, including a youth group that has great potential to be involved in BHD training activities. Second, the church is often the center of social and community activities, making it an ideal place to disseminate this important knowledge more widely among the community. In addition, the church is also a gathering place for various levels of society with various backgrounds, thus providing a greater opportunity to reach a more diverse group of people in the dissemination of first aid skills.

2. METHOD

This community service activity is divided into several stages, namely:

Preparation and Provision

The initial preparation carried out was by providing technical guidance first to students both in theory and practice. In addition, preparation of tools and materials that will be used in the implementation of community service was also carried out.

Activity Description

Community service activities were carried out at the HKBP Resort Kwala Bekala Church, Medan, on August 17, 2024. The target of this activity was the church congregation and the local community, with training participants focused on congregation members and local residents. The methods used in this activity include lectures, demonstrations, and cognitive tests.

Lectures and Demonstrations

The main activity is carried out in the form of providing material using lecture methods and interactive discussions. To achieve the stated objectives, participants will be given material on cardiac arrest events, factors that influence cardiac arrest, steps for providing basic life support, and indications for stopping cardiopulmonary resuscitation (CPR). This lecture

method is combined with the use of laptops and LCDs to present the material, while training and simulations are also carried out. The use of laptops and LCDs helps participants understand the steps for providing basic life support more easily. Then a demonstration is carried out regarding the simulation of providing basic life support (BLS).

Cognitive Test

Cognitive tests were conducted to evaluate the knowledge of community service participants regarding cardiac arrest events and simulations of providing basic life support. Evaluations were conducted before and after the delivery of the material. The delivery of the material was considered successful if at least 75% of participants could correctly answer the written questions asked.

Community Service Program Action Plan

This activity is organized in collaboration with the Indonesian Emergency and Disaster Nurses Association (HIPGABI) of North Sumatra and the Ministry of Health's Crisis Center Team (TKC), which play an important role in ensuring the sustainability and effectiveness of the program. HIPGABI, as a professional organization of nurses that focuses on handling emergency and disaster situations, is responsible for providing training that meets current standards, as well as equipping participants with relevant skills, such as Basic Life Support (BLS). With their experience and expertise, HIPGABI ensures that each participant can understand and practice the BLS steps correctly in handling cardiac arrest victims.

In addition, the involvement of the TKC of the Ministry of Health of North Sumatra provides additional support in the managerial and supervisory aspects of the program. With the presence of TKC, this training activity does not only take place as a one-time event, but is also controlled continuously. TKC ensures that this program can continue to be empowered after the training is completed, both through evaluation, mentoring, and provision of resources needed to implement the training in everyday life. The sustainability of this program is also supported through monitoring and evaluation mechanisms to measure the success of the training and its impact on the knowledge and skills of participants in providing first aid.

The sustainability of this program is expected to realize the targets that have been set, one of which is to contribute to the achievement of the Sustainable Development Goals (SDGs) Quality Education (SDG Number 4). In this context, quality education does not only include formal education in schools, but also non-formal education such as this BHD training, which aims to improve community knowledge and skills. By providing access to quality health

education, this activity plays a role in creating a community that is more aware and responsive to emergency conditions, so that they can provide appropriate first aid when needed. This is in line with the SDGs goal of ensuring that all people acquire the knowledge and skills needed to promote sustainable development, including in aspects of community health and well-being.

3. RESULTS

Figure 1. Community Service Activities with HIPGABI and TKC Ministry of Health of the Republic of Indonesia



Community service activities with the theme "Basic Life Support (BLS) Education for Lay People to Improve Knowledge of Helping Cardiac Arrest Victims" held at the HKBP Resort Kwala Bekala Church, Medan, were attended by 166 participants and received high enthusiasm. This activity was held on Saturday, August 17, 2024, using lecture, demonstration, and cognitive test methods. One important part of this activity is the involvement of the North Sumatra Regional TKC (Crisis Center Team) Team which plays a role in supporting the implementation of the event. In addition, the instructors for Basic Life Support (BLS) come from HIPGABI (Indonesian Emergency and Disaster Nurses Association), which is a professional organization of nurses who have special expertise in handling emergency and disaster situations. The lecture method used, as shown in Figure 1, aims to provide material related to cardiac arrest events and first aid steps through BLS, which is then complemented by direct practical demonstrations so that participants can better understand and master the right techniques in saving cardiac arrest victims.

The education or health education method used in this activity involves two main approaches, namely the lecture method and the simulation method. The lecture method is a method of delivering material orally by an instructor or resource person to participants. This method has several advantages, one of which is its ability to reach many participants at once in one session. With lectures, material can be delivered in a structured and efficient manner, allowing participants to receive information directly from experts. In addition, this method also allows instructors to provide detailed explanations on certain topics, such as in this context, the definition of cardiac arrest, causes, signs, and steps of Basic Life Support (BLS). Another advantage of the lecture method is its ability to answer questions from the audience directly, creating interactions that deepen participants' understanding of the material presented.

Simulation method is a learning method that uses a practical approach, where participants are involved in activities that imitate or mimic real situations. In simulations, participants not only listen to theory, but also play an active role, imitating behavior or actions that will be carried out in real situations. In this activity, simulations involve practicing how to provide Basic Life Support (BLS) to cardiac arrest victims. Participants are taught steps such as performing chest compressions and giving artificial respiration in practice. Simulations provide participants with firsthand experience of how these life-saving actions are carried out, improving their skills in handling emergency situations. One of the great advantages of the simulation method is its ability to reinforce participant learning through direct experience, which is easier to remember than just listening to theory.

The combination of these two methods, lectures and simulations, complement each other in enhancing participants' knowledge and skills. Lectures provide a strong theoretical foundation, while simulations allow participants to practice what they have learned, so they can be more prepared and confident in applying that knowledge in the real world.

Table 1. Level of student knowledge before and after being given basic life support (BLS) education for lay people using lecture and simulation education methods.

No.	Level Student Knowledge	Educational group lectures and simulations			
		Pre-test		Post test	
		N	%	N	%
1.	Good	3	4%	24	29%
2.	Enough	47	57%	52	63%
3.	Not enough	33	40%	7	8%
Total		83	100%	83	100%

Source: Primary Data 2024

Based on the data above, data on the level of knowledge of students in the lecture and simulation education group before being given basic life support (BLS) education for lay people were obtained, namely that most were in the sufficient category, as many as 47 respondents (57%). Meanwhile, a small portion was in the good category, as many as 3 respondents (4%). After being given lecture and simulation education for basic life support (BLS), data on the level of knowledge of students was obtained, most were in the sufficient category, as many as 52 respondents (63%). Meanwhile, a small portion was in the poor category, as many as 7 respondents (8%).

4. DISCUSSION

The results of this community service activity are in line with the results of community service activities which state that simulation and role play learning will give participants the opportunity to learn directly by seeing, practicing, and role playing how to provide first aid in accidents or provide basic life support. Thus, it is hoped that the community will experience increased knowledge, attitudes and actions in handling accidents. Providing education on Basic Life Support (BLS) is very important for the general public, especially for those of productive age so that they are able to provide Basic Life Support for people experiencing emergency situations to avoid death and disability [12].

In line with the theory of knowledge about basic life support (BLS) is very necessary for all levels of society and even since school age which includes the definition of cardiac arrest, causes of cardiac arrest, signs and symptoms of someone experiencing cardiac arrest, definition of BLS, purpose of BLS, steps of BLS lay and indications for stopping cardiopulmonary resuscitation. Knowledge about BLS will influence behavior in providing first aid to victims who need to be given BLS [10]. This is also in line with research on the level of knowledge in the good category of 7 respondents [12].

One effective way to increase a person's knowledge is through health education. In accordance with the theory of health education, this education is the application of science in the field of health which aims to improve the knowledge, attitudes, and practices of individuals, groups, and communities. Based on observations, there was a significant increase in knowledge from a low level to sufficient, even to good, when health education was provided. This can be seen from the change in respondents' understanding after being given information about the definition of cardiac arrest, causes, signs, and symptoms of cardiac arrest, as well as an explanation of Basic Life Support (BLS), its objectives, and implementation steps. Education

also includes when cardiopulmonary resuscitation (CPR) can be stopped, for example when the victim begins to show signs of life, professional medical personnel arrive, or the rescuer is too tired to continue. During the learning process, participants not only listen to information, but are also actively involved through simulations and direct practice. The results show that respondents' knowledge has increased, proving that health education can have a positive impact in preparing the community to be more responsive in dealing with emergency situations such as cardiac arrest [16].

5. CONCLUSION

Increasing knowledge about Basic Life Support in the community will create a sense of individual concern for themselves and others. Basic Life Support actions carried out by people around the patient immediately after the incident can improve the patient's survival. Therefore, it is recommended for health institutions to carry out community service or counseling to the wider community on how to perform Basic Life Support, by involving relevant stakeholders (Medan Johor District Government, Kwala Bekala Village, Medan, North Sumatra), in order to realize the achievement of SDGs Number 4, namely Quality Education.

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