

Knowledge level of students about basic life support during the COVID-19 pandemic

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Abstract

Basic Life Support (BLS) is a vital competency that should be possessed by everyone, especially medical students. However, the COVID-19 pandemic has made the practice of BLS more complex due to close contact, which puts helpers at risk of contracting the virus. This study aims to assess the level of knowledge of students regarding BLS during the pandemic. This research is a quantitative, descriptive study with a survey design that utilizes an online questionnaire with a sample of students from the Faculty of Medicine, Universitas Sumatera Utara, class of 2019. The results of this study show that the level of knowledge of students about BLS during the pandemic is sufficient. Among the female respondents, 22 had good knowledge (14.7%), 53 had sufficient knowledge (35.3%), and 15 had less knowledge (10%). Among the male respondents, 4 had good knowledge (2.7%), 35 had sufficient knowledge (23.3%), and 21 had less knowledge (14%). Of the respondents who had a history of participating in BLS training, 12 had good knowledge (8%), 36 had sufficient knowledge (24%), and 5 had poor knowledge (3.3%). For those without a history of BLS training, 14 had good knowledge (9.3%), 52 had sufficient knowledge (34.7%), and 31 had poor knowledge (20.7%). Even though the pandemic makes BLS practice more complex, the results show that students have sufficient knowledge about BLS during the pandemic. This knowledge was better among students who had previously participated in BLS training.

Keywords: Basic Life Support, COVID-19, medical students, level of knowledge

Introduction

The coronavirus disease 2019 (COVID-19) outbreak has become a global emergency owing to its rapid spread and high mortality rate. The number of people infected with Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the cause of COVID-19, is rapidly increasing worldwide.¹ Even though distancing and lockdown systems are in place during the pandemic, which should reduce traffic congestion, accidents are still inevitable. Based on data from Korlantas published by the Ministry of Transportation, the number of traffic accidents in Indonesia reached 100,028 in 2020. This figure is lower than the 2021 data which reached 103,645 cases.² Providing inappropriate first aid to victims of traffic accidents and cardiac arrest can lead to high mortality rates. Lack of awareness and knowledge about first aid treatment for victims experiencing emergency conditions generally causes ordinary people to not understand how to perform first aid.³

BLS is intended for healthcare workers and public safety professionals who treat patients with respiratory failure, cardiac arrest, or airway obstruction. BLS requires knowledge and skills to perform cardiopulmonary resuscitation (CPR), use Automated External Defibrillators (AEDs), and treat patients of all ages with airway obstruction.⁴ The goal of BLS is to reduce mortality and morbidity by reducing suffering, preventing the complications of illness or injury, and improving patient recovery.⁵ The indications for BLS were respiratory and cardiac arrests.⁶ The steps to perform BLS are as follows: First, identify the victim of cardiac arrest immediately and activate the integrated emergency management system. Next, we assessed the victims with a primary survey by checking their level of consciousness using the AVPU scale.⁷

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Subsequently, the victims' circulation, airways, and breathing were assessed. Next, cardiac shock was induced with a defibrillator. The entire process was repeated until the patient recovered and breathed spontaneously.⁸ Once the patient breathed spontaneously, the recovery position was performed. When providing Basic Life Support for suspected and confirmed COVID-19 patients, there are general principles that should be followed. First, the exposure of helpers to COVID-19 was reduced. Second, oxygenation and ventilation strategies were prioritized, with a lower risk of aerosolization. Third, we considered the accuracy of resuscitation initiation and continuation.⁹

Appropriate BLS actions can help stabilize a patient's condition before referral to a hospital, thus reducing the burden on medical personnel and health facilities. Health systems that are overwhelmed during the COVID-19 pandemic can be helped by BLS performed by ordinary people such as students. Medical students require adequate BLS knowledge and skills to provide appropriate initial aid. BLS protocols for COVID-19 patients have been adapted to minimize the risk of viral transmission. There have not been many studies on this topic; therefore, this research intends to provide additional valuable information that can inform future policies.

Method

This research is a descriptive qualitative survey designed using a questionnaire, with the aim of determining the level of knowledge of students regarding basic life support during the COVID-19 pandemic. The questionnaire consisted of 20 questions on basic life support during the COVID-19 pandemic. Google Form will be used as the platform for the questionnaire. Respondents will be given a link to the questionnaire and will answer the questions. This research was conducted in Medan, precisely at the Faculty of Medicine of Universitas Sumatera Utara, from October 2022 to November 2022. This study used a consecutive sampling technique in which the sample used were students that met the inclusion criteria as a research sample, with the sample size calculated using the Slovin formula, in which case the sample size was 150 respondents. The primary data for this research were acquired using a questionnaire filled out by the respondents, and the questionnaire used for this research was a modified questionnaire from a previous questionnaire, which has been validated by experts.¹⁰ Primary data were then analyzed using the Statistical Product and Service Solutions (SPSS) program using descriptive statistics and cross-tabulation features.

Results

In this study, 60 respondents (40%) were male and 90 respondents (60%) were female. For the age distribution of respondents, there were 3 respondents (2%) aged 19 years, 30 respondents (20%) aged 20 years, 86 respondents (57.3%) aged 21 years, 30 respondents (20%) aged 22 years, and 1 respondent (0.7%) aged 23 years, as shown in Table 1. In this study, there were also 53 respondents (35.3%) who had attended BLS training and 97 respondents (64.7%) had never attended BLS training. From the questionnaires that have been distributed, respondents will be assessed for their level of knowledge and categorized into good, sufficient, or deficient. Respondents' knowledge is said to be good if the number of questions answered correctly is in the range >75%, categorized as sufficient if the number of questions answered correctly is in the range 56-75%, categorized as deficient if the number of questions answered correctly is in the range <56%.¹¹ Out of 150 respondents, 26 (17.3%) respondents answered the questionnaire with good scores, 88 respondents (58.7%) answered the questionnaire with sufficient scores, 36 respondents (24%) answered with deficient scores.

Based on Table 2, it can be seen that the percentage of respondents' knowledge level in the good category is dominated by 22 female respondents (14.7%) rather than 4 male respondents (2.7%). For the percentage of knowledge level in the sufficient category, female respondents also dominated with 53 people (35.3%) rather than male respondents with 35 people (23.3%). In the percentage of knowledge level

Table 1. Characteristics of respondent

Characteristics		Respondent	Percentage
Age	19	3	2,0
	20	30	20,0
	21	86	57,3
	22	30	20,0
	23	1	0,7
Sex	Male	60	40,0
	Female	90	60,0
BLS training history	No	97	64,7
	Yes	53	35,3
Knowledge level	Good	26	17,3
	Sufficient	88	58,7
	Deficient	36	24,0

in the deficient category, male respondents dominated with a total of 21 people (14%) rather than female respondents with a total of 15 people (10%).

Table 2. Distribution of knowledge level based on sex, age, and BLS training history

Characteristic	Knowledge level (n (%))			Total
	Good	Sufficient	Deficient	
Sex				
Male	4 (2,7)	35 (23,3)	21 (14,0)	60 (40,0)
Female	22 (14,7)	53 (35,3)	15 (10,0)	90 (60,0)
Age				
19 years	1 (0,7)	2 (1,3)	-	3 (2,0)
20 years	4 (2,7)	18 (12,0)	8 (5,3)	30 (20,0)
21 years	19 (12,7)	52 (34,7)	15 (10,0)	86 (57,3)
22 years	2 (1,3)	16 (10,7)	12 (8,0)	30 (20,0)
23 years	-	-	1 (0,7)	1 (0,7)
BLS training history				
Yes	12 (8,0)	36 (24,0)	5 (3,3)	97 (35,3)
No	14 (9,3)	52 (34,7)	31 (20,7)	53 (64,7)

Based on Table 2, it can be seen that at the age of 19 years, 1 respondent (0.7%) answered the questionnaire with good results and 2 respondents (1.3%) answered with sufficient results. At the age of 20 years, 4 respondents (2.7%) answered the questionnaire with good results, 18 respondents (12%) answered with sufficient results and 8 respondents (5.3%) answered with insufficient results. At the age of 21

years, 19 respondents (12.7%) answered the questionnaire with good results, 52 respondents (34.7%) answered with sufficient results and 15 respondents (10%) answered with deficient results. At the age of 22 years, there were 2 respondents (1.3%) answered the questionnaire with good results, 16 respondents (10.7%) answered with sufficient results, 12 respondents (8%) answered with deficient results. At the age of 23 years, 1 respondent (0.7%) answered the questionnaire with deficient results.

It can be seen that there were 12 respondents (8%) with a history of BLS training who answered the questionnaire with good results, 36 respondents (24%) answered with sufficient results, and 5 respondents (3.3%) answered with deficient results. A total of 14 respondents (9.3%) without a history of BLS training answered the questionnaire with good results, 52 respondents (34.7%) answered the questionnaire with sufficient results and 31 respondents (20.7%) answered with deficient results.

Discussion

This study found that the students' level of knowledge regarding BLS during the COVID-19 pandemic with the highest frequency was sufficient. This is in line with the results of Sitanggang's research¹² which found that the level of knowledge of the 2017 students who had received BLS lecture material in accordance with the current 2019 class, which was the research sample, was sufficient. In his research, Sitanggang used a sample of 2017, 2018, and 2019 students, where only the 2017 batch received lecture material on BLS. Sitanggang found that in the class of 2017, there were 14 people (15.9%) who got good results, 41 people (46.6%) who got fair results, and 33 people (37.5%) who got bad results.

In this study, there were differences in the questionnaire results between respondents who had a history of BLS training and those who had never attended BLS training. This is in line with research conducted by Bakhtavar et al.¹³ where there were differences in the knowledge of research participants before the provision of training on BLS and after the provision of training on BLS. Bakhtavar et al. found an increase in the average knowledge score of the research sample before being given training and after training.

Notoatmodjo¹⁴ argues that the factors that influence knowledge are divided into internal and external factors. Internal factors included education, experience, interest, occupation, and age. External factors include the environment, sociocultural factors, information, and economy. From this statement it can be concluded that gender is not one of the factors that influence the level of knowledge, but age is one of the factors that influence the level of knowledge. This is in accordance with the finding that no significant difference was found between male and female respondents, even though the level of knowledge was dominated by female respondents compared to male respondents.

However, although age is one of the factors that affects the level of knowledge, in this study, the age of the respondents did not matter because although the age of the respondents varied, all respondents were 2019 students who studied the same curriculum; therefore, age did not determine the level of knowledge of students. This was also supported by research conducted in Taiwan, where there was no

significant difference in the level of knowledge between adults and 12-year-old children who had previously received knowledge about BLS.¹⁵

Conclusion

The study found that most students have sufficient knowledge of BLS even during the pandemic. This knowledge was especially good among those who had prior BLS training. Interestingly, females seemed to have a slight edge over males in terms of BLS knowledge. Even though the pandemic makes BLS practice more complex, the results show that students have sufficient knowledge about BLS during the pandemic. This knowledge was better among students who had previously participated in BLS training.

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