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Knowledge of Basic Life Support (BLS) for High School Students

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ABSTRACT
BLS is a first aid measure for victims who experience cardiac arrest and respiratory arrest. This includes identifying the person in cardiac arrest, calling an ambulance and performing cardiopulmonary resuscitation, and being able to use an Automated External Defibrillator (AED) to assist the victim. Knowledge of Basic Life Support (BLS) is very important for high school students as an effort to improve preparedness in dealing with emergency conditions. The purpose of this study to determine the overview of high school students knowledge about BLS. The method used is descriptive survey with cross sectional approach. Data collection was obtained through the distribution of questionnaires to 36 samples of SMA Era Utama. The results found that the average knowledge of SMA Era Utama about BLS is as much as 39.02. So in this case, the majority of SMA Era Utama do not know about basic life support (BLS). This study suggests the need for greater integration of BLS at the high school level and increased access to practical training for students to improve their preparedness for emergency situations, especially in victims of cardiac arrest.

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INTRODUCTION

Sudden cardiac arrest is still one of the most common causes of death in the United States. The incidence of out-of-hospital cardiac arrest has reached more than 350,000 cases in 2021, with only a 9.1% survival rate against adult victims. to improve the chances of survival outcomes of patients who have cardiac arrest, Basic Life Support (BLS) skills are needed, such as knowing when cardiac arrest occurs, activating the Emergency Response System, performing cardiopulmonary resuscitation (CPR) properly, and performing rapid defibrillation with an automated external defibrillator (AED).

Most cardiac arrest events occurring outside the hospital are at home or in public areas, approximately 50% of cases are not seen, so in this case the performance of CPR by a bystander is essential to improve the survival outcome of the victim. Nevertheless, observers performed CPR only in 40.2% of cases of out-of-hospital cardiac arrest events. Based on AHA *Statistics* (2022), it often occurs at home (73.9%), in public places (15.1%), and in nursing homes (10.9%). Most victims of cardiac arrest are found by the lay public (Tsao et al., 2022). Cardiac arrest can lead to death in the victim. The increasing number of deaths

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that occur due to cardiac arrest is due to ordinary people who are afraid to pose other risks when providing assistance and are unable to identify victims of cardiac arrest.

In addition, many people are unaware that AEDs are designed for the community and that even out-of-hospital AED use is lower at 10.2%. This finding shows how important it is to teach BLS to lay respondents (AHA, 2021). The role of high school (SMA) students in health development is an important resource that helps the nation survive and ensures future generations can live in good health (Primadi et al., 2021). High school students have strong memory, skills, and curiosity. They are part of ordinary society at the stage of their development.

Pedoman American Heart Association guidelines (2020) say that children should be educated about health. In this case, the health education in question is basic life support (BLS). In addition, WHO also recommends that education about BLS be given from school age. However, there is no provision or program for the implementation of Real CPR training in the high school curriculum. BLS is the first aid for those who experience cardiac arrest and respiratory arrest. This involves many skills such as identifying people with indications of cardiac arrest, contacting emergency services, performing cardiopulmonary resuscitation, and even utilizing Automated External Defibrillator (AED) devices in assisting victims (AHA, 2020).

The death rate from cardiac arrest will be reduced if the general public provides a quick and appropriate response. The lack of public knowledge about basic life support is one of the factors contributing to the increasing number of deaths from cardiac arrest in Germany. Research conducted in Betoyo Manyar Gresik village on 30 people and found that 61.9% of them did not know about basic life support (Istiroha & Basri, 2019). Therefore, schoolchildren should be trained in basic life support.

Most of the previous studies were conducted on health, nursing or medical students. In Yulita & Wulandari's research (2021) states that 65% of SMAN 02 Kota Bima students do not know the CPR steps correctly. This study focused on ordinary people, namely high school students who can have the potential to find victims of cardiac arrest outside the hospital and located in one of the districts of Deli Serdang.

The main focus is the knowledge of providing basic life support, so that ordinary people, especially high school students, as the first to find a victim of cardiac arrest, can understand what they should do when they first find someone who has cardiac arrest before the medical team comes to the scene.

METHODS

This study is a type of quantitative research, analytical descriptive design with *a cross sectional approach.* The population in this study were high school students of the main Era and the number of samples in the study was 36 samples. The samples were taken using *purposive sampling technique*. Respondents in this study were determined based on inclusion criteria, namely: students aged 14-18 years, students who have never attended seminars or training on BLS, physically and spiritually healthy, willing to volunteer to be respondents. Measurement of knowledge in this study was carried out using a questionnaire related to BLS knowledge containing 22 questions. The questions in the knowledge

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instrument were developed based on the following points: 1) BLS concept consists of 5 Questions; 2) BLS indications consist of 4 questions; 3) *Hands Only CPR concept* consists of 2 questions; 4) *Hands Only CPR measures* consist of 14 questions; and 5) chest compression quality consists of 5 question. Data analysis in this study using computerized system software applications

RESULTS

Respondent characteristics can be seen in the following table.

Table 1 Frequency distribution of respondents (n=36)

Characteristics	f (36)	%
Age		
14	0	0%
15	7	19,4%
16	16	44,4%
17	2	5,6%
18	2	5,6%
Gender		
Male	16	44.4%
Female	20	55.6%
Religion		
Catholic	2	5.6%
Christian Protestant	27	75%
Islamic	7	19.4%
Education		
High School Education	36	100%
Have attended Seminar or training BLS		
Never	36	100%

Based on Table 1 obtained the results of the number of age characteristics of the respondents were the largest in the intervention group aged 16 years, namely a number of 16 people (44.4%). The most respondents in the intervention group were women, namely 20 people (55.6%). The most characteristic religion is Protestant Christianity with 27 people (75%). Then all research respondents had never attended a BLS seminar or training before.

Table 2 knowledge of high school students about basic life support (BLS) (n=36)

Knowledge	f	%
Good	0	0%
Good Enough	5	13.9%
bad	31	86.1%
Total	36	100%

Based on the data in Table 2 above, it shows that respondenthe majority of respondents have poor knowledge, namely as many as 31 people (86.1%), good enough knowledge, there

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are as many as 5 people (13.9%) and none of the respondents have good knowledge about basic life support (BLS).

Discussion

Based on the results of research conducted, it was found that the majority of high school students have poor knowledge. The majority of Era Utama high school students do not know about basic life support (BLS) as an action in providing first aid to victims of cardiac arrest and respiratory arrest. According to the theory of Notoatmojo (2014), knowledge is a very important domain in determining one's actions or behavior. The results of this study are in line with the research of Yunus, et al. (2021), which states that students ' knowledge increases after being given education or training on basic living assistance (BLS).

Increased knowledge has a good impact on the safety of victims who experience cardiac arrest and also includes maintaining their own safety. Researchers assume that high school students are in a phase of wanting to learn and try many new things, such as how to provide basic life support to patients who have cardiac arrest. Increased knowledge of human resources about BLS can be achieved through health education about this condition provided by health workers who certainly better understand the condition. This will provide students with the necessary knowledge to make decisions about the first actions to take to help victims of cardiac arrest.

This is in line with the findings of research Hidayati, et al., (2019), which states that respondents who receive health information will have different knowledge compared to respondents who do not receive health information. Since ordinary people are more often exposed to crowds, especially high school students, knowledge of basic life support has become very important to learn (parse & Tambi, 2021).

In the study Purnomo, et al., (2021), found that high school students are appropriate targets for health education on how to deal with emergencies because their age group is more prone to encounter emergency situations. One of the factors that can affect the aspect of knowledge is age. With age, a person will acquire more knowledge and better catchability.

The knowledge that has been acquired will develop to shape a person's behavior to provide first aid. However, the knowledge base is also not able to form a person to be able to make decisions in providing assistance, so that training is needed so that a person is able to make decisions to take appropriate action when finding a victim of cardiac arrest. The implementation of the training improves students ' knowledge of recognizing the condition of victims of cardiac arrest, how to ask for help, procedures in conducting BLS (Nurvitasari, et al., 2020).

Training is part of non-formal education to gain an understanding of BLS. Trainees will gain experience that is aligned with the understanding of BLS gained from training and vice versa untrained will not gain insight and experience about BLS (Soamole, et al. 2023).

High school students can gain a better understanding of basic life support as they gain better knowledge (Soamole, et al., 2023). Students will acquire better knowledge about things, especially about health, which will increase their desire to help and improve their quality of life (Aswan & Harahap, 2020). The more information obtained, the greater the knowledge gained about health.

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CONCLUSION

Based on the results of the study showed that the majority of students in SMA Era Utama have poor knowledge about the basic life support (BLS). In this case it can be known that the low knowledge of BLS will be very difficult to help improve the quality of life in victims who experience cardiac arrest. So from the description, the need for wider integration in the community, especially in high school students related to education and provide training on basic life support so that student knowledge can increase and help reduce the number of delays in handling cases of cardiac arrest and respiratory arrest outside the hospital.

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