

(RESEARCH ARTICLE)



Differences in knowledge of campus security units in helping victims of cardiac arrest before and after basic life support training

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Abstract

Ignorance about how to do cardiopulmonary resuscitation makes someone not provide help. The research aims to determine the effect of basic life support training on security guards' knowledge in helping victims of cardiac arrest. Pre-experimental research design with the One Group Pretest-Posttest Design approach was measured pre-test of security guard knowledge and then given basic life assistance training then 7 days after the training was measured by security guard knowledge. Data collection using a knowledge questionnaire about basic life support. The research was carried out in the campus environment of the Alauddin State Islamic University Makassar in July 2022. 18 security guards were involved in the research. Data were analyzed by the Wilcoxon test using a statistical program for social science software. The security guards who involved in this study were the majority with high school education (72.2%), an average age of 43 years, an average length of service of 13 years. Most of security guards have never received basic life support training (94.4%) and have never provided basic life support (88.9%). The results showed a significant difference in knowledge before and after training ($p < 0.001$) and 94.4% of security guards experienced an increase in knowledge after being given basic life support training. The results of this study strengthen the need for practical and regular basic life assistance training, ideally at work or in the campus environment. Basic life support training increases security guards' knowledge in helping victims of cardiac arrest.

Keywords: Basic Life Support; Knowledge; Security Guard; Cardiopulmonary resuscitation

1. Introduction

An emergency is a condition that threatens a person's life so urgent action must be taken to avoid disability and even death [1]. Emergency incidents are not only in the form of traffic accidents but also within the campus scope often occur such as a lecturer student who runs out of sports suddenly has heart disease, someone who eats suddenly chokes, someone who is cleaning the grass on the campus lawn is suddenly bitten by a poisonous snake [2,3]. All these situations need to be treated immediately in minutes and even seconds, so practical knowledge of first aid in the emergency department for all academic communities on the campus, especially for security guards is very important to have.

In first aid in an emergency, the role of the first person or the person who witnessed the first time was very important [4]. Initial assistance will determine whether or not the victim survived, because the early phases of an emergency event is a critical phase that makes a person can be disabled or die. So it takes a lot of people who are often the first people in a way to know and understand how to provide help, at least before a trained helper arrives or takes the victim to the nearest health facility. But of course, this requires good knowledge from the helper. Ignorance of something makes a person reluctant to provide help and unmotivated to help [5].

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The results of a preliminary study gathering information from security guards regarding their experience in dealing with emergency incidents on campus. Of the 18 security guards, 77.8% said they had experienced incidents on campus such as traffic accidents, students fainting, and being possessed and 69% of the victims of these incidents were students. Ironically, 14% of security guards did nothing even just looking at the incident. Some of the obstacles experienced by security guards are lack of help experience, limited knowledge, and skills. From the results of preliminary studies, it can be seen that the security guard does not know what events can be classified as emergency conditions and what things are being done to help the victim.

One of the core factors that can be done to increase knowledge, and improve competence and professional skills is to provide training [6]. Previous research has targeted university students and school students as training targets and found that BLS training can increase the understanding and abilities of health students [7], medical students [8–10] nursing students [11,12], nature-loving students [13], and high school students. No training was found targeting security guards. Even though the campus security guard is one of the elements that have the responsibility and capacity to keep the campus conditions conducive, making it is possible to provide first aid in the event of an emergency or heart attack in the campus environment. In addition, campus protectors are available at several points on campus, so it is feasible to be trained through basic life support training methods. However, the security guard's training curriculum is not specifically devoted to providing assistance to victims of heart attacks.

In the training, participants are confronted with simulations that are tailored to the real conditions that can occur in the field, this is intended so that participants are accustomed to events that might occur in the field. Training can minimize risks that can occur because it is not done directly to humans or patients. Basic Life Support (BLS) training participants benefit through increasing knowledge, motivation, self-confidence, and skills in conducting BLS, this is a positive effect of BLS training. This is the originator of this research to analyze the difference in the security of the security guard in helping the victims of cardiac arrest before and after receiving BLS training.

2. Methodology

2.1. Research Design

This study used a pre-experimental design with a one-group pre-test and post-test design approach because there is no limited control over extraneous variables, no randomization, and no control group [14,15]. The research measured the security guard's knowledge pre-test and then gave basic life support training and then 7 days after the training measured again the security guard's knowledge in helping cardiac arrest victims. The research was carried out in the campus environment of the Alauddin State Islamic University Makassar in July 2022.

2.2. Sample

The samples in the study were selected using purposive sampling techniques because it uses the inclusion criteria for security guards who have worked for >10 years because of their experience and potential to meet various emergency cases in the campus environment. 20 security guards were selected who met the inclusion criteria but at the time of the study only 18 security guards filled out a complete knowledge questionnaire.

2.3. Data Collection

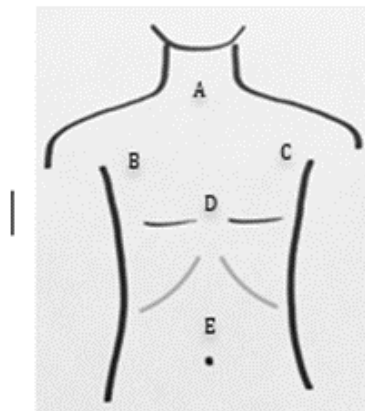
Data collection using a knowledge questionnaire refers to Boronik Lesjak et al [16] which consists of ten multiple-choice questions discussing theoretical knowledge about BLS. The sentences in the question have been carefully selected to fit the level of understanding and interpretation of this population. Each question offers 5 answer choices and only one correct answer, thus allowing students to achieve a maximum score of ten points. The fifth answer in all questions is 'I don't know'. The answer is entered to prevent guesswork, however, the scoring is still considered a wrong answer. For BLS training, standardized materials are provided for laypeople that refer to the procedures of the American Heart Association. Data analysis was performed with the help of a computer using a statistical program for social science software (SPSS). Univariate analysis shows the percentage of respondents' answers and bivariate analysis by testing the hypothesis using the Wilcoxon signed ranks test because the total knowledge score data is not normally distributed

3. Results and discussion

The results showed that the distribution of security guard's knowledge before and after being given BLS training can be described as follows:

Table 1 Distribution of security guards' knowledge about BLS before and after BLS training (n=18)

No	Knowledge questions	Before		After	
		True	False	True	False
1	How do you recognize someone who is in cardiac arrest?	22.2%	77.8%	50.0%	50.0%
2	Who can help in case of cardiac arrest	38.9%	77.8%	38.9%	61.1%
3	Someone suddenly lost consciousness and fainted. What do you do?	22.2%	77.8%	44.4%	55.6%
4	How do you make sure that someone is breathing normally?	50.0%	50.0%	72.2%	27.8%
5	What kind of breathing requires immediate treatment?	50.0%	50.0%	77.8%	22.2%
6	How is basic life support done correctly?	11.1%	88.9%	100.0%	0.0%
7	Give a cross for the exact location of the chest massage performed according to the basic life support guide:	55.6%	44.4%	83.3%	16.7%
8	When pressing on the victim's heart, what force do you use?	38.9%	61.1%	66.7%	33.3%
9	What do you do if you're not sure if someone is having cardiac arrest or not?	5.6%	94.4%	38.9%	61.1%
10	What do you do when the victim has regained consciousness?	38.9%	61.1%	77.8%	22.2%
Average answer		22.2%	77.8%	100.0%	0.0%

**Figure 1** Location of the chest massage

Based on table 1, it is found that most security guards (77.8% or 14 people) gave incorrect answers to questions asked before BLS training. On question number 9 which is "What do you do if you are not sure whether someone has a cardiac arrest or not?", almost all security guards gave the wrong answer (94.4% or 17 people). Likewise with question number 6 which is "How is basic life support done correctly?", almost all security guards gave incorrect answers (88.9% or 16 people). Nonetheless, on question number 7, most security guards gave the correct answer related to the exact location of the chest massage performed according to the basic life support guidelines (55.6% or 10 people). From the answers given by the security guard, it can be concluded that the security guard's knowledge of basic life support is classified as poor before being given BLS training.

Table 1 also shows that the average security guard (100%) gives the correct answer to the question asked after BLS training. It can be seen from question number 6 which is "how is basic life support done correctly?", all security guards gave the correct answer (100% or 18 people). The majority of security guards also answered correctly on question number 7, related to the exact location of the chest massage performed according to the basic life support guidelines (83.3% or 15 people). From the answers given by the security guard, it can be concluded that the security guard's knowledge of basic life support is relatively good after being given BLS training. This shows that the training brings changes to security guard knowledge, not only based on the data above but also based on security guards who feel that this training turns out to be very useful, they also admit that it is not too difficult to help but unfortunately, they do not have access to training such as training this.

The results of this study explain that training has a significant effect on increasing security guard knowledge. This is in accordance with the study of Muliyadi et al [3] that training using the group competition method increases Basic life support knowledge and skills for security guards at the Health Polytechnic of the Ministry of Health in Palembang. Nirmalasari and Winarti [7] found the same thing, that there was a significant effect of BLS Training on Student Knowledge and Skills. BLS training increases knowledge and skills in cardiopulmonary resuscitation [17]. In line with research by Wijaya, Dewi, and Yudhawati [18] the results of the study found that most of the basic life support knowledge levels in society are good (63%). In Vienna, Austria as many as 52% of the total 502 participants stated that they knew and would provide BLS assistance if they met with OHCA patients [19]. Monteiro et al [20] also found a significant improvement in participants' knowledge and self-efficacy after one BLS training session.

Knowledge is dominant which is very important for the formation of one's actions. Knowledge is influenced by several factors including age, intelligence, understanding, experience, level of education, and means of information [21]. Another factor that makes the security guard's knowledge increase significantly is the use of phantom as a visual aid. Based on research by Putri et al [17] that training with phantom media for pulmonary heart resuscitation (CPR) can increase BLS knowledge and skills. Andita [22] also found that there was an effect of conscious health education using slide media and imitation objects on changes in knowledge, it was found that the results of using artificial tools (phantom) could increase one's knowledge and skills. The use of props can make the respondent seem to be helping the real victim. In addition, by using teaching aids, more and more senses will be used so that more information and skills will be obtained [7].

Table 2 Differences in security guards' knowledge in providing basic life support to cardiac arrest victims before and after BLS training

Change of knowledge about BLS pre to post-test	n (%)	<i>p-value*</i>
Negative rank	0 (0.0)	<0.001
Positive rank	17 (94.4)	
Ties	1 (5.6)	

* Wilcoxon Signed Ranks Test

Table 2. demonstrates changes in the security guard's knowledge of BLS before and after being given training. The p-value shows a significant difference in knowledge before and after training ($p < 0.001$), this is supported by the changes that occur, namely 94.4% of security guards experience an increase in knowledge after being given BLS training so it is said that BLS training can increase security guard knowledge.

Conceptually, basic life support training is designed for laypeople to be trained to perform cardiopulmonary resuscitation (CPR), targeting high-risk relatives or individuals including overcoming the reluctance of people at the scene to act in emergencies [23]. The effectiveness of BLS has also been proven in helping victims stop breathing and cardiac arrest, several studies report this [24–26]. Performing a proper heart massage (the part of the BLS where chest compressions are given) to the victim before the emergency attendant arrives is associated with a higher survival rate and the compression rate should adhere to the Advanced Cardiac Life Support guidelines with a rate of at least 100 beats per minute [27]. In addition, the BLS simulation increases the knowledge, motivation, and skills of participants indirectly increasing the opportunity for saving of victims

4. Conclusion

Based on the results of research an increase in security guards' knowledge in providing basic life support after attending BLS training. However, it is necessary to conduct periodic training to maintain maximum knowledge and what is

possessed when later helping victims. It can be concluded that security guards have good potential in providing assistance if given appropriate training and knowledge. For further researchers, it is recommended to assess security guard knowledge from 6 domains referred to in Bloom's taxonomy.

Compliance with ethical standards

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Disclosure of Conflict of interest

The author has no area of conflict of interest.

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