

Research Article

The Effect of Basic Life Support Training on the Knowledge and Skills of Adolescents

Jarniah Juariah and Iswanti Purwaningsih*

Health Polytechnic Karya Husada, Yogyakarta

ORCIDIswanti Purwaningsih: <https://orcid.org/0000-0003-0786-2976>

Abstract. Basic life support (LBS) is a set of interventions aimed at restoring and maintaining vital organ functions in victims of cardiac and respiratory arrest. Knowledge and skills in doing LBS can be improved by training. This literature review was carried out to determine the effect of LBS training on increasing the knowledge and skills of adolescents in performing first aid in cases of cardiac or respiratory arrest. Articles published in 2010-2020 were found through Google Scholar and the Garuda portal. The results of the 5 articles that were reviewed showed significant changes in the knowledge and skills of adolescents before and after being given training. This suggests that LBS training can improve the level of knowledge and skills of adolescents in performing first aid in cases of cardiac or respiratory arrest.

Keywords: LBS training, knowledge, skills, cardiac arrest, respiratory arrest

Corresponding Author: Iswanti
Purwaningsih; email:
iswantip76@gmail.com

Published: 7 February 2022

Publishing services provided by
Knowledge E

© Jarniah Juariah and Iswanti
Purwaningsih. This article is
distributed under the terms of
the [Creative Commons
Attribution License](#), which
permits unrestricted use and
redistribution provided that the
original author and source are
credited.

Selection and Peer-review under
the responsibility of the IVCN
Conference Committee.

1. Background

Basic life support is a set of interventions aimed at restoring and maintaining vital organ functions in victims of cardiac arrest and respiratory arrest. Basic life support, in this case, namely Cardiopulmonary Resuscitation (CPR) is an important determinant in the survival of cardiac arrest victims. This means that it requires an increase in the number (LBS) in the community [1]. Basic life support is the basis for saving patients in life-threatening conditions where a rescuer needs to immediately recognize the signs of cardiac and respiratory arrest, immediately activate the emergency response system, immediately perform CPR, and immediately perform defibrillation using an AED (Automated External Defibrillator).

In European countries, cardiac arrest is one of the leading causes of death with an incidence of around 700,000 cases annually. Meanwhile, in America, cardiac arrest is the number one killer where every year there are about 330,000 people who die suddenly due to cardiac arrest [2]. According to statistics 5 million people worldwide will suffer from OHCA every year and only 7% survive. In Indonesia, there is no clear data on the prevalence of cardiac arrest in daily life or outside the hospital, but it is estimated

OPEN ACCESS

TABLE 1: Inclusion criteria

Criteria	Inclusion
Time periode	10 years (2010 - 2020)
Language	Indonesian, English
Subject	Teenager
Journal type	The original research article is available in full text
Journal content theme	LBS training to improve youth knowledge and skills
Research design	Experiment

that around 10,000 people per year, which means 30 people per day experience cardiac arrest [3].

One of the factors that influence a person's success is the level of knowledge. Knowledge is the result of knowing, and this occurs after people have sensed a certain object. Most of the human knowledge is obtained through the eyes and ears (seeing and hearing). Knowledge is also very closely related to education because knowledge is obtained both through formal and informal education [4].

Adolensence transition from childhood to adulthood, which includes all the developments that have been experienced in preparation for entering adulthood. These developmental changes include physical, psychological, and psychosocial aspects, easy to motivate, and fast to learn. They are expected to become first responders, namely the first to provide help in an incident [5]. These characteristics can be found in adolescents in high school and college. However, without realizing it, many teenagers are still unfamiliar with basic life support. This is due to the lack of information and publicity efforts on basic life support.

In addition to the role of medical personnel in health care centers, first-aid performed by ordinary people and adolescents at the scene of a cardiac arrest victim is very important. Basic life support knowledge can shape helpful attitudes or behaviors.

2. Research Method

This type of is research using the method of literature review uses electronic database. Researchers searched for research journals published on the internet using Google scholar search, Garuda portal. With keywords: Knowledge, Skills and LBS, cardiac arrest, and respiratory arrest. The year of the reviewed journal published in 2010-2020, original article and in accordance with the inclusion criteria that have been set in Table 1.

3. Results

3.1. Research characteristics

N = 5

Research design

Pre experiment 2 40%
 Quasi experiment 3 60%
 Total 5 100%

Research Disclosure

One group pre-post test 4 80%
With control group pre-post test 1 20%
 Total 5 100%

Sampling technique

Purposive sampling 1 20%
 Consecutive sampling 2 40%
 Simple random sampling 2 20%
 Total 5 100%

Research Instrument

Similar questionnaires and observation sheets 5 100%

Research Location

Indonesia 5 100%

3.2. Responden Characteristic N = 161

Subject

Junior high school 95 59%
 university students 66 41%
 Total 161 100%

TABLE 2: Difference between knowledge before and after training

Journal	Pre		Post		Z-value	t-value	p-value
	Mean	SD	Mean	SD			
	-	-	-	-	-3.937	-	0,000
	44,43	5,44	89,64	5,56	-	-	0,000
	10,13	2,282	17,04	1,718	-	-	0,000
	15,09	2,21	20,04	0,87	-	-	0,000
	1,26	0,44	2,5	0,68	-4,604	-	0,000
Total	17,72	2,84	32,30	2,20			

TABLE 3: Difference in skills before and after training

Journal	Pre		Post		Z-value	t-value	p-value
	Mean	SD	Mean	SD			
	-	-	-	-	-3.994	-	0,000
	33,55	6,51	91,80	6,25	-	-	0,000
	1,65	3,70	18,39	3,115	-	-	0,000
	4,57	1,99	16,22	1,20	-	-	0,000
	1,13	0,34	2,36	0,71	-4,344	-	0,000
Total	10,22	3,13	32,19	2,81			

Gender

Female 112 70%

Male 49 30%

Total 161 100

3.3. Difference in knowledge before and after BLS Training

3.4. Difference in skills before and after BLS Training

4. Discussion

Adolescence is in the stages of development with the characteristics of seeking self-identity, having great curiosity in developing their abstract thinking skills which can influence attitudes and actions that can be applied in everyday life [6]. This is under the research conducted [7], entitled "Effectiveness of Video CPR on the Ability of the Layman to Perform CPR in Sembung Village, Narmada Subdistrict" that the age group of respondents is mostly in the age group of 17-25 years. Adolescents/students who

experience developmental changes including physical, psychological, and psychosocial aspects, are easily motivated and learn quickly.

Age and experience are considered as an influential things, this is related to cognitive and degenerative processes. In other studies, it is stated that memorization is most easily forgotten compared to things obtained from higher mental processes or meaningful practical experiences. Experience is one of the factors that can affect a person's level of knowledge and skills, but knowledge and skills will decrease when it's not used or trained for some time [8]. So that the experience that has been obtained must continue to be developed and applied correctly so that it does not decrease, besides that training also needs to be carried out to continue to improve knowledge and skills. This is following research conducted [9]. The increase in knowledge and skills actually cannot be separated from the provision of training, so that the level of knowledge and skills shows a change after being given training.

Training can affect knowledge significantly because it has supporting factors. One of the factors that makes training with the simulation method able to increase knowledge is because participants are guided directly by trainers who already have provider certificates. This is in line with research [10]. Which states that training with trainer feedback can immediately provide corrections and orders if the procedure is not appropriate. In addition, participants can directly ask questions, so that participants will understand better in the training process.

Respondent knowledge and skills have increased after participating in LBS training. Another factor that can increase the knowledge of the trainees is the provision of modules. This is supported [11], which states that the provision of modules can increase respondents' exposure to basic life support. Modules can be useful for participants to study independently and respondents can study them outside of training time. In addition to education through training with simulation concepts, there are several other methods of increasing knowledge, including through video. Training using video has its advantages, participants can learn independently using videos anywhere and anytime. Skill development must start from what students have mastered and what they have not mastered. This suggests that training becomes more effective for improving skills.

The factors that affect a person's skills according [12] are motivation, experience, and expertise. The experience of getting accurate information can improve a person's skills in carrying out a procedure. The development of knowledge can be seen from the ability of a person to be able to apply one of them in the form of skills. According [13] the process of developing skills must start from what students have mastered to skills that have not been mastered.

5. Conclusion

Knowledge and skills of respondents experienced a significant increase with the average p -value = 0.000 < 0.05. This shows the effect of LBS training on the knowledge and skills of respondents.

References

- [1] AHA-American Heart Association. CPR overview: 2010. American Heart Association guidelines for cardiopulmonary resuscitation and emergency. *Cardiovascular Care*. 2010;122(4):676–684.
- [2] Shinta AAN. Pengaruh simulasi tindakan resusitasi jantung paru (RJP) terhadap tingkat motivasi siswa menolong korban henti jantung Di SMA negeri 9 Binsus. 2017.
- [3] Ri KK. Profil Kesehatan Indonesia 2014. 2014.
- [4] Notoatmodjo, N. Metode penelitian kesehatan. 2012.
- [5] Wong, W. Buku ajar keperawatan pediatrik. 2009.
- [6] Monks. Tahap perkembangan masa remaja. *Medical Journal New Jersey Muagman*. 1980.
- [7] Sentana ADD. Efektifitas video CPR terhadap kemampuan masyarakat awam dalam melakukan CPR di desa sembung kecamatan narmada. 2018;12:2.
- [8] Arthur W, Bennett W, Stanush PL, M TL. Factors that influence skill decay and retention: A quantitative review and analysis. *Human performance*, 1998. 11(1), 57-101.
- [9] Turambi. Pengaruh pengetahuan dan keterampilan pelatihan bantuan hidup dasar (LBS) terhadap peningkatan pengetahuan dan keterampilan siswa kelas XI dan XII SMA negeri 2 langowa. 2016.
- [10] Sutono, S, Ratnawati, R, Suharsono, T. Perbedaan nilai kompresi dada dan ventilasi pada pelatihan resusitasi jantung paru mahasiswa S1 keperawatan dengan umpan balik instruktur, audiovisual dan kombinasi di Yogyakarta. *Jurnal Ilmu Keperawatan: Journal of Nursing Science*. 2015,3(2), 183-197.
- [11] Somantri D. pelaksanaan pembelajaran menggunakan media modul di sekolah dasar negeri 8 banjar universitas negeri Yohyakarta. 2015.
- [12] Widayatun W. Ilmu perilaku. 2005.
- [13] Turambi D. Pengaruh pengetahuan dan keterampilan pelatihan bantuan hidup dasar (LB) terhadap peningkatan pengetahuan dan keterampilan siswa kelas XI dan XII SMA negeri 2 langowa. 2016.