

# Implementation of basic life support outside the hospital through video training

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## ABSTRACT

Emergency actions are not only carried out by medical teams but can also be performed by the general public, especially in life-saving actions such as basic life support. Emergency situations can occur anywhere and at any time, with 85% of emergency incidents known to occur outside of hospitals. With this understanding, efforts are needed to improve public knowledge about the implementation of basic life support in order to facilitate activities using video training for basic life support. The goal of this community service activity is to improve the community's ability to implement basic life support in emergency cases at home. The activity was carried out in Sungai Alat village, Astambul sub-district, with 60 participants facilitated by two speakers and five students. The stages of the activity included observation, coordination, video training creation, implementation, and evaluation. As a result of the activity, the majority of the participants had good knowledge in implementing basic life support and were satisfied with the implementation of the activity. Community service through video training provided ease in implementing basic life support actions.

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## 1. INTRODUCTION

Sungai Alat Village is located in Astambul District, Banjar Regency, South Kalimantan Province, with a total area of 51.095 km<sup>2</sup>. Geographically, the village is bordered by other villages, namely Astambul Kota Village to the north, Astambul Seberang Village to the east, Kaliukan Village to the south, and Sungai Tuan Village to the west. In terms of health facilities, Sungai Alat Village has one sub-district health center, called Puskesmas Pembantu, which provides various activities such as Posyandu, youth organization activities, and other village activities.

Based on the village profile, the majority of the population works as farmers and traders, which requires high mobility. Due to this high mobility, there were 1567 traffic accidents and 167 cases of violence using sharp objects in 2022, according to data from the Astambul sub-district health center. Results from interviews with partners revealed that most of them had never received direct information regarding basic life support management. The highest recorded diseases are hypertension and diabetes mellitus, which puts the community at high risk for emergency cases. Therefore, it is important to improve the community's understanding of emergency management through basic life support training (Maria et al., 2022; Maria et al., 2019).

Emergency situations can happen anywhere, anytime and to anyone. Incidents can be small incidents or disasters that involve a large number of sufferers or victims (Hidayati, 2020). For emergency events that require immediate medical attention, the first person at the location who will provide first aid is a family member or neighbor. First aid is given by the first person on the scene having varying levels of knowledge ranging from untrained to trained (Prakoeswa et al., 2022). This assistance process requires a stage starting from the scene of the incident until the victim finally gets help by medical personnel at a health facility so that this grace period becomes an important moment in the process of rescuing victims (Ross et al., 2022). This emergency condition which is directly felt by the community can be as a victim or as a helper who is the spearhead of implementing first aid from the victim, so agility is needed in the process of helping victims.

Basic life support is an emergency procedure that involves clearing the airway, aiding respiration, and maintaining blood circulation without the use of equipment, with the goal of obtaining effective emergency oxygenation to vital organs such as the brain and heart through artificial ventilation and circulation until the lungs and heart can function normally to meet the body's oxygen needs (Alkano, 2016). The process of delivering basic life support training can be given to healthcare workers and the general public, as it is known that almost 85% of emergency incidents occur outside of hospitals. The importance of understanding basic life support in a short training process for the community requires the use of tools to allow the techniques to be viewed repeatedly, thus the implementation process using basic life support video training is expected to provide ease for the community to perform the correct actions (Arora, 2018).

The basic life support procedures often performed outside the hospital are in cases such as heart attacks, drowning, traffic accidents, poisoning, and many other cases. The effort to display the video training is an attempt to enable the community members who may experience emergency cases to perform basic life support procedures to prevent fatal incidents such as death. Effective and efficient emergency measures for victims can be the initial understanding that rescuers, especially since emergency cases often occur outside the hospital. The effort to improve the knowledge of the community in Sungai Alat village is the main goal of this community service activity through the implementation of Basic Life Support Outside the Hospital Through Video Training.

## **2. METHODS**

The Community Service Program is carried out by nursing faculty members from Stikes Intan Martapura, consisting of two lecturers and five student assistants, in the Emergency Nursing Division. The method used in community service is a brief training aimed directly at all residents of Sungai Alat Village. The goal of the community service program is to improve the community's ability to implement basic life support in emergency cases at home. Providing training related to emergency management is essential and beneficial, with the hope of increasing the number of trained partners who can carry out emergency actions and become helpers in their respective communities.

The method of implementing community service activities through organized activities includes the stages of observation, coordination, study of literature, implementation and evaluation specifically the stages of activity.

### **Stage 1: Observation**

The initial stage of the implementation involved observation and data collection on the population distribution in Sungai Alat village, which consists of four neighborhood units, there are RT 1, RT 2, RT 3, and RT 4. Each neighborhood unit has 315 households, with a total population of 450 residents in each unit, making the total population of Sungai Alat village 2715 residents. The data collection process was conducted directly at the Sungai Alat village office, with the assistance of the village secretary, to obtain specific demographic data, population numbers, and the situation and conditions in the village. Through the help of community health workers located in each neighborhood unit, the series of activities were identified and ready to be implemented.

### **Stage 2: Coordination**

The series of activities require a coordination process, starting with coordination through the village leader, namely the head of Sungai Alat village, especially in terms of requesting permission for the activity. This process is also used to meet with the village cadres, a meeting with 12 village cadres discussing health issues that require coaching by looking at the background of emergency cases that often occur but many partners do not yet know and understand the implementation of emergency care, especially in Basic Life Support. After reaching an agreement on the main issues to be addressed, the community service team then prepared for the development of the activity.

### **Stage 3: Study Literature**

The agreement to conduct community service activities with the main issue of implementing basic life support in emergency situations was made, and the team conducted a literature study to prepare the material for the implementation of basic life support using video training. They prepared the necessary literature and conducted video recording for the training. The development of the literature study as the main source of the speaker followed the Basic Trauma and Cardiac Life Support Training based on Decree Number 9335/X.MTP/MST119/2022. The prepared material included the management of basic life support, which consisted of the DRSCABE concept, which includes Danger (ability to identify danger), Response (ability to know the victim's response), Shout for help (asking for help), Chest Compression (performing chest compressions), Airway (checking for airway patency), Breathing (checking breathing), and Evaluation (evaluation after 5 cycles within 2 minutes).

### **Stage 4: Implementation**

The implementation of basic life support was carried out using two methods, namely health education accompanied by discussions and direct management of the implementation of basic life support through the process of playing the Basic Life Support Training Video with six accurate steps, including safety compliance, accuracy in checking the response, accuracy in requesting help, accuracy in performing chest compressions, accuracy in assessing the airway, and accuracy in breathing, with a video duration of less than 10 minutes.

The health education was conducted at the village head's house, and the stages of this health education included an opening by greeting the partners, explaining the purpose of the health education, and mentioning the main topic to be discussed. Next, the implementation of the Basic Life Support health education was carried out, including the definition, causes, goals, and management. In this stage,

the training video was shown to partners as a guide in performing basic life support actions, followed by a question-and-answer session, and ending with an evaluation stage.

### Stage 5: Evaluation

Evaluation is carried out by distributing questionnaires related to the management of Basic Life Support implementation, satisfaction with the implementation of community service, and observation sheets of the ability to carry out basic life support. Data collection techniques use primary data that measures changes in community knowledge before and after the implementation of basic life support through video training, and the collected data is then analyzed descriptively and presented in graphical form. The implementation of basic life support management was carried out for 1 day, namely on Friday, January 13, 2022, starting at 08.00 am to 05.00 pm at the Sungai Alat village head's house.

## 3. RESULTS AND DISCUSSION

The results achieved from the implementation of basic life support through video training attended by the village head, cadres, and 60 participants, in the community service activity attended by 2 emergency nursing division lecturers and assisted by 5 students. The systematic implementation of community service activities with a schedule preparation as Table 1.

**Table 1.** Schedule of community service activities

<b>Observation</b>		
Activities	-	Observation of population data in Sungai Alat village
	-	Collecting data on the number of residents in Sungai Alat village
	-	Documentation of population data in Sungai Alat village
Goals	-	Prepare initial activity data
	-	Knowing the number of residents in the village of Sungai Alat
<b>Coordination</b>		
Activities	-	Letter of application from the Stikes Intan Martapura Institute to the Head of Sungai Alat village
	-	Socialization of community service activities to village officials
	-	Get permission to carry out activities
Goals	-	Provide understanding to village officials of the aims and objectives of community service activities
	-	
<b>Study Literature</b>		
Activities	-	Literature material search
	-	Production of basic life support training videos
Goals	-	Prepare materials in the form of basic life support modules
	-	Prepare visual aids in the form of basic life support training videos
<b>Implementation</b>		
Activities	-	Delivery of health education materials on the importance of implementing basic life support
	-	Video screening of basic life support training
Goals	-	Understanding of residents in the management of basic life support
	-	The ability of residents to carry out basic life assistance
<b>Evaluation</b>		
Activities	-	Evaluation of basic life support implementation activities
	-	Evaluation of community service management satisfaction
Goals	-	Knowing the results of community service activities in Sungai Alat village

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Implementation of basic life support by showing video training is an effort to recognize signs and first aid for people who experience medical emergencies. For example, cardiac arrest, heart attack, stroke, and respiratory problems or acute airway obstruction. Basic Life Support known as Cardiac Pulmonary Resuscitation (CPR) is a series of actions to provide artificial respiration and external cardiac massage to patients who experience respiratory and cardiac arrest (Arora, 2018). The development of basic life support training video content can be seen in the following Figure 1.



**Figure 1.** Initial explanation of basic life support management

The management of basic life support is the initial understanding of first responders, who should not panic and be confused. To simplify the systematics of the aid process, the concept of DRSCABE is introduced, consisting of Danger (ability to identify danger), Response (ability to know the victim's response), Shout for help (ask for help), Chest Compression (perform chest compression), Airway (assess airway patency), Breathing (assess breathing), Evaluation (evaluation after 5 cycles within 2 minutes). This process is not easy because when faced with victims, first responders often feel confused in providing assistance, even though they have received previous training (Afrifa, 2021).

The first step is Danger, in this step the rescuer's ability to secure the danger by ensuring their own safety, the safety of the environment, and the safety of the victim is very important. Rescuers must be aware of everything that may potentially harm them before they decide to provide assistance to the victim. For example, in the event of a traffic accident, the presence of power lines, smoke, extreme weather conditions, or the emotions of people around the scene. If possible, use appropriate personal protective equipment (Lestari & Noerwahjono, 2020).



**Figure 2.** Management of response steps and shout for help

The second step (Figure 2) is to check the victim's response, and the rescuer should provide stimulation to wake the victim up, such as calling their name, tapping their shoulder, or providing painful stimulation (pinching the nail bed, pressing the middle of the victim's chest). If the victim still does not

respond, the rescuer should immediately call for help. If the rescuer is sure there is no danger, do not move the victim, such as in cases of fire or toxic gas. If the rescuer needs to move the victim, it should be done as quickly and safely as possible with the available resources (LP2TK-Indonesia, 2021).

Step three (Figure 2), the rescuer will call for help. The process of requesting help can be done directly to the nearest person by calling clearly and specifically, for example, "Help... the man with red shirt, please help." The person called will then become an assistant in performing basic life support actions. The process of requesting help can also be done using a telephone by contacting the emergency response system and explaining the victim's condition and location clearly and accurately.



**Figure 3.** Circulation and airway measures

The fourth step (Figure 3) is an important step where the helper will sweep across the chest to the victim's stomach to check breathing then check the pulse for less than 10 seconds, brachial pulse (inner arm) if the pulse is not palpable then do 30 rescuer chest compressions and give 2 breaths. Pay attention to giving compressions, namely the depth of compression is 5-6 cm, the speed is 100-120 x/minute, the minimum interrupt is less than 10 seconds and give a pause when the chest returns to the start (Rival, 2021).

The fifth step (Figure 3) is to open the airway. The technique of freeing the airway is using the head tilt chin lift, namely the helper lifts the chin to face the head. this procedure is carried out if the victim does not have a cervical injury. perform jaw thrust, namely the helper pushes the lower jaw and lifts the chin if the victim is suspected of having a cervical injury.



**Figure 4.** Breathing and recovery position

Breathing when performing chest compressions is given twice, namely assistance by mouth to mouth or mouth to mask, management of chest compressions must be carried out with two helpers, helpers have specifications for up to 30 compressions and ventilations each for 5 cycles within 2 minutes.

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If after compression the pulse is palpable then do a breathing assessment by looking at the movement of the chest, this assessment is carried out for 10 seconds (AHA, 2015).

The results of the management of chest compressions if the victim is breathing but is unconscious then the patient is in the recovery position. The recovery position is used to prevent aspiration due to saliva and vomiting. If the victim is not breathing, give artificial respiration 10 times/minute. Victims who have recovered their heart rate and breathing after chest compressions are carried out, they are placed on an oblique position so that if vomiting occurs or a lot of fluid is released, aspiration will not occur (Souza, 2022)



**Figure 5.** Socialization of the management of basic life assistance

This community service activity provides understanding to the community in proper management of Basic Life Assistance through video training, a form of understanding through six precise steps including application of safety, accuracy of response checks, accuracy of asking for help, accuracy of performing compressions, accuracy of airway patency, accuracy of breathing. The great hope is that the community will become more independent in the health sector, especially in dealing with emergency cases, knowledge and skills are needed through basic life support training (Albadi et al., 2020).

The main basis of basic life support management is based on Article 531 of the Criminal Law Decision, which states that "Anyone who witnesses someone in a life-threatening situation and fails to provide or arrange assistance, when such assistance can be given or arranged without endangering themselves or others, shall be punished with a maximum of three months' imprisonment or a fine of up to Rp. 4,500. If the person who needs help dies, the offender shall be subject to Criminal Law Decisions 45, 165, 187, 304, 478, 525, and 566." Many victims of accidents on the road or incidents at home die on the way or while waiting for help, due to the minimal understanding of the legal basis among the public (Fatmawati et al., 2020).

In Indonesia, there are many special departments that will handle emergencies such as volunteers from the Indonesian Red Cross, medical staff both at the Puskesmas and at the hospital, but it needs to be realized that in reality many emergencies occur outside the hospital and when an accident occurs on the road or at home most of them it is the first person who has the greatest chance of saving the victim, but in reality most people only see or call an ambulance and then wait for the victim to be picked up by an ambulance. In other cases, in an emergency situation, the community around the incident only evacuated the victim soberly without knowing how to evacuate properly and correctly. This situation is very dangerous because without sufficient knowledge about handling emergency basic life support, the helper can actually make the victim's condition worse. The situation above has been clearly conveyed in the health education outreach process carried out in Sungai Alat village (Prahmawati et al., 2021).

Health education is very important to be provided to Partners, as the majority of emergencies that occur in Sungai Alat village are traffic accidents. The hope is that the partners can prepare and be ready to save someone's life, which can only take a few minutes or even seconds because in emergency situations like this, we should not think too much, but take immediate action. The process of understanding the correct basic life support management by the partners requires a media in the form of training videos that can be viewed anytime, anywhere because it cannot be denied that obtaining information from health education is not enough to understand that information.

The community service activity was attended by 60 people, with the majority being female (80%), high school graduates (42%), and the majority were aged 17-25 years old (43%). Moreover, 81% of the participants had experience in emergency situations. Before the health education and basic life support management training process, the participants were asked to answer a pre-test to determine the extent of their understanding of the definition, purpose, benefits, and management of basic life support. There were 8 questions, including: Does an emergency situation only happen in hospitals? Can the general public perform basic life support actions? Is basic life support performed to save lives? Is basic life support performed on people who have passed out? Is time crucial in emergency situations? Does basic life support prevent further complications? Should we pay attention to safe situations when providing assistance? Should chest compressions only be performed by medical personnel?

After the training session conducted by the speaker in the form of training and video viewing, as well as a Q&A session, the participants were asked to answer the same questions in a post-test. This is intended to evaluate the effectiveness of the training provided.

**Table 2.** Characteristics of participants

<b>Characteristic</b>	<b>N=60</b>	<b>%</b>
<b>Gender</b>		
Female	48	80
Male	12	20
<b>Age</b>		
17 – 25 years old	26	43
26 – 35 years old	10	16
36 – 45 years old	11	18
46 – 49 years old	13	23
<b>Education</b>		
Did not Finished	4	6
Elementary School	10	16
Junior High School	15	26
Senior High School	25	42
University/college	6	10
<b>Emergency experience</b>		
Yes	49	81
No	11	19

Based on the given information, it can be concluded that the participants who attended the training had some misconceptions and lack of knowledge about basic life support (BLS) before the training. However, there was a significant improvement in their knowledge and understanding of BLS after the training. Before the training, a majority of the participants (81%) believed that emergency



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situations only occur in hospitals, while only a small percentage (15%) knew that most emergencies happen outside of hospitals. However, after the training, the number of participants who understood this fact increased to 70%. Furthermore, before the training, most participants (90%) believed that only healthcare professionals could perform basic life support, but after the training, only 12% still held this misconception. It was also found that before the training, many participants did not understand the purpose of BLS, with 41% incorrectly believing that it was not intended to save lives. However, after the training, 86% of the participants correctly identified the main goal of BLS, which is to save lives. Additionally, before the training, there was some confusion about when to perform BLS. For instance, 85% of the participants thought that BLS was only done on unconscious individuals, but after the training, only 9% of the participants held this misconception.

The participants also showed improvement in their understanding of the importance of time in responding to emergencies. Although the correct answer to the question "Is time crucial in responding to emergencies?" remained relatively unchanged between pre-test (70%) and post-test (75%), the fact that 70% of participants knew this before the training indicates that the training reinforced this essential concept. Lastly, the training had a significant impact on the participants' awareness of the importance of ensuring safety while giving aid. Before the training, only 33% of the participants understood the need to ensure safety in three areas (self, environment, and victim), but after the training, 83% of the participants correctly identified these three areas. In summary, the results of the pre- and post-tests showed that the training had a positive impact on the participants' knowledge and understanding of BLS.

**Table 3.** Participants' comprehension of basic life support management

Items	Response	Pre test N=60	Post test N=60
- Do emergency situations only happen in hospitals?	Correct answer	49 (81%)	18 (30%)
	Wrong answer	11 (19%)	42 (70%)
- Can the general public perform basic life support measures?	Correct answer	6 (10%)	53 (88%)
	Wrong answer	54 (90%)	7 (12%)
- Is basic life support implemented to save lives?	Correct answer	25 (41%)	52 (86%)
	Wrong answer	35 (59%)	8 (14%)
- Is basic life support performed on an unconscious person?	Correct answer	51 (85%)	55 (91%)
	Wrong answer	9 (15%)	5 (9%)
- Is time to help very important in the implementation of an emergency?	Correct answer	42 (70%)	45 (75%)
	Wrong answer	18 (30%)	15 (25%)
- Does basic life support management prevent further complications?	Correct answer	23 (38%)	47 (78%)
	Wrong answer	37 (62%)	13 (22%)
- Does providing assistance need to pay attention to a safe situation?	Correct answer	20 (33%)	50 (84%)
	Wrong answer	40 (77%)	10 (16%)
- Is giving chest compressions only done by medical personnel?	Correct answer	53 (88%)	6 (10%)
	Wrong answer	7 (12%)	54 (90%)

Based on the information provided, it seems that the participants' ability to implement basic life support was evaluated through an observation sheet that included several steps. The first step was to secure the area by securing oneself, securing the environment, and securing the victim. The second step was to check for a response by calling out to the victim, tapping their shoulder, and providing painful stimulation. The third step was to seek help by calling for assistance via phone or an emergency response

system. The fourth step was to check for the victim's pulse and perform chest compressions by pressing on the chest until the abdomen to check for breathing and pulse in the brachial artery (inner arm). If no pulse is felt, the helper must perform 30 compressions and 2 breaths. The fifth step was to clear the airway by using the Head-Tilt-Chin Lift technique and Jaw Thrust if there is a suspicion of cervical injury. The sixth step was to provide chest compressions and rescue breaths by performing mouth-to-mouth, mouth-to-mask, or adult chest compressions with 2 helpers.

According to the observation, during the training, only 35% of the participants were able to perform the basic life support steps correctly, while 65% did not. However, after watching a training video, 61% were able to perform the steps correctly, while 39% did not. It is unclear from the information provided how the training was conducted and whether there were any follow-up sessions or assessments.

In general, it is important to evaluate the effectiveness of training programs to ensure that participants acquire the necessary skills and knowledge. Observation checklists are useful tools for assessing the performance of participants during training, but follow-up evaluations after the training are also important to determine if the skills and knowledge have been retained and applied correctly in real-life situations.

#### **4. CONCLUSION AND RECOMMENDATIONS**

Community service activities aim to increase the knowledge of the Sungai Alat village community through the implementation of Basic Life Assistance outside the hospital through video training. Great appreciation to all residents of Sungai Alat village who have participated in the Basic Life Support Implementation through Video Training, based on the participants' understanding of basic life support management, the majority of the community has good understanding and ability to perform basic life support actions after going through the video training, with the majority having performed the management correctly. The great hope is that if there is an emergency case that occurs at home, the community will have the confidence to know the steps to take in performing basic life support actions.

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