

## The Health Education on Basic Life Support Improves Knowledge and Skills of Red Cross Youth Members

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| ARTICLE INFO   | ABSTRACT  |
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## 1. INTRODUCTION

Emergencies can happen anywhere and anytime. Emergencies occur due to the rising incidence of heart attacks and accidents. Victims of accidents involving airway, breathing, and circulation disorders such as people who experience cardiac arrest require Basic Life Support (BLS) or heart massage to prevent unwanted things from happening (Nabecker et al., 2022; Susilo et al., 2022). BLS can be performed by trained lay people and not just paramedics. BLS actions can reduce mortality due to cardiac arrest (Alfaridzi & Suparti, 2023; Santoso et al., 2021; Susilo et al., 2022). Ordinary people need to be educated on the correct and appropriate methods for performing BLS.

According to data from Kemenkes RI, (2018), Indonesia has a prevalence of coronary heart disease of 1.5% which continues to increase every year. This indicates that 2,784,064 or 15 out of 1000 people in Indonesia are estimated to have heart disease. According to Kemenkes RI, (2018) in East Java the prevalence rate of heart disease is 1.6%. By 2021, the global heart disease mortality rate has accumulated to 17.8 million. The prevalence rate of injuries in Indonesia due to traffic accidents according to Kemenkes RI (2022) is 11.9%. Accidents are the 5th leading cause of death in the world. The number of accidents in Indonesia according to BPS (2021), was 103,645 cases. According to WHO (2018), the death rate from accidents was recorded at 1.35 million. The injury rate due to accidents in East Java according to Kemenkes RI (2018), was 2.2%. Based on the results of interviews with coaches and several PMR members at MAN 2 Madiun, they have never received material related to BLS.

Cardiac arrest and traffic accidents that result in death are common due to the inability of the surrounding community to help victims in the crisis phase (golden period). This inability is due to a lack of knowledge and a low level of skills. Based on research conducted by Prayitno et al. (2020), the results showed that before the implementation of BLS Health Education, most of the Bandung TIM TIMKES had insufficient knowledge and skills. People present at the scene should be able to handle victims to increase the chances of survival. BLS is a subject that can be taught to anyone. It is possible to provide teaching to any adult or teenager according to their level of proficiency. (Alfaridzi & Suparti, 2023).

One of the groups of individuals who has the competence to be taught BLS is high school PMR members because PMR at the high school level serves as a peer educator in their school. Based on research conducted by Susilo et al, (2022) the average knowledge and skill levels of PMR SMK N 1 Bawen before being given Health Education about BLS was classified as low. Efforts to increase the knowledge and skills of PMR members are carried out through Health Education regarding BLS using lectures, booklets, and audiovisual media (Nugroho & Ahmad, 2023; Wanda Aurelia et al., 2023).

According to research conducted by Wanda Aurelia et al., (2023), the students' level of knowledge increased after being given health education. Based on this background, a study was conducted on the effect of BLS Health Education on the Level of Knowledge and Skills of PMR Members at MAN 2 Kota Madiun.

## 2. METHODS

### 2.1 Research design

This research is a quantitative study with a pre-experimental research design with a one-group pretest-posttest approach.

## 2.2 Setting and Sample/Participants

This research was conducted in January 2024 at MAN 2 Madiun. The population of this study consisted of 70 PMR members with a sample size of 26 PMR members. Sampling was done using simple random sampling with the inclusion criteria being students who participated in PMR.

## 2.3 Intervention (Applicable to Experimental Studies)

The intervention in this study was carried out by providing Basic Life Support health education using the lecture method conducted once by the researchers with PowerPoint media, booklets, audiovisual, and CPR manikin phantoms all conducted in a single day. Before the intervention, the researcher conducted a pretest and after one week after the intervention, the researcher conducted a post-test on PMR members.

## 2.4 Measurement and Data Collection

Data were collected by giving written questions in the form of questionnaires and observation sheets. The questionnaires developed by the researchers were tested for validity and reliability with an r-table 0.482 and a Cronbach alpha result 0.946 which means perfect reliability. The observation sheet used for research has also been tested for validity and reliability with an r-table of 0.482 and a Cronbach alpha result of 0.893. Scores on the level of knowledge in this study were grouped into <56% Poor, 56%-75% Fair, and 76%-100% Good (Nursalam, 2020). The skill level scores in this study were grouped into <56% Poor, 56%-75% Fair, and 76%-100% Good (Nursalam, 2020).

## 2.5 Data analysis

Data analysis conducted in this study included univariate analysis and bivariate analysis using the Wilcoxon Sign Rank Test where the significance value in this study is  $\alpha = 0.05$ . By using the Wilcoxon Sign Rank Test, the impact of BLS health education on the knowledge and skills of PMR members was determined.

## 2.6 Ethical considerations

This study upholds research ethics by asking for informed consent and carrying out the ethical principles of autonomy, confidentiality, beneficence, non-maleficence, accountability, and justice. This research has passed the Ethical Feasibility Test from KEPK Poltekkes Kemenkes Surabaya on January 04, 2024 with No. EA/2014/KEPK-Poltekkes\_Sby/V/2024.

## 3. RESULTS

**Table 1. Gender and Age of PMR members of MAN 2 Kota Madiun, January 2024**

| <b>Gender</b> | <b>F</b>  | <b>%</b>   |
|---------------|-----------|------------|
| Male          | 2         | 8          |
| Female        | 24        | 92         |
| <b>Total</b>  | <b>26</b> | <b>100</b> |
| <b>Age</b>    | <b>F</b>  | <b>%</b>   |
| 15 years      | 9         | 35         |

|              |           |            |
|--------------|-----------|------------|
| 16 years     | 11        | 42         |
| 17 years     | 6         | 23         |
| <b>Total</b> | <b>26</b> | <b>100</b> |

Sample characteristics based on the gender of PMR MAN 2 Kota Madiun members are shown in the table above, indicating that 92% of members are female and samples based on the age of PMR MAN 2 Kota Madiun members in the table above show that almost half (42%) of the members are 16 years old.

**Table 2. Experience of BLS for PMR members MAN 2 Kota Madiun, January 2024**

| Experience of BLS | F         | %          |
|-------------------|-----------|------------|
| Ever              | 0         | 0          |
| Never             | 26        | 100        |
| <b>Total</b>      | <b>26</b> | <b>100</b> |

Characteristics of the sample based on their experience receiving BLS education are shown in the table above, indicating that all students (100%) have never received education about BLS education before.

**Table 3. Knowledge level of PMR members MAN 2 Kota Madiun, January 2024**

| Cognitive         | Pre       |            | Post      |            | <i>p-value</i> |
|-------------------|-----------|------------|-----------|------------|----------------|
|                   | N         | %          | N         | %          |                |
| <b>Good</b>       | 5         | 19         | 21        | 81         | 0,000          |
| <b>Sufficient</b> | 9         | 35         | 5         | 19         |                |
| <b>Less</b>       | 12        | 46         | 0         | 0          |                |
| <b>Total</b>      | <b>26</b> | <b>100</b> | <b>26</b> | <b>100</b> |                |

The table above shows that before receiving health education, a small proportion (19%) had a good level of knowledge and after receiving health education there was an increase. Most (81%) PMR members having good knowledge of BLS. The results of the analysis with the Wilcoxon signed ranks test in Table 4 showed a significant value of  $p = 0.000 < \alpha = 0.05$ , which means that there is an effect of BLS education on the knowledge of PMR members at MAN 2 Kota Madiun. After receiving BLS education, the knowledge of PMR members at MAN 2 Kota Madiun has increased.

**Table 4. Skill Level of PMR members MAN 2 Kota Madiun, January 2024**

| Skill         | Pre       |            | Post      |            | <i>p-value</i> |
|---------------|-----------|------------|-----------|------------|----------------|
|               | N         | %          | 0,000     | %          |                |
| <b>Good</b>   | 0         | 0          | 17        | 65         | 0,000          |
| <b>Enough</b> | 0         | 0          | 8         | 31         |                |
| <b>Low</b>    | 26        | 100        | 1         | 4          |                |
| <b>Total</b>  | <b>26</b> | <b>100</b> | <b>26</b> | <b>100</b> |                |

The table above shows that before receiving Health Education about BLS all members (100%) had lack skill level, while after receiving Health education there was an increase Most (65%) PMR members having good skills in BLS. The results of the analysis with the Wilcoxon signed ranks test in Table 5 showed a significant value of  $p = 0.000 < \alpha = 0.05$ , which means that there is an effect of BLS education on the skills of PMR members at MAN 2 Kota Madiun. After being given BLS education, the skills of PMR members of MAN 2 Kota Madiun increased.

#### 4. DISCUSSION

##### **Level of Knowledge of PMR Members Man 2 Kota Madiun before being given BLS Health Education BLS**

According to research conducted on 26 PMR members at MAN 2 Kota Madiun, it was found that before receiving BLS Health Education, almost half of the PMR members had insufficient knowledge. This research aligns with the study conducted by Prayitno et al. (2020) whose findings showed that before implementing of BLS Health Education for the Undergraduate Nursing Team of STIKES Dharma Husada Bandung mostly consisted of individuals with less knowledge. This is because during orientation, undergraduate nursing education participants at STIKES Dharma Husada Bandung were given material about BHD, but only provided in an outline format, so they did not fully grasp the information provided.

This research aligns with the study by Nirmalasari & Winarti, (2020) It was found that before receiving BHD health education at Hima Kesmas UVNJ, almost all of them had less value, this was mainly due to the lack of training on BHD. Research by Fibriansari et al., (2020) The findings found that before the implementation of BHD Health Education, the majority of farmers had an adequate level of education. However, almost half had poor knowledge, while the other half had excellent knowledge.

PMR MAN 2 Kota Madiun members had never received health education about BLS before. However, they had received material regarding first aid for syncope, burns, broken bones, and others. Access to information is one of the elements that influence the level of knowledge. Almost half of the members of PMR MAN 2 Kota Madiun did not have a basic understanding of BLS, this indicates the need for Health Education about BLS as a form of information to increase knowledge and enhance the knowledge level of PMR MAN 2 Kota Madiun members.

##### **Level of Knowledge of PMR Members Man 2 Kota Madiun after being given BLS Health Education**

The results of research conducted on January 5, 2024, after the BLS Health Education intervention using the lecture method accompanied by PowerPoint, and booklets, almost all members of PMR MAN 2 Kota Madiun had a good level of knowledge, a small proportion of PMR MAN 2 Kota Madiun members still had a sufficient level of knowledge, and none of the PMR MAN 2 Kota Madiun members had a poor level of knowledge. In line with the research of Fibriansari et al., (2020), Their findings showed that after receiving BHD Health Education, most farmers had a satisfactory level of knowledge, while a small proportion still had an adequate level of understanding.

Research by Fauzan et al., (2021) found that after being given Health Education with audiovisual media there was an increase in test scores for 61 people due to audiovisual media being very effective in increasing a person's level of knowledge. Research by Ariyani & Rosidawati, (2022) found that after being given the intervention, most of the knowledge of the Muhammadiyah Tasikmalaya Ortom residents had a good level of knowledge. This result was due to the researchers used two methods in conducting the research, namely the lecture method and the BHD simulation method using human mimics. Research conducted by Fernalia et al., (2022), showed an improvement in knowledge among participants who received Basic Life Support training through the lecture method. BLS knowledge is highly valuable for the general public, including PMR members.

One way to improve a person's knowledge about first aid for cardiac arrest patients is to provide BLS Health Education. Choosing the right approach is one of the elements that affect the effectiveness of health education. A lecture-based approach, when combined with health education materials, can be used to maximize the delivery of BLS health education.

### **The Effect of BLS Education on the Knowledge Level of PMR Members MAN 2 Kota Madiun**

The results showed that before receiving BLS health education, most PMR members had a poor level of knowledge and after the intervention of BLS health education, almost all PMR members had a good level of knowledge, this improvement in understanding is supported by the results of hypothesis testing using the Wilcoxon signed rank test at a significance level of 0.05. The statistical analysis showed that health education increased the knowledge of PMR members significantly ( $p=0.05$ ) as indicated by a significance value of 0.00. This is in line with the findings of research conducted by Susilo et al., (2022), their research indicated that health education on BHD significantly improved the knowledge of PMR members at SMK N 1 Bawen.

Then the results of research by Alfaridzi et al, (2023), showed that knowledge increased after the implementation of the intervention. Research by Fibriansari et al., (2020) Based on the results of the Wilcoxon statistical test  $p=0.000$ , it can be concluded that farmers who received Basic Life Support training experienced an increase in BLS skills.

Providing BLS education is very important for ordinary people, especially teenager who participate in PMR. Providing BLS Health Education to PMR is expected to help provide first aid in conditions outside the hospital. PMR members who have a good level of knowledge are expected to spread this knowledge to other students who are not members of PMR MAN 2 Kota Madiun as part of this study's broader impact.

### **The skill level of PMR members of MAN 2 Kota Madiun before being given BLS health education**

Based on the results of the study, it was found that all PMR members at MAN 2 Kota Madiun had a poor skill level and none of them had a good skill level. All members of PMR at MAN 2 Kota Madiun had never previously received BLS training. The lack skill level is caused by a lack of knowledge and information about BLS. According to the theory put forward by Lawrence green, in this theory, it is explained that several factors influence a person's skill level, one of which is education (Ester, 2024).

Research conducted by Sugiyarto & Sulistyowati, (2020) found that before receiving Health Education almost all nurses and midwives had a poor skill level and none of them had a good skill level. In this study, many PMR members had never received BLS training. Research by Khalilati et al., (2020) found that before the simulation using a phantom, most students at SMAN 1 Tabungane performed the procedure incorrectly. This was because they had not previously learned the correct way to perform BHD.

The lack of BLS skills highlights the need for health education that includes not only lectures but also demonstrations and audiovisual aids to improve skills.

### **Skill level of PMR members MAN 2 Madiun after BLS health education**

The results of the study showed that after the BLS health education intervention, most of the PMR members had a good level of skills. However, during the assessment of these skills, some PMR members practiced BLS hesitantly due to fear of making mistakes. BLS education was provided using demonstrations with phantom props and audiovisuals. According to Aji et al., (2023), the demonstration method is a method that has an important role and prioritizes increasing one's ability or skill.

This is because the demonstration method illustrates an activity process taking place and uses props. This method is an effective learning method that is easy to apply and easily captured by someone who receives the material. According to Nugroho et al, (2023) providing health education with media such as booklets, audiovisuals, and PowerPoint presentations has a high intensity compared to lecture media alone. Therefore, researchers used lecture media and booklets to maximize the provision of education. According to Fauzan et al., (2021) Nirmalasari & Winarti, (2020), audiovisual media is effective in increasing a person's level of knowledge and skills because audiovisual media can stimulate multiple senses, including vision and hearing. According to Cristian in Patimah, (2020), good knowledge significantly influences one's ability to apply knowledge effectively through action.

The demonstration method is a method of delivering information that is quite efficient and effective because PMR MAN 2 Madiun members can see firsthand and practice the knowledge and skills that have been conveyed.

### **The Effect of BLS Health Education on the Skill Level of PMR Members MAN 2 Kota Madiun**

Based on the research that has been done, the results obtained before health education all PMR members have a low of skill level. After the BLS Health Education was conducted, most of the PMR members had a good skill level and a small portion still had a poor skill level, this was because students were hesitant and nervous about performing BLS actions. The existence of a improvement in the skills of PMR members after being given Health Education has been proven by hypothesis testing using the Wilcoxon signed rank test with a significance value of 0.05. Based on the results of the Wilcoxon signed rank test, a significance value of 0.00 ( $p < 0.05$ ) was obtained, indicating that Health Education resulted in an increase in the skills of PMR members.

This research is in line with research conducted by Frijelita Afrita Mumek et al., (2022), which obtained the results of the assessment showed an increase in the knowledge and skills of members of the Manado Traffic Police ( $p=0.000$ ), indicating that BLS education

does have an impact on the level of knowledge and skills. Research conducted by Sugiyarto & Sulistyowati, (2020) found that statistical test results ( $p=0.000$ ;  $p<0.05$ ) show that the provision of BLS skills training affects the BLS ability of midwives and nurses at Gemolong Sragen Hospital. The importance of individual abilities in general, especially PMR members in this case, cannot be overstated in terms of extending one's life expectancy through BLS knowledge and skills. This research is in line with research conducted by Rahmania & Triwijayanti, (2023) which found that after Role Play, statistical test results using the Wilcoxon test  $p = 0.01$ .

Therefore, the researcher performed a BLS skill demonstration before the PMR members received the skill score. This would encourage PMR members to show their abilities to the fullest. In addition, PMR members of MAN 2 Kota Madiun who still have poor skill levels due to hesitation when performing BLS actions are expected to understand and learn more about BLS so they can develop BLS skills.

## 5. CONCLUSION

Basic Life Support health education with lecture methods accompanied by Audiovisual, PowerPoint, and Booklet can increase the knowledge and BLS skills of PMR members.

## 6. ACKNOWLEDGMENTS

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