International Journal of Health, Economics, and Social Sciences (IJHESS)
Vol. 7, No. 1, January 2025, pp. 488~494
DOI: 10.56338/ijhess.v7i1.7032
Website: https://jurnal.unismuhpalu.ac.id/index.php/IJHESS

The Effect of Simulation Education on Knowledge About Basic Life Support (BLS) Skills in the Amateur Football Player Community in Donoyudan Village

Argariswandha Nurvian[1]*, Ratih Dwilestari Puji Utami[2], Lalu Muhamad Panji Azali[3]
[1]Student of Undergraduate Degree in Nursing Study Program of Kusuma Husada University of Surakarta
[2,3]Lecturer of Undergraduate Degree in Nursing Study Program of Kusuma Husada University of Surakarta

Article Info

Article history:

Received 09 Nov, 2024
Revised 24 Jan, 2025
Accepted 27 Jan, 2025

Keywords:

Basic Life Support;
Knowledge;
Education

ABSTRACT

Basic Life Support (BLS) is the initial treatment for patients who experience cardiac arrest, respiratory arrest or airway obstruction. BLS includes several skills that can be taught to anyone, namely recognizing sudden cardiac arrest, activating the emergency response system, performing initial cardiopulmonary resuscitation (CPR) and how to use an automated external defibrillator (AED). The aim of the research was to analyze the effect of simulation education on knowledge about basic life support skills (BLS) in the amateur football player community in Donoyudan Village. This research was quasi-experimental research. The research design used was a one group pre-test-posttest pre-experiment design. The population was all amateur football players in Donoyudan Village totaling of 22 people using a total sampling technique and the instrument used was a questionnaire with the Wilcoxon test data analysis technique. The results showed that the majority of the adult category was 12 respondents (54.5%), the majority had a high school education as many as 20 respondents (90.9%), unemployed as many as 10 respondents (45.5%) and 10 respondents (45.5%) had sufficient knowledge before and had good knowledge about Basic Life Support (BLS) after. It can be concluded that there is an effect of simulation education on knowledge about basic life support skills (BLS) in the amateur football players community in Donoyudan Village with a p value of (0.000).

Corresponding Author:

Argariswandha Nurvian
Student of Undergraduate Degree in Nursing Study Program of Kusuma Husada University of Surakarta
Email: arganurvian0606@gmail.com

INTRODUCTION

Cardiac arrest or cardiac arrest is a condition when the heart suddenly stops beating, resulting in a stop in blood supply to the brain, lungs, and other vital organs (Malik & Wijaya, 2022). This condition can lead to permanent brain damage if not treated immediately (Graham et al., 2015). Basic Life Support (BHD) is an initial intervention that includes cardiac arrest recognition, emergency system activation, CPR, and the use of AEDs. BHD can increase the safety rate in cardiac arrest victims by up to 45% (AHA, 2018). However, the lack of knowledge and skills of the community in carrying out BHD is the main obstacle in providing emergency aid (Malik & Wijaya, 2022). Research shows that training-based simulations can improve competence in BHD, both for medical personnel and the general public, such as the football player community (Emir, 2022). A study at Persedo FC, Donoyudan Village, revealed that amateur football players do not have the knowledge or skills to perform BHD, which is potentially fatal in emergency situations, such as cardiac arrest during a match (Budi, 2021; Michael & Perry, 2022).

METHODOLOGY

This type of research is a quasi-experiment research. The research design used is a pre-experimental one group pre-test-posttest design. The population is all amateur soccer players in Donoyudan Village totaling 22 people with a total sampling technique. The research instruments include questionnaires, BHD simulation tools, such as masks and phantoms. The data analysis technique uses the Wilcoxon test to evaluate changes in participants' skills before and after education.

RESULTS

Characteristics of Respondents

Age

Table 1 Characteristics of amateur soccer players by age

Variable	Frequency	Percent (%)
Early adolescence (12-14 years old)	6	27.3
Late teens (17-25 years old)	16	72.7
Total	**22**	**100**

Table 1 of the respondent characteristics shows that the majority of respondents(17-25 years old) are 16 respondents (72.7%).

Education

Table 2 Characteristics of amateur soccer players by education

Variable	Frequency	Percent (%)
JUNIOR	2	9.1
High School/Vocational School	20	90.9
Total	**22**	**100**

Table 2 of the respondent characteristics shows that the majority of high school/vocational education is 20 respondents (90.9%).

Work

Table 3 Characteristics of amateur soccer players by occupation

Variable	Frequency	Percent (%)
Not yet working	10	45.5
Laborer	3	13.6
Private Employees	6	27.3
Self employed	3	13.6
Total	**22**	**100**

Table 3 of the characteristics of the respondents showed that the majority of respondents had not worked as many as 10 respondents (45.5%).

Univariate Analysis

Knowledge of basic life support (BHD) skills before and after being given simulation education

Table 4 Results of knowledge analysis on basic life support skills (BHD) before and after being given simulation education

Variable	Frequency	Percent (%)
Knowledge before		
Less	1	4.5
Enough	10	45.5
Good	11	50.0
Knowledge after		
Less	20	90.9
Enough	2	9.1
Good	0	0

In table 4, knowledge about basic life support skills (BHD) was obtained before being given simulation education, the majority of respondents had less knowledge as many as 11 respondents (50%), while the majority of knowledge after being given simulation education was good knowledge as many as 20 respondents (90.9%).

Bivariate Analysis

The bivariate analysis in this study was carried out to determine the influence of simulation education on knowledge of basic life support skills (BHD) in the community of amateur soccer players in Donoyudan Village. The statistical test in this study uses the wilcoxon test

Table 5 Results of cross-tabulation analysis

Knowledge before	Knowledge after					
	Enough		Good		Total	
	f	%	f	%	n	%
Less	2	9,1	9	40,9	11	50
Enough	0	0	10	45,5	10	45,5
Good	0	0	1	4,5	1	4,5
Sum	2	9,1	20	90,9	22	100
P value 0.000						

In table 5 using the wilcoxon test, it shows that the value of p-value=0.000 ($p < 0.05$) can be interpreted that there is a significant difference between the knowledge before the BHD simulation education and after theBHD simulation education, thus it can be concluded that there is aThe Effect of Simulation Education on Knowledge of Basic Life Support Skills (BHD) in the Amateur Football Player Community in Donoyudan Village

DISCUSSION

Age

Based on the results of the study on the characteristics of respondents based on age, it shows that the majority of respondents(17-25 years old) are 16 respondents (72.7%). This shows that at the age of 17-25 years amateur soccer players are usually still in a phase of rapid growth and development, learning and developing skills significantly during this period. At this age, they are better able to learn and apply BHD skills because they are more mature and have more experience.

According to the research of Kaweenuttayanon (2017), there was a significant increase in scores (the difference between post-test and pre-test) in all age groups studied, namely from 13 to 18 years old. In addition, a study in the UK found that 10- to 12-year-olds had the ability to learn Basic Life Support (BHD) theory through training, which resulted in an increase in post-test scores after training or learning.

Education

Based on the results of the study on the characteristics of respondents based on education, it shows that the majority of high school/vocational education is 20 respondents (90.9%). This shows that the high school/vocational school certification usually does not include specific material about BHD skills. Therefore, respondents who have this education may have more limited knowledge of BHD skills.

According to the American Heart Association (2015), BHD can be done by anyone, not necessarily from health workers. BHD skills are important because they are taught about the basic techniques of rescuing victims from various accidents or daily disasters that are commonly encountered. According to Kunandar (2016), it shows that psychomotor learning outcomes have an impact in the form of skills and the ability to act. Psychomotor learning outcomes are actually a continuation of cognitive learning outcomes and affective learning outcomes

Work

Based on the results of the study, the characteristics of respondents based on occupation showed that the majority had not worked as many as 10 respondents (45.5%). This shows that most of the respondents are still in the education phase or have not started a career. Respondents who are not yet employed may still be in the education or training phase which may affect their knowledge and skills about BHD skills. More intensive education and training can help respondents in learning and applying BHD skills.

A person's job, especially for those who do not work in the health sector, can affect basic knowledge of Basic Life Support (BHD) before and after training. Individuals who do not work in the healthcare sector tend to have lower knowledge of BHDs. Ghozali's research (2023) shows that the majority of participants who do not have a health background have less knowledge before participating in BHD training is in the category of lack of knowledge. Despite not working in the healthcare sector, individuals from various

occupational backgrounds can play an important role in emergency situations. BHD training is designed to provide everyone, including the general public, with the necessary skills to be able to provide first aid before professional help arrives (Muninggar, 2024).

Knowledge of basic life support (BHD) skills before being given simulation education

Based on the results of the research on knowledge of basic life support skills (BHD) before being given simulation education , it showed that the majority had less knowledge as many as 11 respondents (50%). This shows that most of the respondents do not have a good knowledge of BHD skills before being given simulation education.

Several factors that affect an individual's knowledge of Basic Life Assistance (BHD) before being given education are that a person's formal education has a great influence on basic knowledge about BHD. Individuals with higher education tend to have a better understanding of health concepts, including BHD. Muninggar research (2024) shows that the higher the level of education, the more likely a person is to understand and receive information about BHD. Ghozali's (2023) research found that previous experience in emergency situations or BHD-related training also affects initial knowledge. Individuals who have been trained or have experience in the health field usually have better knowledge than those who have never received training.

Access to information on health and BHD, whether through the mass media, the internet, or formal education, also affects knowledge. Individuals who have better access to information tend to know more about BHD. Individual attitudes towards the importance of BHD knowledge also play a role. Those who are highly motivated to learn and participate in training tend to have better knowledge. A positive attitude towards BHD training can increase the desire to participate in education. The social environment and support from the community also affect knowledge. Individuals who are in an environment that supports health education and BHD training are more likely to have good knowledge (Purnomowati, 2018).

Research by Kamesyworo et al (2023) proves that before receiving simulated education on Basic Life Support (BHD), most participants showed inadequate knowledge in BHD skills. Similarly, observations in Jabon village showed that 73.53% of youth participants had inadequate BHD skills before training, this shows the importance of educational interventions to improve BHD knowledge and skills among individuals, emphasizing the need for continuous training programs to improve community readiness in responding to emergency situations effectively (Agus, 2023). Better education and training can help respondents in learning and applying BHD skills better.

Researchers assume that this lack of knowledge is due to several factors. One of them is the main focus of amateur football players who are more on the technical and physical aspects of sports, so that health education such as BHD does not get enough attention. Training and development programs for amateur soccer players often do not include BHD training as part of their curriculum. In addition, awareness of the importance of BHD may still be low among players and coaches, who consider that the risk of injury or medical emergency situations is rare. Researchers also consider that this lack of knowledge can be influenced by the lack of access to adequate health education resources. Many amateur soccer players may not have the opportunity to take part in comprehensive BHD training. In addition, age factors and experience playing football can also affect their level of knowledge. Younger players or those who are just starting their amateur careers may have more limited knowledge compared to more experienced players

Knowledge of basic life support (BHD) skills after being given simulation education

Based on the results of the research on knowledge of basic life support skills (BHD) after being given simulation education , it was shown that the majority of respondents were well knowledged, as many as 20 respondents (90.9%). This shows that simulation education has succeeded in increasing respondents' knowledge of BHD skills. Simulation education is an effective method in increasing respondents' knowledge of BHD skills. This method can be used in a variety of contexts, including health education and skills training.

Education using stimulus in Basic Life Support (BHD) training can be more effective than using only videos because the use of stimulus in the form of simulations and hands-on practice offers greater advantages in terms of interactivity, practice, feedback, knowledge retention, and adaptation to various learning styles. This approach can improve the effectiveness of training and better prepare participants for emergency situations. Purnomowati (2018) research shows that there is a significant increase in students' knowledge after being given health education about BHD. Before the training, many students had less knowledge, but after the training, their knowledge level increased drastically from 8.3% to 94.4%.

Researchers assume that this increase in knowledge is due to several key factors. First, the interactive and practical approach to simulation education allows players to learn directly and apply theory in real-life situations. This method is easier to understand and remember than theoretical learning alone. Additionally, the simulations also provide opportunities for the players to practice repeatedly, which helps to strengthen their knowledge and skills. In addition, the active involvement of the players in the learning process also

contributes to the improvement of their knowledge. Through active participation, players not only passively receive information, but also engage in discussions and practices, which helps them better understand and internalize BHD concepts. Amateur soccer players realize that having BHD skills is not only beneficial for their own safety but also for their peers on the field. This awareness encourages them to be more serious in learning and mastering these skills.

Simulation can increase knowledge because the cognitive functions involved in simulation include situation analysis, quick decision-making, and the application of practical skills. This active learning helps participants to understand theoretical concepts and apply them in real contexts.

According to Efin Use's theory, hands-on experience through simulation allows participants to develop a deep understanding of the material, rather than just memorizing information. This leads to better mastery of skills and a more comprehensive understanding. Simulations facilitate the transfer of learning from an educational environment to real-life situations. Participants who practiced in the simulation were better prepared to respond to real-world emergency situations because they had experienced similar scenarios in a controlled environment.

The effect of simulation education on knowledge of basic life support skills (BHD) in the community of amateur soccer players in Donoyudan Village

Based on the results of the study, it was found that there was a significant difference between the knowledge before the BHD simulation education and after the BHD simulatione-education , thus it can be concluded that there is an effect of simulation education on knowledge about basic life support skills (BHD) in the amateur football player community in Donoyudan Village

In its implementation, the post-test is carried out two weeks after the education to assess the retention of medium-term knowledge and skills. This is based on some of Bandura's theories stating that retention is an important stage in social learning, where individuals need time to reflect and internalize what they have learned. By providing a time gap before the post-test, researchers can measure how well participants retain the information and skills they learned during the simulation. According to this theory, the knowledge and skills that have been learned take time to internalize and be incorporated into long-term memory. By conducting a post-test after two weeks, researchers can evaluate how well the information is retained without the direct influence of training. In this taxonomy, there is a stage of internalization of psychomotor skills that takes time to be strengthened. The time lag allowed participants to develop better motor skills and strengthen the neuromuscular connections needed for effective responses.

This study is supported by the research of Herlina, S. (2019) that there is a significant influence between BHD simulation on knowledge (p=0.000) in RW 06 Krukut. This research is also supported by the research of Arisanti (2022), there is an increase in knowledge of Basic Life Support and Aid training. In line with the research, Lumbantoruan et al (2022) said that the importance of basic life support skills (BLS) in the community and can reduce mortality and complications related to heart disease. Interactive and practical simulation education methods are the main key to this improvement. With the simulation, the players can experience emergency situations firsthand and practice BHD skills, which makes them better understand and remember important techniques.

Researchers assume that this increase is due to interactive and practical simulation education methods. Through the simulation, the players can experience emergency situations firsthand and practice BHD skills in real life, which makes them better understand and remember important techniques. This approach is much more effective than theoretical learning methods alone, as it allows players to practice and repeat the rescue process until they feel confident. In addition, the active participation of players in the educational process also contributes to the improvement of their knowledge. Simulation education encourages full engagement from participants, who not only passively receive information, but also interact, discuss, and practice skills directly. These factors help strengthen their understanding and skills of BHD.

Muninggar research (2024) at SMAN 1 Toili showed that before the training, 72 respondents had less knowledge about BHD. Only 8.3% have good knowledge. However, after training, this figure increased drastically to 94.4%, while lack of knowledge dropped to 0%. This suggests that the BHD training intervention significantly improves participants' understanding. BHD training is expected to increase the success rate in handling sudden cardiac arrest (OHCA) events. With the increase in people's knowledge and skills, it is hoped that they will be able to act more quickly and effectively in emergency situations, which in turn can reduce the death rate due to the condition.

In a study that examines the influence of simulation education on knowledge of Basic Life Support (BHD) skills in the amateur football player community, an interesting phenomenon was found. One participant in the pretest group showed very good results compared to the other participants. After further investigation, it was found that this participant had watched an educational video about BHD on social media before taking the pretest. Further analysis revealed that these participants had watched educational videos about BHD on social media a few days before the pretest. The video provides basic information on essential

BHD techniques, such as cardiopulmonary resuscitation (CPR), handling choking victims, and the use of Automated External Defibrillators (AEDs).

CONCLUSION

Respondent characteristics showed that the majority of respondents were in their late teens (17-25 years) as many as 16 respondents (72.7%), the majority of high school/vocational education was 20 respondents (90.9%), and 10 respondents (45.5%) were not working.

Knowledge before category simulation education is sufficient with knowledge after simulation education with a good category regarding basic life support skills (BHD)

There was an effect of simulation education on knowledge of basic life support skills (BHD) in the community of amateur soccer players in Donoyudan Village with a p value (0.000)

RECOMMENDATIONS

For Amateur Football Players, It is hoped that they can actively participate in BHD training or education which is held regularly. This is important in order to improve knowledge and skills in providing first aid when an emergency situation occurs in the field.

For Donoyudan Village, It can work with relevant parties, such as educational institutions and health organizations, to organize regular BHD training for the amateur football player community in the village. This aims to ensure the readiness of residents to face emergency situations and provide appropriate assistance.

For Educational Institutions, Can include BHD training materials in the curriculum or extracurricular activities, In addition, can collaborate with related parties to organize regular BHD training for the community and provide adequate facilities and equipment for these activities.

For the next researcher, Researchers can further conduct further research to explore other factors that influence BHD knowledge and skills in the amateur soccer player community such as motivation, environmental support and access to training. In addition, it can develop a BHD simulation education model that is more innovative and attractive to the group

REFERENCES

American Heart Association (AHA). (2017). Cardiac arrest statistics. (https://cpr.heart.org/AHAECC/CPRAndECC/ResuscitationScience/UCM_477263_AHA Cardiac-Arrest-Statistics.jsp%5BR=301,L,NC%5D) (Accessed on December 1, 2023)

American Heart Association (AHA). (2017). Cardiac arrest statistics. (https://cpr.heart.org/AHAECC/CPRAndECC/ResuscitationScience/UCM_477263_AHA Cardiac-Arrest-Statistics.jsp%5BR=301,L,NC%5D) (Accessed on December 1, 2023)

American Heart Association (AHA). (2018). How CPR is changing (and saving) lives, (https://cpr.heart.org/AHAECC/CPRAndECC/AboutCPRECC/ CPRFactsAndStats/UCM_475748_CPR-Facts-and-Stats.jsp) (Accessed on December 1, 2023)

American Heart Association (AHA). (2018). How CPR is changing (and saving) lives,(https://cpr.heart.org/AHAECC/CPRAndECC/AboutCPRECC/CPRFactsAndStats/UCM_475748_CPR-Facts-and-Stats.jsp) (Accessed on December 1, 2023)

Arisanti, S., Pribadi F (2022). Analysis of the Results of Basic Life Support and First Aid Training in Football School Coaches in East Java. JP. JOK (Journal of Education. Physical, Sports and Health). 6 (1) 75-84

Budi, Cahyono., Suyatno, H, S., Siswanto, Agung, Wijaya., Mohammad, Kuntadi, Syamsul, Hidayat. (2021). The Effect of Health Education on Providing Basic Life Support (BLS) on Knowledge and Attitudes of the Community in Pre-Hospital Treatment. 1(3):69-. doi: 10.26714/MAGNAMED.1.3.2016.69-80

Christelle, Larzabal., Nadège, Bacon-Macé., Nadège, Bacon-Macé., Sophie, Muratot., Sophie, Muratot., Simon, J., Thorpe., Simon, J., Thorpe. (2020). Tracking Your Mind's Eye during Recollection: Decoding the Long-Term Recall of Short Audiovisual Clips. Journal of Cognitive Neuroscience, doi: 10.1162/JOCN_A_01468

Christopher, Nyirenda., Samuel, Phiri., Boniface, Kawimbe. (2020). Simulation Based Training in Basic Life Support for Medical and Non-medical Personnel in Resource Limited Settings. 8(2):42-. doi: 10.11648/J.IJACM.20200802.13

Emir, Fajar, Hizrian., Rika, Yulendasari., Usastiawaty, Cik, Ayu, Saadiah, Isnainy. (2022). The Effectiveness of Basic Life Support (BHD) Training Simulation on Increasing Knowledge and Motivation on Handling Traffic Accident Incidents (KKL) in the Ordinary Community in Bumi Sari Village, Natar District. MAHESA, 2(4):743-760. doi: 10.33024/mahesa.v2i4.7492

Florian, Egger., Jürgen, Scharhag., Andreas, Kästner., Jiří, Dvořák., Philipp, Bohm., Tim, Meyer. (2020). FIFA Sudden Death Registry (FIFA-SDR): a prospective, observational study of sudden death in

worldwide football from 2014 to 2018.. British Journal of Sports Medicine, doi: 10.1136/BJSPORTS-2020-102368

Gosa A.C (2017). Basic Life Support. Section/SMF of Anesthesiology and Intensive Therapy. Faculty of Medicine, Udayana University.

Hasselqvist-Ax, I, Ringh, M, Hollenberg, J, Karlsson, T, Axelsson, C, Nordberg, P, Herlitz, J. (2015). 'Early Cardiopulmonary Resuscitation in Out-of-Hospital Cardiac Arrest', New England Journal of Medicine,

Hasselqvist-Ax, I, Ringh, M, Hollenberg, J, Karlsson, T, Axelsson, C, Nordberg, P, Herlitz, J. (2015). 'Early Cardiopulmonary Resuscitation in Out-of-Hospital Cardiac Arrest', New England Journal of Medicine

Lumbantoruan S.M., Sidabutar L., Uligraff D. K (2022). Basic Life Support (BHD) Training Program for Adolescent Students at State High School 34 Jakarta. Journal of Community Service Creativity (PKM). Volume 5 Number 11.

Malik, M. Z., & Wijaya, I. K. (2022). The Effect of Edu-RJP on Cardiopulmonary Resuscitation Knowledge in Nursing Students at STIKES Panakkukang Makassar.

Michael, Perry. (2022). An evaluative study to assess the effectiveness of video assisted teaching programme on knowledge regarding basic life support among students in selected school of Amritsar Punjab.. IDC international journal, 9(4):1-5. doi: 10.47211/idcij.2022.v09i04.001

Nurdin & Ruhmadi, (2022). The ability of health cadres to carry out basic life support (BHD) actions. West Java: Indonesian Brilliant House Association

Pitoy et al (2023). Basic Life Support (BHd) Training for Health Cadres in Makawidey Village. Journal of Creativity of Community Service. Volume 6 Numbers

Raffee, L.A., Samrah, S.M., Al Yousef, H.N., Abeeleh, M.A., & Alawneh,KZ. (2017). Incidence, Characteristics, and Survival Trend of Cardiopulmonary Resuscitation Following In-hospital Compared to Out-of-hospital Cardiac Arrest in Northern Jordan, Indian Journal of Critical Care Medicine : Peer-Reviewed, Official Publication of Indian Society of Critical Care Medicine

Rahmawati, Endah Yuliany; Puspitasari, Feni Amelia. (2023). Basic Life Support Education and Training in Improving the Ability to Handle Emergency Conditions for PJLP of the East Jakarta City Health Office. Journal of Community Service Creativity (PKM). Volume 6 Number 8

Riskedas (2019). Basic Health Research. Jakarta: Health Research and Development Agency. Jakarta : Ministry of Health, Republic of Indonesia

Tati, Suheti (2020) Overview of Students' Knowledge About Basic Life Support at SMAN 1 Lembang School. Thesis. Bandung Ministry of Health Polytechnic\

Wibrandt, I., Norsted, K., Schmidt, H., & Schierbeck, J. (2015). Predictors for outcome among cardiac arrest patients: the importance of initial cardiac arrest rhythm versus time to return of spontaneous circulation, a retrospective cohort study. BMC emergency medicine, 15(1), 3.