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THE EFFECT OF BASIC LIFE SUPPORT (BLS) EDUCATION ON THE SKILL LEVEL OF NURSING STUDENT ASSOCIATION MEMBERS: A QUASI-EXPERIMENTAL STUDY

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Abstract

Basic Life Support (BLS) is an essential initial intervention in emergency care to maintain a patient's vital functions. Nursing students, as future healthcare professionals, need to have strong BLS skills through structured education. This study aimed to determine the effect of Basic Life Support (BLS) education on the skill levels of students in the Nursing Student Association. This research used a quasi-experimental design with a one-group pretest-posttest approach. The number of respondents was 30 students selected using a purposive sampling technique. Data were collected using an observation checklist of BLS skills before and after the educational intervention. Data analysis was performed using the Wilcoxon Signed Rank Test to determine differences in skill levels before and after the intervention. The results showed an improvement in students' skills after receiving BLS education. Based on the Wilcoxon test results, the p-value obtained was 0.000 ($p < 0.05$), indicating a significant effect of Basic Life Support (BLS) education on students' skill levels. In conclusion, Basic Life Support (BLS) education has a significant impact on improving nursing students' skills. It is recommended that BLS education be conducted continuously and in a structured manner to enhance students' competence in handling emergency situations.

Background

Emergency conditions can occur anywhere and at any time, and it is the responsibility of healthcare providers to manage such situations. However, emergencies may also occur in areas that are difficult to access, making early assistance to victims before the arrival of healthcare professionals extremely important. One of the most common emergency conditions is a heart attack (Cabanas et al., 2020; Victor et al., 2024).

Death often occurs due to the inability of healthcare providers to manage patients during the critical emergency phase (the golden period). This inability may be caused by the severity of the condition, inadequate equipment, the absence of an integrated system, and insufficient knowledge in emergency management. As a result, the condition of individuals involved in accidents can worsen and may even lead to death if not treated promptly. Appropriate management of emergency cases involves Basic Life Support (BLS) (Cabanas et al., 2020; Syafei, 2021).

According to data from the World Health Organization (WHO), approximately 19.8 million people die from cardiovascular diseases each year. Coronary heart disease accounts for about 13–16% of all global deaths (WHO, 2020). with around 9 million deaths annually worldwide. Of these deaths, 85% are caused by heart attacks or cardiac arrest (Victor et al., 2024).

Cardiac arrest is an emergency condition that requires Basic Life Support (BLS). BLS is a first-aid intervention performed on victims experiencing respiratory arrest and cardiac arrest (Nirmalasari & Winarti, 2020). It consists of a series of essential actions aimed at managing emergency conditions, particularly in patients with respiratory and cardiac arrest (Prayitno et al., 2020). These actions include providing artificial ventilation and chest compressions (external cardiac massage) to maintain blood circulation and oxygen supply to vital organs, especially the brain and heart. Prompt and appropriate implementation of BLS can increase a patient's chances of survival and prevent further organ damage. Therefore, knowledge and skills in performing BLS are crucial not only for healthcare professionals but also for the general public as an initial life-saving effort before advanced medical care is provided (Sekunda et al., 2022; Syafei, 2021; Syahrani Alya, 2024).

Victims of cardiac arrest experience a significant decrease in survival rates, approximately 7–10% for every minute without proper intervention. This condition requires immediate action in the form of Basic Life Support (BLS), whether performed by healthcare professionals or bystanders, both outside the hospital (out-of-hospital cardiac arrest/OHCA) and inside the hospital. Successful return of spontaneous circulation, particularly when achieved within less than 20 minutes after cardiac arrest, is strongly associated with improved survival rates. This highlights that rapid response and adequate BLS skills are crucial factors in saving lives (Merchant et al., 2020; Ningsih & Atmaja, 2019).

Nursing students, as future healthcare professionals, have a strategic role in emergency situations, including cases of cardiac arrest. They have significant opportunities to provide first aid both in community settings and during clinical practice in healthcare facilities. Therefore, it is essential for nursing students to be equipped with accurate, prompt, and standardized BLS knowledge and skills. Such preparation not only enhances their readiness to respond to emergency situations but also contributes to improving patient survival rates through effective interventions (Sekunda et al., 2022).

One of the factors influencing the quality of students' skills is the method used in the learning process. An effective method to improve students' skills is through structured Basic Life Support (BLS) training and education (Notoatmodjo, 2018; Wawan Kurniawan & Aat Agustini, 2021).

Methods

This study employed a quantitative research method with a quasi-experimental approach using a one-group pretest–posttest design, in which measurements were conducted before and after the intervention without a control group. This design was used to assess students' skills after being provided with Basic Life Support (BLS) education. The population in this study consisted of nursing students from the Nursing Department of Health Polytechnic of Banjarmasin. The sample included 30 students selected using a purposive sampling technique, with the following inclusion criteria: (1) aged 18–20 years, (2) active students of the Nursing Department at Health Polytechnic of Banjarmasin, (3) had not previously taken an Emergency Nursing course, and (4) were willing to participate as respondents by signing an informed consent form.

Secondary data included respondents' demographic information such as age and gender. These characteristics were collected using a respondent data form completed by the researcher based on the information provided by the respondents. Primary data were collected using an

observation checklist. The researcher completed the checklist to assess students' BLS skills before and after the BLS education simulation.
Data were collected through the following steps: first, the researcher introduced the study to prospective respondents and identified students who were willing to participate. Next, informed consent forms were distributed, and the research procedures were explained. Respondents' demographic data were then recorded. A pre-test was conducted by asking respondents to demonstrate their BLS skills, which were evaluated using an observation checklist prior to the BLS education simulation. After the pre-test, a BLS education simulation was conducted. Subsequently, a post-test was carried out by asking respondents to demonstrate BLS procedures after observing the simulation, and their performance was again evaluated using the checklist.

Data Analysis: After data collection and processing, data analysis was performed to obtain the study results. Students' BLS skill data before (pre-test) and after (post-test) the educational simulation were analyzed using the non-parametric Wilcoxon Signed Rank Test. This test was used to determine the effect of the educational method on the quality of students' BLS skills. This study did not require formal ethical approval because the research only involved the distribution of questionnaires without any medical intervention, invasive procedures, or treatments that could pose risks to the participants. The data collected were general in nature and did not include sensitive information that could compromise the participants' privacy or safety. In addition, participation was voluntary, and the confidentiality of the participants' identities and personal information was maintained throughout the study. Therefore, this research was considered a minimal-risk study and did not require a full ethical review.

Result and Discussion

This study used primary data collected through a Basic Life Support (BLS) skills checklist from the American Heart Association (AHA) 2020. The checklist consisted of 15 skill aspects that were evaluated.

Table 1. Frequency Distribution of Respondents Based on Gender

Gender	Frequency	Percentage %
Male	6	20
Female	24	80
Total	30	100

Based on data from 30 respondents classified by gender, it was found that the majority of respondents were female, accounting for 80%, while male respondents made up only 20%. This indicates that female participation in the study was more dominant compared to males, meaning that the sample characteristics tend to more strongly represent the female perspective. This condition may also influence the research outcomes, especially if there are differences in characteristics or responses based on gender.

Table 2. Frequency Distribution of Respondents Based on Age

Age Range	Frequency	Percentage %
18 Tahun	8	26,7
19 Tahun	20	66,7
20 tahun	2	6,7
Total	30	100

Based on data from 30 respondents grouped by age category, it was found that the majority of respondents were 19 years old, accounting for 66.7%. Meanwhile, 26.7% of the respondents were 18 years old, and only a small proportion, 6.7%, were 20 years old. These findings suggest that the majority of participants in the study fall within the late adolescent age range,

particularly 19 years old, indicating that the sample is predominantly represented by this age group.

Table 3. Student Skills Score Before Receiving Health Education on BLS Using the Simulation Method

Variable	Mean	Median	Std. Dev	Min-Max
Skills Score Before Intervention	59.00	60	3.051	50-60

Based on Table 3, the average score of the respondents before receiving health education on Basic Life Support (BLS) was 59.00, with a standard deviation of 3.051. The median value of 60 indicates that most respondents had relatively high scores, close to the maximum value. The score range was quite narrow, from the lowest score of 50 to the highest score of 60, suggesting that the respondents' initial knowledge or skills were fairly homogeneous before the intervention. This indicates that most of the respondents already had a good foundational understanding of BLS, although there was still a small variation among them.

Table 4. Student Skills Score After Receiving Health Education on BLS Using the Simulation Method

Variable	Mean	Median	Std. Dev	Min-Max
Skills Score After Intervention	84.00	80	8.137	80-100

Based on Table 4, the average score of the respondents after receiving health education on Basic Life Support (BLS) was 84.00, with a standard deviation of 8.137. The median value was 80, indicating that most respondents had relatively high scores after the intervention. The lowest score achieved by the respondents was 80, while the highest score reached 100. These results suggest that after receiving health education on BLS, there was a significant improvement in the respondents' skills, with the variation in scores being relatively small.

Table 5. The Effect of BLS Education on Students' Skill Score

Variable	Skill	
	z	p value
Education	-4.995	0.000

Based on the results of the Wilcoxon test analysis, the p-value for skills was 0.000, which is less than 0.05 ($p < 0.05$). This indicates a significant effect of providing Basic Life Support (BLS) education on students' skill levels. Therefore, it can be concluded that BLS education is effective in improving students' skills, making this intervention worthwhile to implement as an effort to enhance competence in emergency management. Basic Life Support (BLS) education demonstrated a significant effect on students' skill levels because the training improved both their knowledge and practical abilities in managing emergency situations. Through structured instruction, students learned the correct procedures for recognizing cardiac arrest and performing cardiopulmonary resuscitation (CPR). The inclusion of hands-on practice, simulations, and demonstrations allowed students to develop psychomotor skills and gain direct experience in performing lifesaving techniques correctly.

In addition, active participation during training increased students' confidence and self-efficacy, reducing fear and hesitation when responding to emergencies. Immediate feedback from instructors also helped students correct mistakes and improve their performance. Since BLS training follows standardized guidelines from organizations such as the American Heart Association, students received consistent and evidence-based instruction. Therefore, the

combination of theoretical learning, repeated practice, and guided feedback contributed to the significant improvement in students' BLS skill levels (American Heart Association, 2020; Meaney et al., 2013).

Health education using the simulation method is one approach to providing knowledge, experience, and skills to students. According to Notoatmodjo, the advantage of this simulation method is that it allows respondents to focus on important aspects highlighted by the educator, and to directly practice the educational process so that these important points can be carefully observed (Masruri, 2021; Notoatmodjo, 2018).

Basic Life Support (BLS) consists of a series of interventions aimed at restoring and maintaining vital organ functions in cases of cardiac arrest and respiratory failure. These interventions include chest compressions and rescue breaths (Nirmalasari & Winarti, 2020; Syahrani Alya, 2024). BLS is performed until advanced help arrives. BLS is part of the emergency medical management aimed at preventing the cessation of circulation or respiration (Cabanas et al., 2020; Victor et al., 2024). Students must possess professional skills, and these specific competencies can be gained through education and training in emergency care. These skills must be continuously improved, developed, and maintained to ensure that nurses can perform their roles and functions professionally (Fatmawati et al., 2019).

Basic Life Support (BLS) can be taught to anyone. Every adult should have BLS skills, and even children can be taught according to their capacity, so they can provide immediate lifesaving assistance. A delay of just a few minutes after someone's heart stops can make the difference between life and death, providing temporary assistance until competent medical care is available (Ningsih & Atmaja, 2019; Syafei, 2021).

Based on the results of research and the theoretical explanation above, the researcher assumes that providing health education on Basic Life Support (BLS) using the simulation method can improve nursing students' skills in performing first aid during emergency situations, especially for those experiencing cardiac arrest and respiratory failure, which are indications for BLS. The more frequently students are exposed to health education on Basic Life Support (BLS) through simulations, the better or higher their skill level in performing first aid for emergency BLS in patients with cardiac arrest and respiratory failure.

Conclusion

Based on the research findings regarding the effect of Basic Life Support (BLS) education on the skill levels of the Nursing Department Student Association, with 30 respondents, it can be concluded that BLS education has a significant impact on improving students' skills. After receiving the intervention in the form of BLS training or education, there was an improvement in students' ability to perform first aid actions, particularly in the aspects of victim condition assessment, chest compressions, and the provision of rescue breaths.

This indicates that structured and systematic BLS education or training is effective in enhancing the practical competencies of nursing students. Therefore, BLS education is crucial to continue implementing and developing as part of the learning process to support students' readiness in handling emergency situations in both clinical settings and the community.

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