The influence of health education to improve community knowledge of basic life support procedure in Dlanggu district, Mojokerto regency, Indonesia

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Abstract
Basic Life Support (BLS) is an attempt to sustain life when a person experiences a life-threatening situation. BLS should be given to survivors with cardiopulmonary arrest. Ignorance of help and incompetent BLS management of a helper often occur in real cases in the field. This study aimed to determine the effect of health education on basic life support to the level of public knowledge. This research design used Pre-Experimental Design, with One Group Pretest-Posttest Design method. The population of this research is the community of Dlanggu District, Mojokerto Regency. The sample was taken as many as 59 respondents. The sampling method used is Probability type Simple Random Sampling. The data were collected using a questionnaire. The data was analyzed using Wilcoxon Signed Rank Test with a significance level ≤0.05. The results showed a significant value of 0.000 (p<0.05), thus it can be concluded that there were significant differences before and after the provision of health education about BLS procedures.

Introduction
Basic life support (BLS) is the first attempt to maintain life when sufferers experience life-threatening conditions. The prognosis of death is increased due to the helper’s inability to deal with patients in the golden period. This inability can be caused by the severity, inadequate equipment, lack of an integrated system and insufficient knowledge in emergency response. Mass education in BLS lead to a significant increase in the willingness to use an AED, and the confidence in providing chest compressions and mouth-to-mouth ventilations. The right help in handling emergency cardiac arrest cases is Basic Life Support. Laypeople recognize their role in the immediate care given to victims of certain emergency situations. Even though laypeople lack training, they show interest in learning Basic Life Support. Almost anyone can perform Cardiopulmonary Resuscitation (CPR) on someone experiencing cardiac arrest. Frame has argued that BLS can be taught to anyone. Every adult should have BLS skills; even children can also be taught according to their capacity. Sudden onset of emergency causes a vital function disorder in the form of loss of consciousness, cessation of breathing, cessation of the heart until death. For people who do not know how to help patients with heart attacks, the patient is left without any help and immediately taken to the hospital. Delays in handling will have an impact on the patient, family, and hospital who are asked for help. For families will feel very lost as well as for hospitals can reduce the image of the hospital, so it takes knowledge of BLS in the community.

Cardiac arrest is a major cause of death in several countries. Every year, emergency medical services assess the presence of more than 420,000 cardiac arrests outside of the hospital. In 2013, Emergency Medical Service (EMS) in the United Kingdom sought to bring about 28,000 cases of out-of-hospital cardiac arrest (OHCA) to awareness. In 2015 the Pan-Asian Resuscitation Outcomes Study (PAROS) identified cases of OHCA in several countries that were members of PAROS and 66,000 cases were found, most of which occurred at home. The study of the incidence of cardiac arrest in Indonesia has not obtained clear data. The interview results of 7 respondents said they did not know the steps to be taken to assist victims of cardiac arrest / respiratory arrest. One of the efforts to increase the knowledge and skills of the community in providing basic life-assistance is with health education. Health education is an effort to translate what is known about health into the desired behavior of individuals or society through the education process. The next effort is to inform communities about the importance of first aid to victims who experience cardiac or respiratory arrest to improve life safety in the Dlanggu district of Mojokerto Regency.

Materials and Methods
This study aimed to analyze the effect of basic life support (BLS) health education on the level of community knowledge in

Results
From Table 1 it can be seen that most respondents are male, have high school education, and have never received BLS infor-
based on Table 2 shows that the average age of respondents is 35.66 years old with the youngest age is 25 years old, and the oldest is 52 years old.

According to Table 3, it can be identified that respondents’ knowledge increased from 0% to 76.27% after receiving BLS simulation. Respondents reported that they felt more confidence in BLS procedure.

Based on Table 4 it is known that there were no respondents have poor knowledge after being given BLS simulation, even all respondents had better knowledge than before.

The results of Wilcoxon’s statistical test obtained a significance value of 0.000 (p<0.05), thus concluded that there were significant differences before and after the provision of health education about BLS procedures.

**Discussion**

Knowledge is the result of ‘knowing,’ and this happens after people perceive a particular object. Sensing occurs through the human senses. Most human knowledge is obtained through eyes and ears. Knowledge or cognitive is a domain that is very important for the formation of one’s actions (overt behavior). Prior to BLS simulation, all respondents had poor knowledge about BLS. Several factors influenced poor knowledge about BLS includes age, education, and lack of information obtained.

**Age**

Based on Table 2, it shows that the average age of respondents is 35.66 years old. Age brings maturity and makes a person wise in the ways of thinking decision making. Older people will have tendency to be more trusted than any other person as they are more emotionally stable and resilience. However, maturity may not necessarily affect one’s ability to learn skills. Age is the only factor that significantly affects skill acquisition (skills possessed by those who are ≥40 years poorer than those who <40 years old). Yet, BLS training is less effective in individuals aged ≥40 years. In young adulthood, a person will be more energetic and productive in carrying out daily activities. This happens when respondents became enthusiastic to demonstrate BLS procedures. Respondents explored their knowledge regarding all BLS procedures includes how to ask for help, how to compress the chest, and how to end BLS procedures.

| Variable | Mean | Mode | SD | SE | Min - Max |
|----------|------|------|----|----|-----------|
| Age      | 35.66| 38   | 6.514 | 0.848 | 25 - 52   |

**Education level**

Based on Table 1, most respondents were educated in high school as many as 50 respondents (67.8%). The higher the level of knowledge of respondents, the higher the information received. Poor knowledge becomes additional barriers to implement BLS procedures. In this study, there were no respondents who had studied in the field of health, so they have lack of information about BLS procedures. However, it can be anticipated by providing adequate information about how to apply BLS procedures. Previous study stated that poor knowledge about BLS can cause inconsistency between expectations and reality in the community.

**Information**

Based on Table 1, it was found that most of the respondents had never known about the BLS procedure (89.8%). In addition, respondents in this study only 10.2% have received information or knowledge about BLS. In this study, respondents seemed so curious to learn and demonstrate BLS procedures.

Based on the results of the Wilcoxon Signed Rank Test obtained p = 0.000 at the level of p≤0.05. It means that there is a significant influence about the BLS simulation on communities’ knowledge. Sufficient information about health or BLS procedures can stimulate community activities to live healthier. People who have never received information about BLS are certainly not aware of the threat when there are people

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**Table 1. Characteristics of respondents based on gender, education, and information ever obtained about BLS.**

| No   | Variable          | Total | (%) |
|------|-------------------|-------|-----|
|      | Gender            |       |     |
|      | Male              | 38    | 64.4|
|      | Female            | 21    | 35.6|
|      | Education         |       |     |
|      | Elementary        | 11    | 18.6|
|      | Junior high school| 5     | 8.5 |
|      | Senior high school| 50    | 67.8|
|      | University        | 3     | 5.1 |
|      | Information       |       |     |
|      | No                | 53    | 89.8|
|      | Yes               | 6     | 10.2|

**Table 2. Characteristics of age of respondents.**

| Variable | Mean | Mode | SD | SE | Min - Max |
|----------|------|------|----|----|-----------|
| Age      | 35.66| 38   | 6.514 | 0.848 | 25 - 52   |

**Table 3. Differences in Respondents Knowledge Levels Before and After Health Education About BLS.**

| No | Knowledge level | n | Pre | Post |
|----|-----------------|---|-----|------|
| 1. | Good            | 0 | 0   | 45   |
| 2. | Average         | 5 | 8.47| 14   |
| 3. | Poor            | 54| 91.53| 0   |
| Total |                 | 59| 100 | 59   |

| No | Knowledge level | n | Pre | Post |
|----|-----------------|---|-----|------|
| 1. | Good            | 0 | 0   | 45   |
| 2. | Average         | 5 | 8.47| 14   |
| 3. | Poor            | 54| 91.53| 0   |
| Total |                 | 59| 100 | 59   |

**Table 4. Wilcoxon test results.**

| Ranks | N | Mean Rank | Sum of Ranks | Before-After |
|-------|---|-----------|--------------|--------------|
| Before - after |  | 0.00       | 0.00         |              |
| Positive Ranks  | 59 | 30.00     | 1770.00     |              |
| Ties            | 0  | 0.00      |              |              |
| Total           | 59 | 59        |              |              |

| Test statistics |
|-----------------|
| Z                | -6.733*         |
| Asymp. Sig. (2-tailed) | 0.000 |

a. before-before; b. before>before; c. after=before. *Based on negative ranks
experiencing cardiac arrest or sudden unconsciousness.

**Conclusions**

There is an influence of health education about BLS procedures on communities' level of knowledge. The better the knowledge of respondents, the better patients’ quality of life will be achieved.

**References**

1. Nielsen AM, Isbye DL, Lippert FK, et al. Can mass education and a television campaign change the attitudes towards cardiopulmonary resuscitation in a rural community?. Scandinavian journal of trauma, resuscitation and emergency medicine 2013; 21(1):39.
2. Chehuen Neto JA, Brum IV, Pereira DR, et al. Basic life support knowledge and interest among laypeople. Int J Cardiovasc Sci. 2016;29(6):443-52.
3. Liberman M, Lavoie A, Mulder D, et al. Cardiopulmonary resuscitation: errors made by pre-hospital emergency medical personnel. Resuscitation 1999;42(1):47-55.
4. McSwain NE, Frame S. PHTLS: Basic And Advanced Prehospital Trauma Life Support. US: Mosby; 2010.
5. American College of Cardiology. For cardiac arrest, epinephrine may do more harm than good. Science Daily 2014. Available from: http://www.sciencedaily.com/releases/2014/12/141201163227.htm. Accessed on: 25 July 2017.
6. Yunanto RA, Wihastuti TA, Rachmawati SD. Comparison of Cpr Training with Mobile Application and Simulation to Knowledge and Skill of Cpr. NurseLine Journal 2017;2(2):183-193.
7. Resuscitation Council (UK). Consensus Paper on Out-of-Hospital Cardiac Arrest in England. UK: British Heart Foundation; 2015.
8. Doctor NE, Ahmad NSB, Pek PP, et al. The Pan-Asian Resuscitation Outcomes Study (PAROS) clinical research network: what, where, why and howclinical research network: what, where, why and how. Singapore medical journal 2017;58(7): 456-458.
9. Susilo R. Health Education in Nursing. Yogyakarta: Nuha Medika; 2011.
10. Notoatmodjo S. Education and Health Behavior. Jakarta: Rineka Cipta; 2003
11. Soubelet A, Salthouse TA. Influence of social desirability on age differences in self-reports of mood and personality. Journal of personality 2011;79(4):741-762.
12. Sim MS, Jo JJ, Song HG. Basic cardiac life support education for non-medical hospital employees. Emergency Medicine Journal 2009; 26(5), 327-330.
13. Dahlan S, Kumaat L, Onibala F. Effect of basic life assistance health education (BLS) on the level of knowledge of health workers in Wori health center, Wori sub-district, North Minahasa regency. Nursing Journal 2014;2(1).
14. Bala DKY, Rakhmat A, Junaidi J. Overview of Knowledge and Implementation of Emergency Nurse Basic Life Assistance at Emergency Department (ED) at Labuang Baji Hospital Makassar. Scientific Journal of Health Diagnosis 2014;4(4).
15. Notoatmodjo S. Health Promotion and Health Behavior. Jakarta: Rineka Cipta; 2012.