

# Readiness of Scout Members in Lubuklinggau City to Perform Cardio Pulmonary Resuscitation (CPR) after CPR Training

Sapondra Wijaya<sup>1</sup>, Wahyu Dwi Ari Wibowo<sup>2\*</sup>, Susmini<sup>3</sup>, Bambang Soewito<sup>4</sup>

Diploma Nursing Program, Politeknik Kesehatan Kemenkes Palembang, Palembang, Indonesia

## Article info

### Article history:

Received: September 13<sup>th</sup>, 2023

Revised: November 16<sup>th</sup>, 2023

Accepted: December 01<sup>st</sup>, 2023

### Correspondence author:

Name: Wahyu Dwi Ari Wibowo

Address: Diploma Nursing Program, Politeknik Kesehatan Kemenkes Palembang. Jl. Ismail Marzuki No.5341, Sekip Jaya, Kec. Kemuning, Kota Palembang, Sumatera Selatan 30114

E-mail:

wahyu74@poltekkespalembang.ac.id

International Journal of Nursing and Health Services (IJNHS)

Volume 6, Issue 6, December 20<sup>th</sup>, 2023

DOI: 10.35654/ijnhs.v6i6.760

E-ISSN: 2654-6310

## Abstract

**Introduction:** Even though CPR training has begun to be widely carried out, the problem of readiness of CPR training participants to carry out CPR during emergencies still needs to improve. One of the problems is the implementation of unsustainable training. There is a need to modify CPR training at a low cost so that movement can be sustainable, hoping to increase readiness. **Objective:** This study aimed to investigate the influence of CPR Training use of CPR Pillow on the scout member readiness in response to Hospital Cardiac Arrest (OHCA) in *Lubuklinggau* City, South Sumatera, Indonesia. **Method:** This quantitative study was conducted with a quasi-experimental approach. A total of 72 participants participated in this study, of which 36 were categorized into the experimental group and attended three CPR Training in two months by simulation method using CPR Pillow. The remaining 36 participants were in the control group and received classical CPR training using leaflets. Both the experimental and control groups were subjected to pretest and post-testing. The researcher developed a questionnaire to assess the readiness, deliberate the implementation, and conduct modifications from other studies. The Cronbach's alpha coefficients used were 0.82. The paired t-test was used to assess the data statistically. **Result:** The experimental group showed higher readiness progress ( $t = 6.834$ ,  $p < 0.001$ ) than the control group. **Recommendation:** Continuous CPR training using CPR pillows effectively increases the readiness of training participants in dealing with OHCA victims.

**Keywords:** CPR, Readiness, CPR Pillow, CPR Training.



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## INTRODUCTION

Bystanders can save lives by performing cardiopulmonary resuscitation (CPR) in cases of sudden cardiac arrest. The victim's chances of survival improve when witnesses are prepared to provide CPR (1).

The average global survival rate for adult out-of-hospital cardiac arrest (OHCA) patients who received cardiopulmonary resuscitation (CPR) was 7.6%, with Oceania having the highest survival rate (16.2%) and Europe having the second-best survival rate (11.7%) (2). In Spain, the observed survival rate was 32%, which increased to an estimated 59% (3). In the United States, there is a marked variation in survival rates to discharge at the county level, ranging from 3.4% to 22.0% (4).

In Singapore, the survival rate for OHCA was 3.4% (5). No data was found on cardiac arrest survival rates in Indonesia. But as an illustration, Singapore, one of the advanced countries in the pre-hospital sector in the ASEAN region, has a meager survival rate. Without discrediting Indonesia, the survival rate in Indonesia is likely the same.

It is essential to remember that several elements, including the effectiveness of CPR, the emergency medical services' response time, and the accessibility of defibrillators, might affect survival rates (2). In OHCA, giving CPR immediately by eyewitnesses is very important, and another problem is the readiness to provide CPR to the OHCA victim. According to the search results, the current state of CPR readiness could be more optimal. Studies have shown that only 35% of trained bystanders performed CPR (6).

CPR is successful when there is active community CPR training and public knowledge, attitude, and confidence. Additionally, readiness to perform CPR can be influenced by factors such as previous training history, self-efficacy, and attitude (7). The willingness of bystanders to do CPR is also influenced by psychological variables, such as panic attacks, general anxiety, incorrect CPR procedures, legal consequences, and the risk of injuring the patients (6). In other words,

readiness will be fulfilled if the bystander meets the conditions above.

Studies have also indicated that training young people in CPR can help laypersons more effectively reach more people (7,8). In addition to strengthening society's ability to perform CPR in the event of a sudden cardiac arrest, there is a need for more broad and efficient CPR training.

Some barriers to learning and conducting CPR include needing more information and confidence, self-doubt in personal CPR abilities, and financial constraints. Having practiced CPR, having experience providing CPR, who has given CPR, and being fit to provide CPR are also challenges related to self-confidence. Research shows that people tend to need more education and opportunities to attend CPR training in distant areas, which can affect their confidence in CPR. (9-12).

Lack of training is also influenced by factors such as lack of time, funds, training aids, and trainers, which can also prevent people from learning CPR (13,14). Overall, these barriers highlight the need for more widespread and accessible CPR training to increase the readiness of the general population to perform CPR in case of sudden cardiac arrest.

One way for people to learn CPR is by educating teenagers. Teaching CPR at a young age will allow them to gain a solid foundational knowledge of life-saving skills and give them confidence when facing any medical emergency (15,16).

The World Health Organization (WHO) has implemented CPR education in schools in the last decade. CPR training is designed to provide students with life-saving knowledge and skills so they understand what happens during an emergency (15,17).

CPR training can help build self-confidence and responsibility among students, making them feel more confident and responsible in emergencies, especially for OHCA victims, and increase their awareness of their ability to help (12,18).

One of the teenagers targeted in CPR training at school is a scout member. Scout members are a forum for educating the young

generation, which prepares its members to have a national character by Dasa Darma and Tri Satya, guided by behavior and attitudes toward helping others (19).

One of the barriers to CPR training is the high cost of exercise because it requires training aids in the form of CPR mannequins, which are pretty expensive (20). CPR training uses tools like CPR pillows, previously designed with cheaper manufacturing costs. This CPR pillow will be a CPR training aid at a lower price (21).

Previous studies stated that there was an increase in CPR knowledge after training (22,23). As described above, one of the barriers to this training is the high cost of mannequins, so training coverage has not spread rapidly, whereas, in this study, a cheaper figure was used, namely a CPR pillow, so it is hoped that CPR training can be carried out with broader coverage. This research also needs to prove that the CPR pillow here can be used as a teaching medium for CPR training.

It is envisaged that CPR bystanders will be well-equipped to handle the emergencies of OHCA victims if they come across them in time because CPR training is accessible and familiar. This study aims to determine scout members' readiness for CPR after receiving training with a CPR pillow.

## **OBJECTIVE**

This study aimed to investigate the influence of the CPR Training use of CPR Pillow on the scout member readiness in response to OHCA in Lubuklinggau City, South Sumatera, Indonesia.

## **METHODS**

### **Design**

This research is quantitative research with a quasi-experimental, pretest, and post-test with the non-equivalent control group.

### **Sample, sample size, and sampling technique**

The sampling technique uses random sampling. The sample in this study were scout members in Lubuklinggau City who met the following inclusion criteria: 15-17 years old, have never received CPR teaching or training in any form before, are willing to take part in CPR training, and are scout members, and the exclusion criteria were not willing to take part in research, a disability that makes it impossible

to perform CPR. Respondents who did not complete the study were also excluded.

This study enrolled a total of seventy-two respondents, thirty-six of whom were assigned to the treatment group and thirty-six to the control group.

### **Data Collecting process**

The research began with a preliminary study of scout members in Lubuklinggau City. Then, proceed with giving a research questionnaire. After filling out the initial questionnaire, participants are given CPR training thrice within two months, and the movement is repeated every two weeks. One week after the third meeting, participants were given the same questionnaire as the initial questionnaire as the final data.

Data collection in this study was carried out for two months, from May to June 2023. The experimental group received CPR training methods using classical and simulation techniques, while the control group received CPR training using classical methods only. Each group had three meetings during the data collection process.

### **Instrument for data collection**

A questionnaire was used to ascertain the level of readiness for responding to OHCA. It consisted of 30 items on a Likert scale with 4-point answers ranging from "disagree," "uncertain," "agree," and "strongly agree." The questionnaire included the following indicators: (1) Knowledge of OHCA, (2) Attitude toward OHCA, (3) Policies and guidelines of CPR, (4) Self-confidence of own skill CPR, and (5) How to seek assistance. The Cronbach's alpha, as a measure of reliability, was 0.85, as obtained from the questionnaire.

### **Statistically analysis**

This research data is usually distributed, so analysis tests can be carried out using Paired and Independent t-tests. The achievement indicator in this study was the value of scout members' readiness to perform CPR.

### **Ethical Consideration**

This study was conducted according to the guidelines of the Declaration of Helsinki. The Palembang Health Polytechnic Ethics Committee number

0617/KEPK/Adm2/VI/2023 issued the ethical approval. All participants were asked to fill out and sign a consent form after receiving information about the research and whether they had the right to participate in this study or not. The researcher assures that the confidentiality of the information will be guaranteed.

### CPR Pillow

The CPR pillow was built as a medium for carrying out CPR simulations, and Poltekkes Kemenkes Palembang developed the CPR pillow through the Diploma Nursing Program (21). The CPR pillow has all the attributes to perform a high-quality CPR simulation, with a maximum compression depth of 6 cm and fast spring recoil. On the back of the CPR pillow, a hands-on CPR algorithm is illustrated so that it is easy for responders to see at all times. A CPR pillow is a low-cost CPR simulation medium that emphasizes skills or is called low-fidelity.

### RESULTS

The following are the results of research on the characteristics of the respondents.

**Table 1. Respondents Characteristics (n=72)**

No	Characteristics	n	%
<b>Gender</b>			
1.	a. Male	41	56.9%
	b. Female	31	43.1%
<b>Age</b>			
2.	mean	15.89 y.o	
<b>CPR Training History</b>			
3	a. Ever	0	0%
	b. Never	72	100%
<b>OHCA Viewing History</b>			
4	a. Ever	12	16.7%
	b. Never	60	83.3%
<b>History of performing CPR</b>			
4	a. Ever	0	0%
	b. Never	72	100%
<b>Total</b>		<b>72</b>	<b>100%</b>

Based on Table 1, respondents in this study were almost evenly based on gender. The female respondents numbered 31 (43.1%), while the male respondents numbered 41 (56.9%). The majority of respondents, namely 60 people (83.3%), had never seen an OHCA incident, and only 12 people (16.7%) had ever been eyewitnesses to an OHCA incident. Based on the data in Table 1, it was also found that all the respondents had no experience with CPR in

OHCA and had never been trained or attended CPR training.

**Table 2. Variable Value Results (n=72)**

Variable	Group	Pretest	Post-test	Difference		t	p*	t	p**
		M ± SD	M ± SD	M ± SD					
Readiness	Exp	42.37 ± 7.078	91.53 ± 5.230	-49.16 ± 6.941	-49.343	.001	6.834	.001	
		Con	42.10 ± 6.880	82.70 ± 5.958	-40.60 ± 7.216	-38.211	.001		

\*Paired t-Test \*\*Independent t-Test

Table 2 reveals an increase in readiness before and after the CPR training. Furthermore, the enthusiasm in the experimental group displayed a higher value increase than the control group, even though the intervention and control groups had statistically significant p 0.001.

### DISCUSSION

Based on the data in Table 2, the community's readiness, in this case, the scout members in Lubuklinggau city, has increased in dealing with OHCA victims, which can be seen from the increase in pre and post-test scores with a difference of -49.16.

CPR training is crucial in enhancing readiness and improving outcomes in emergencies. Knowledge acquisition, confidence, and response efficacy are just ways CPR training can affect willingness (7). Apart from this, the aim of CPR training is not only to increase knowledge and skills but also to generally increase the self-confidence and attitude of respondents towards OHCA incidents.

In this study, it was seen that their readiness increased after CPR training; one of the aspects assessed in readiness was their knowledge. Increasing the willingness to perform CPR involves various aspects, including education, accessibility, confidence, and public awareness (24).

People who receive CPR training gain information and boost their confidence, increasing their likelihood of acting quickly in an emergency. More faith makes people more likely to perform CPR, which means their readiness is in good form, which can significantly impact survival rates (25).

This research uses a CPR pillow as a tool; this CPR pillow is low-cost and makes it easier for organizers to carry out CPR training, especially for laypersons. The most effective

CPR training is using the simulation method. This method requires tools to simulate CPR actions on cardiac arrest victims. Activity that uses good tools allows knowledge transfer to run well (21).

Table 2 also shows that all respondents had never received CPR training before and had never performed CPR directly on a victim, meaning that the CPR training using a CPR pillow was quite good in transferring knowledge to respondents. Low-fidelity manikins help teach CPR sequentially but fall short of imparting the standard of chest compressions as recommended by the AHA (American Heart Association) (26). However, studies have indicated that low-fidelity resuscitation simulation sessions may establish better muscle memory and reinforce skills more effectively than high-fidelity simulations (26)

Ultimately, all CPR training for laypeople is to increase the number of CPR bystanders. This will also increase the likelihood that OHCA victims will be given immediate and timely CPR properly and correctly. Widespread CPR training in the community provides greater readiness and resilience. More trained people increase the possibility that someone will be on hand to provide CPR in the event of a cardiac arrest even before professional help arrives (27).

The implication of increasing public knowledge about cardiac arrest management is that it increases the survival rates of cardiac arrest victims, with the explanation that they are helped at the scene until health workers arrive or, better yet, they return to ROSC after several cycles of CPR.

### Acknowledgment

The author would like to thank the Director of Poltekkes Kemenkes Palembang, who has provided support in this research, both financial support and facility support.

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