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RESEARCH

The Effect of Basic Life Support Educational Videos on the Knowledge of Grade X Students at SMA Hang Tuah 5 Sidoarjo

Eka Dewi Rohmawati, Alfi Maziyah, Moch Bahrudin, Siti Maimuna
Department of Nursing, Poltekkes Kemenkes Surabaya
Corresponding author: Dwi Ayu Rahmawati (e-mail: rdwiayu8@gmail.com).

ABSTRACT

A lack of knowledge regarding Basic Life Support can hinder the provision of prompt and appropriate first aid during emergencies, particularly in cases of cardiac and respiratory arrest. One educational medium that can be used to enhance students' knowledge is educational video. This study aims to assess the knowledge level of Grade X students at SMA Hang Tuah 5 Sidoarjo before and after the presentation of an educational video Basic Life Support. This study employs a quantitative pre-experimental design using a pretest-posttest approach. The study population consists of 146 Grade X students with a sample of 107 respondents selected using the simple random sampling technique. Data collection was conducted using a Basic Life Support (BLS) knowledge questionnaire administered before and after the educational video intervention delivered via a WhatsApp group. The data were analyzed using univariate analysis, employing frequency distributions and percentages. Prior to the intervention, 46 respondents (43.0%) possessed good knowledge, 38 respondents (35.5%) had fair knowledge, and 23 respondents (21.5%) had poor knowledge. Following the presentation of the educational video, the number of respondents with good knowledge rose to 66 (61.7%), while those in the fair category numbered 9 (8.4%). Providing educational videos on Basic Life Support improved the knowledge level of 10th-grade students at SMA Hang Tuah 5 Sidoarjo. Video media serves as an effective alternative for health education to enhance students' understanding of initial responses to emergency situations.

Keywords: Basic Life Support, Educational Video, Knowledge

INTRODUCTION

Current data regarding cardiac arrest emergencies and rising mortality rates indicate that the majority of the public cannot recognize cardiac arrest victims and are afraid to take the risk of providing assistance (Ministry of Health, 2022). Reasons why high school students are unable to provide aid include the fear of harming the victim, concerns about legal repercussions, a lack of knowledge regarding CPR procedures, and the fear of contracting diseases (Fitri, 2023). According to (Maria., 2023) Basic Life Support (BHD) is a way to recognize signs and provide initial assistance to someone who is in a medical emergency. Examples include cardiac arrest, heart attack, stroke, and sudden respiratory distress or airway obstruction. Basic life support can be further defined as efforts to sustain a person's life when their condition is potentially life-threatening (Maria, 2023). Meanwhile, according to Nazma (2024), Basic Life Support (BLS) consists of essential skills that can be taught to anyone. These skills include recognizing sudden cardiac arrest, activating the emergency response system, performing initial Cardiopulmonary Resuscitation (CPR), and using an Automated External Defibrillator (AED) (Nazma, 2024). The goal of Basic Life Support (BLS) is to ensure that blood continues to effectively deliver oxygen to vital organs, such as the brain and heart. This is achieved through the proper administration of artificial ventilation and artificial circulation, effectively restoring the victim's lungs and heart to a state of apparent normal function (Nazma, 2024).

In the United States, there are approximately 400,000 to 460,000 cases of out-of-hospital cardiac arrest annually (Sholikhah, 2024). In Indonesia, the mortality rate due to cardiac arrest reached 251.09 per 100,000 people in 2023, according to data from the Institute for Health Metrics and Evaluation (IHME), this figure represents a 1.25% increase compared to the previous year, when the rate was 247.99 deaths per 100,000 inhabitants. According to the Indonesian Ministry of Health (2020), the number of deaths resulting from respiratory and cardiac arrest in East

Java alone stood at 114,279. Meanwhile, in Sidoarjo, data from the local Health Office (2023) indicates that 3,968 people were diagnosed with heart disease, comprising 2,217 men and 1,752 women. Patients experiencing cardiac arrest require rapid and accurate assistance before receiving care from medical personnel. Help can be provided by people around it, it is very important for individuals to recognize the early signs and immediately provide basic life support such as CPR, before the patient arrives at the hospital in order to restore the patient's vital functions (Trisyani, 2025).

Previous research has also shown that high school students in the Malang area possessed low knowledge regarding basic life support (BLS) prior to the training, with an average score of only 56% in both the control and intervention groups (Ndruru, 2025). Other findings by (Ndruru, 2025) also indicate an improvement in the knowledge of high school students in Kulon Progo regarding Basic Life Support (BLS), as well as their skills in performing chest compressions, following the training. Having good knowledge is not the only factor determining success in providing aid to a victim experiencing cardiac arrest, adequate skills to perform basic life support are also required. These results align with research findings (Elsye, 2023) regarding Basic Life Support knowledge among nursing students in Gorontalo, which showed that the students' level of knowledge was still classified as low. Based on the research data, it was found that 48.8% of respondents had poor knowledge, 40.2% had adequate knowledge, and only 11.0% had good knowledge.

Therefore, knowledge and skills regarding Basic Life Support (BLS) are crucial for administering first aid, as the training covers fundamental techniques for rescuing victims from various everyday emergencies. There are several ways to deepen understanding of techniques for assisting out of hospital cardiac arrest victims such as providing education through video screenings among various other methods. Video is a highly effective form of audiovisual learning media that supports the learning process. It can be utilized for mass, individual, or group learning, as it is easy to watch and can be replayed as needed (Magfirah.,2022).

Based on the description above, the researcher is interested in studying the impact of Basic Life Support educational videos on the knowledge of Grade X students at SMA Hang Tuah 5 Sidoarjo. Furthermore, the aim of this activity is to ensure students gain a better understanding of how to administer proper first aid to cardiac arrest victims before medical teams arrive, while also encouraging them to remain alert and vigilant and fostering a sense of responsibility when facing emergency situations.

METHOD

This study employed a quantitative pre-experimental research design, specifically a one group pretest - posttest design. The research design is an experimental design employing a single group approach, involving measurements of the same sample both before and after the administration of the treatment. The researchers conducted a pre-test, administered an educational intervention vi a WhatsApp group, and concluded with a post-test. This study was conducted at SMA Hang Tuah 5 Sidoarjo, with data collection taking place from February to March 2026. The population in this study consists of Grade X students at SMA Hang Tuah, with a total population of 146 respondents. The sampling method employed in this study is probability sampling, specifically simple random sampling.

The independent variable in this study is Basic Life Support (BLS) education. Meanwhile, the dependent variable is the Grade X students' knowledge regarding Basic Life Support.

The instrument used in this study was a structured questionnaire developed by the researcher based on indicators of the level of knowledge regarding basic life support. The researcher distributed a pre-test questionnaire via a Google Form sent to a WhatsApp group. This pretest aims to assess the extent of students' understanding of Basic Life Support prior to receiving the educational video. After all respondents completed the pretest, the researcher sent an educational video on Basic Life Support to the WhatsApp group. After the students watched the video, the researcher distributed the post-test questionnaire again via Google Forms. This post-test aims to assess the extent of students' knowledge regarding Basic Life Support after receiving educational material. Each question is structured as a multiple-choice question with one correct answer. The knowledge score is obtained by assigning a value of 1 for a correct answer and a value of 0 for an incorrect answer. The total scores were then categorized to describe the respondents' knowledge. A questionnaire was used for both the pre-test and post-test, featuring the same questions, to assess the difference in respondents' knowledge before and after receiving the education.

RESULTS

Table 1 Characteristics of Grade X Students at SMA Hang Tuah 5 Sidoarjo by Age and Gender, March 2026

General Data	Frequency (*f*)	Persentage (%)
1. Age		
15 years	34	31,8
16 years	71	66,4

17 years	2	1,9
2. Gender		
Man	32	29,9
Women	75	70,1

The research respondents consisted of 107 Grade X students from SMA Hang Tuah 5 Sidoarjo, comprising 32 male students (29.9%) and 75 female students (70.1%). Regarding age, the data show that the majority of respondents were 16 years old, totaling 71 respondents (66.4%). Next, there were 34 respondents (31.8%) aged 15, while the smallest group consisted of 2 respondents (1.9%) aged 17. All this information was collected directly during the research conducted at the school, using demographic data such as age and gender. Subsequently, the data were analyzed simply by examining frequencies and percentages. Based on the research findings, the majority of respondents were female students aged 16.

Table 2 Differences in Basic Life Support Knowledge Among Grade X Students at SMA Hang Tuah 5 Sidoarjo Before and After Receiving Education, March 2026

Level of Knowledge	Pre-test		Post-test	
a. Good	46	43.0%	66	61,7%
b. Enough	38	35,5%	32	29,9%
c. Less	23	21,5%	9	8,4%
Total	107	100%	107	100%

Research findings indicate an increase in knowledge regarding basic life support before and after the provision of education. Prior to receiving education (pre-test), 46 respondents (43.0%) demonstrated a good level of knowledge, while 38 respondents (35.5%) had a fair level of knowledge, and 23 (21.5%) had a poor level of knowledge. Conversely, following the educational intervention (post-test), 66 respondents (61.7%) demonstrated a good level of knowledge, while 32 respondents (29.9%) showed a fair level, and the number of respondents with an insufficient level of knowledge decreased to 9 (8.4%). It can be concluded that, following the education provided, a greater number of respondents understood the material well, while the number of respondents with a poor understanding

DISCUSSION

Overview of Students' Knowledge Levels Prior to Education

Prior to receiving health education, the study results involving 107 respondents showed that nearly half 46 respondents (43.0%) fell into the "good" category. Furthermore, in the "sufficient" category there were 38 respondents (35.5%), while in the "less" category there were 23 respondents (21,5%).

Basic Life Support (BLS) is an emergency procedure used to clear the airway, assist a victim's breathing, and maintain blood flow without the use of any assistive devices. Assistance must be provided quickly and correctly, as errors in handling can lead to injury, impairment, or even death. Basic life support is generally administered by bystanders before the nearest medical personnel are summoned (Rahmadani, 2024).

The pretest results indicate that some students already possess a reasonably good understanding of Basic Life Support (BLS). Knowledge is a crucial factor that can influence how quickly an individual takes appropriate action when facing an emergency situation. However, there are still students whose knowledge is classified as fair or poor. This lack of understanding may stem from a lack of access to information, insufficient health education, or never having participated in Basic Life Support (BLS) training before.

The results of this study align with the research by Fitri (2023), which indicates that the majority of adolescents possess a moderate level of knowledge regarding Basic Life Support due to a lack of provided education and training.

According to researchers, the continued presence of respondents falling into the "sufficient" and "poor" knowledge categories indicates that education on Basic Life Support is essential starting from school age. Students are a group with the potential to act as first responders during emergencies, whether at school or in the community and therefore need to possess adequate knowledge of Basic Life Support.

Overview of Students' Knowledge Levels After Receiving Education

After receiving education on Basic Life Support via video, the respondents' level of knowledge increased. Based on the results from 107 respondents, 66 respondents (66.1%) fell into the "good" category. Apart from that, in the "sufficient" category there were 32 respondents (29.9%), while in the "less" category there were 9 respondents (8.4%).

The increase in knowledge demonstrates that educational videos are capable of effectively conveying information to students. Video is a highly effective form of audiovisual learning media for supporting the learning process. This medium can be utilized for mass, individual, or group learning, as it

is easy to watch and can be replayed as needed (Magfirah., 2022).

The results of this study align with the research by Sholikhah (2024), which demonstrates that education using video media can improve adolescents' knowledge and preparedness in providing first aid during emergencies.

The high percentage of respondents demonstrating good knowledge after receiving education indicates that the students possess a good ability to absorb health-related information. Furthermore, the use of video media makes the learning process more engaging, allowing students to focus better on the material being presented. This makes it easier for students to receive and retain information in their memory.

Differences in Students' Knowledge Levels Before and After Receiving Education

The research results indicate a difference in students' knowledge levels before and after receiving education on Basic Life Support via video. At the pretest stage, the majority of respondents fell into the "good" category comprising 46 respondents (43.0%), in addition, in the "sufficient" category there were 38 respondents (35.5%), while in the "less" category there were 23 respondents (21.5%). Following the educational intervention, post-test results showed that the majority of respondents fell into the "good" category comprising 66 respondents (66.1%), furthermore, in the "sufficient" category there were 32 respondents (29.9%), meanwhile the "less" category saw a decrease with 9 respondents (8.4%).

Present material in a more engaging way by combining visual and audio elements, making it easier for students to understand the content. Furthermore, videos can be replayed, giving students the opportunity to review sections of the material they have not yet grasped.

Based on the research findings, the difference in knowledge levels before and after the educational session occurred because the students received material they had not previously encountered in school. It turns out that the majority of students have never learned about Basic Life Support. Therefore, the provision of this education broadens their horizons. Furthermore, the use of educational videos makes it easier for students to understand the material, as explanations are accompanied by images and animations that help improve their retention of the subject matter.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Based on the study regarding the educational video on Basic Life Support and the knowledge of Grade X students at SMA Hang Tuah 5 Sidoarjo, it can be concluded that:

1. The majority of students' knowledge regarding Basic Life Support prior to the presentation of the educational video fell into the "good" category.
2. The majority of students' knowledge regarding Basic Life Support fell into the "good" category and showed improvement after the educational video was presented.
3. There was a difference in the students' level of knowledge regarding Basic Life Support. The number of students with "good" knowledge increased from 46 (43%) to 66 (61.7%), while the number of students with "poor" knowledge decreased from 23 (21.5%) to 9 (8.4%).

Recommendations

Based on the results of the research conducted, the following recommendations can be made:

1. For Respondent
   Respondents are expected to deepen their understanding and skills regarding Basic Life Support by reviewing the material from the previously presented educational video.
2. For Healthcare Professionals
   Healthcare workers are expected to collaborate with schools to conduct Basic Life support training.
3. For Future Researchers
   Future researchers are expected to compare various educational media such as leaflets, posters, and hands-on practice to determine which is most effective in improving students' knowledge and skills regarding Basic Life Support.

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