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Knowledge and Awareness Level of Healthcare Professionals about Adult and Pediatric Basic Life Support

Arzu Babacan[1] Mehmet Mahir Özmen[2]

[1]Faculty of Medical Sciences, Ankara Dr. Abdurrahman Yurtaslan Oncology Training and Research Hospital, Emergency Service, Ankara, Turkey
[2]Bahçeşehir University Faculty of Medicine, General Surgery Department Faculty, İstanbul, Turkey

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Abstract

Objective: This study aimed to evaluate healthcare professionals' knowledge levels and attitudes toward adult and pediatric basic life support in a tertiary university hospital.

Methods: The data of the research was collected by questionnaire method. A total of 351 healthcare professionals who agreed to participate in the study and filled out the questionnaire form were included in the analysis of the study. Twenty-nine questions about adult and pediatric basic life support were asked to the participants; each group was analyzed in terms of gender, age groups, working unit, working time, and duties.

Results: The study was completed with 351 participants, mostly women, working in the emergency department and surgical sciences as research assistants, nurses, and health technicians, working for less than 5 years, and mostly over 26 years old. Most participants had received training in basic life support, used automatic external defibrillators, and performed cardiopulmonary resuscitation before. The rate of correct answers to questions about general information about adult and pediatric basic life support, circulation, airway, defibrillation rhythms, and doses of drugs were low. A statistical difference was found in the total questionnaire score regarding duty, working time, and their department.

Conclusion: The level of knowledge of healthcare professionals on adult and pediatric basic life support is inadequate and out of date and should be improved with education and training programs

Keyword: Resuscitation, Life Support Care, Health Personnel

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Address for correspondence/reprints:

Arzu Babacan

Telephone number: +90 (505) 220 39 86

E-mail: babacan.ar@hotmail.com

INTRODUCTION

The diagnosis of CPA is confirmed by loss of consciousness, absence of pulse, and respiration triad. Some simple but emergency applications requiring adequate knowledge and experience to regain respiration and circulation in a case of CPA are defined as "Cardiopulmonary Resuscitation" (CPR). The resuscitation process includes basic life support (BLS) and advanced life support (ALS). BLS is formed by ensuring airway patency, application of artificial respiration, chest compressions, and an automatic external defibrillator (AED) (1). In the 1998 guideline of the European Resuscitation Council (ERC), it is stated that “having basic life support knowledge and skills is the duty of all healthcare professionals” (2). Algorithms and guidelines on cardiopulmonary resuscitation practices are published and updated every five years.

The aim of this study was to determine the level of knowledge and awareness of healthcare professionals working in internal medicine and surgery clinics about adult and pediatric basic life support.

METHODS

Study design and participants and questionnaires

This is a descriptive study conducted to determine the level of knowledge and awareness of healthcare professionals on adult and pediatric basic life support and the up-to-dateness of their current knowledge. The study was conducted at Hacettepe University Hospital between 10.02.2012/31.03.2012. A questionnaire form was given to the volunteers (research assistants, nurses, intern doctors, health technicians, and employee-trainee paramedics) working in the internal and surgical units of Hacettepe University Faculty of Medicine hospitals. A 35-question questionnaire form prepared by the researcher and developed based on the American Heart Association (AHA) 2010 adult and pediatric BLS guidelines was used (1). The questionnaire was prepared in three sections. In the 1st part, demographic characteristics (gender, age, department of work, term of office, duty); in the 2nd part, 6 questions about personal training and proficiency status about BLS; and in the 3rd part, statements about evaluating their knowledge and awareness about BLS. The questionnaire was prepared with 20 questions about adult basic life support, 9 about pediatric basic life support, and 29 questions. The choices of the questions in the second part were "Yes" and "No," and the choices of the questions in the third part were prepared in triple Likert type as "I agree", "I am undecided", and "I do not agree".; and only one answer option was correct. Those who gave correct answers were given a “1” point, and those who marked the wrong answer options were given a “0” point. The study was completed with 351 participants. The answers

to the questions were analyzed in terms of gender, age groups, unit of service, tenure, years of work in the duty unit, and occupation.

Inclusion and exclusion criteria

Healthcare professionals working in internal medicine and surgery clinics were included in the study. The data of 351 healthcare professionals who answered all the questions were analyzed. Personnel who did not agree to participate in the study and completed the survey form incompletely were excluded.

Ethical consideration

The study was conducted between 10.2.2012 and 31.3.2012 after obtaining the approval of Hacettepe University Senate Ethics Committee with 08.02.2012-698 number.

Statistical analysis

The SPSS version 25.0 software (IBM®, New York, USA) was used for statistical analysis. Descriptive statistics were used to summarize the baseline characteristics of the participants. The measurement data were expressed as mean with standard deviation or median and IQR (interquartile range) with 25th-75th percentiles) according to the parametric distribution of the variables. The Chi-square test was used to compare categorical variables between groups. VAS scores in patients with the groups at different time points were analyzed by the Friedman test, and two repeated VAS scores were analyzed with the Mann-Whitney U test within groups. $P < 0.05$ was considered statistically significant.

RESULTS

Demographic findings

A total of 351 people working in our hospital's internal and surgical units participated in our study. Of the participants, 67.2% (236/351) were women, and 32.8% (n=115) were male. 46.6% (110/351) of them were between 18-25 years of age, and 53.4% (126/351) were ≥26 years of age. The distribution of the participants by gender and age groups is given in Figure 1. The distribution of the participants in terms of their duties is given in Table 1. Most of them were research assistants and nurses. The highest number of participants was from the emergency department (ED) 29.1%, followed by general surgery 9.1%) and internal medicine 6.8%. The distribution of the participants according to the unit of duty is shown in Figure 2.

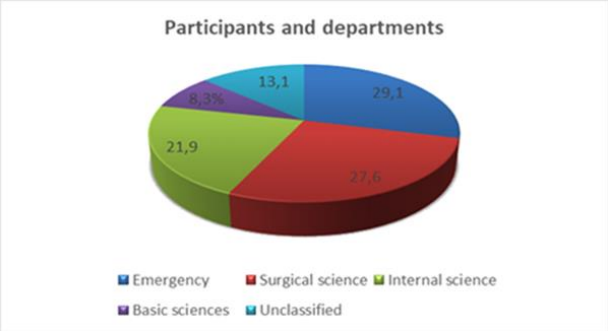

Figure 1. Years and gender distribution

Personal Training and Competence Status

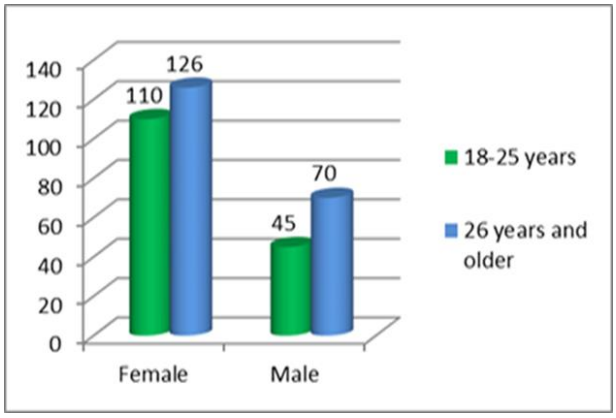

Figure 2. The distribution of the participants according to the place of duty

Findings Regarding BLS

The participants were asked 6 questions about adult and pediatric basic life support knowledge and skills, and they were asked to answer "Yes-No" in the second part of the survey. The ratio of correct/wrong answers is presented in Table 2. The answers were evaluated in terms of gender, age groups, working unit, and occupations and given in Table 3. It was found that the training and competence levels of paramedics, those working for less than 5 years, and those working in the emergency department were significantly higher. ($p<0.05$)

Findings for evaluating their approach and knowledge of BLS

The correct/wrong answers to each question are given in Table 4. Seven questions (7th, 8th, 9th, 13th, 19th, 20th, and 21st) were asked about adult BLS general information, for which "I agree" was the correct answer. It was observed that 8.0% (n=28) of participants got a full score of "7". It was observed that paramedics working in the profession for 6-10 years and female trainee paramedics were the most successful groups (0.038, $p<0.01$, and $p>0.001$). Two questions (15th and 16th) were about pediatric BLS. The correct answer was "I agree" for question 15 and "I do not agree" for question 16. It was observed that the research assistants aged 18-25, working for 6-10 years, and research assistants were successful groups (0.041, $p<0.01$, and $p<0.01$).

The evaluation step of BLS was evaluated in question 10. The correct answer ratio was 77.2% with the "I agree" statement. Health care professionals working in basic sciences were more and answered the question correctly. Those who work in basic sciences were more successful than other professionals working in other units ($p<0.001$). Four questions (11th, 18th, 29th, and 30th) were asked under the BLS circulation evaluation title. For the 11th and 30th questions, "I agree" was the correct answer; for questions 18 and 29, "I do not agree" was the correct answer. Trainee paramedics were significantly more successful than other occupational groups ($p<0.001$).

Three questions (12th, 17th,33th) were asked under the title of evaluation of pediatric BLS circulation. "I agree" was the correct answer for questions 12 and 33, and "I do not agree" was the correct answer for question 17. Paramedics with 6-10 years of tenure were more successful than other groups ($p<0.01$ and p0.001). Three questions (14th, 24th, and 26th), for all of

which I agree" was the correct answer, were asked under the BLS airway patency. Those working in surgical sciences and trainee paramedics were the most successful groups regarding unit and occupation (p =0.02, p<0.001).

Airway patency for pediatric BLS airway was evaluated with the 32nd question. “I do not agree” was the correct answer. Research assistants, nurses working in the ED, and participants with less than 5 years of tenure were more successful than other groups (p<0.01, p =0.025, and p<0.00). Two questions (23rd and 28th) were asked about the evaluation of pediatric BLS respiration. The answer "I agree" was correct for both questions. Research assistants were the most successful occupational group (P =0.001).

Two questions (25th and 27th) were asked about the adult defibrillation in BLS. The correct answers were “I agree” and “I do not agree” for the questions. Those who work in the emergency department, who have been working for less than 5 years and nurses were found to be more successful. (p =0.032, p<0.001, p<0.001).

The level of knowledge of pediatric BLS defibrillation dose was evaluated in question 35. "I agree" was the correct answer. Paramedics, professionals who were 18-25 years old, working in the emergency room, and with less than 5 years of tenure, were successful in terms of occupation, age, unit on duty, and duration of working (p<0.001 for all comparisons).

The questions related to defibrillation rhythms and defibrillator usage in BLS were questions 22, 31, and 34; for all three questions, "I disagree" was the right answer. Participants working in clinical sciences rather than basic sciences, with less than 5 years of tenure, and working in their unit for 6-10 years were successful groups (0.020, p<0.001, p<0.001, and p0.001, respectively).

From a general point of view of the results of the study, adult BLS knowledge was evaluated using 20 questions. The correct answer rate was more than 50% in 12 questions, and the knowledge level was moderate. Pediatric BLS was evaluated with 9 questions. The correct answer rate was above 50% in 5 questions, and the knowledge level was moderate.

Table 1. Occupational groups of the participants

Occupation	N	%
Research Assistant	80	22.8
Intern Doctor	77	21.9
Nurse	80	22.8
Health Technician	65	18.5
Working Paramedic	10	2.8
Trainee Paramedic	39	11.1
Total	351	100

Table 2. Findings of personal education and competence status related to basic life support

Questions	Yes: N/ (%)	No: N/ (%)
1. I can apply necessary basic life support to adult or pediatric patients	172(77.2)	80(22.8)
2. I have applied artificial respiration many times	73(20.8)	278(79.2)
3. I have applied cardiac massage many times	195(55.6)	156(44.2)
4. I had adult and pediatric basic life support training life support and applied.	233(66.4)	117(33.3)
5. I have received training in the use of AED /Manual defibrillator	223(63.5)	127(36.2)
6. I have used AED/Manuel defibrillator many times	121(34.5)	229(65.2)

AED: Automatic external defibrillator

Table 3. Analysis of personal training and competence findings related to BLS P values concerning the question number

	1.	2.	3.	4.	5.	6.
Gender						
Female	0.831	0.088	0.799	0.537	**<0.01**	0.200
Male						
Age groups						
18-25 years	0.060	0.464	0.532	0.521	0.093	<0.001
26 years and over						
Department						
Basic sciences						
Emergency service	**<0.001**	0.003	**<0.001**	0.052	**<0.001**	0.014
İnternal sciences						
Surgical sciences						
Tenure						
5 years	**<0.001**	0.037	**<0.001**	**0.001**	**<0.001**	**<0.001**
6-10 years						
10 years and over						
Occupation						
Research assistant						
Intern doctor						
Nurse	**<0.001**	**<0.01**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Health technician						
Paramedic						
Trainee paramedic						

Table 4. Survey questions and answers

Questions	I agree n (%)	Undecided n (%)	I disagree n (%)
7. All of the non-medicated interventions that anyone can do without using medical tools and equipment at the scene are called basic life support	265(75.5)	35(10)	51(14.5)
8. Use of AED (automatic external defibrillator) was part of basic life support	168(47.9)	68(19.4)	112(32.8)
9. If an adult or child patient is unresponsive, not breathing, or breathing abnormally, it is called arrest, and basic life support should be started**.**	276(78.6)	29(8.3)	46(13.1)
10. In the first step of the adult basic life support flow chart, Ensuring the safety of the rescuer and the patient -evaluation of unresponsiveness (is he conscious, is he breathing)-if the patient is unresponsive, has no breathing/breathing abnormally-112 to call for help.	271(77.2)	33(9.4)	46(13.1)
11. In the basic life support flow chart, the next step after compression is to provide airway patency.	230(65.5)	23(6.6)	98(27.6)
12. If the child does not have a pulse or the pulse rate is below 60/min, cardiac massage should be started if there are signs of circulatory disorder.	227(64.7)	73(20.8)	51(14.5)
13. Non-healthcare rescuers should perform compressions only for unresponsive adults who are not breathing or have a normal breathing pattern**.**	135(38.8)	68(19.4)	148(42.2)

14. The step after airway patency in the basic life support flow chart is breathing.	240(68.4)	54(15.4)	57(16.2)
15. Compression (heart massage) / ventilation (artificial respiration) ratio for the child patient if there are two rescuers It should be 15/2.	227(64.7)	60(17.1)	64(18.2)
16. The basic life support flow chart sequence should be A (airway)-B (respiratory)-C (cardiac massage) for pediatric patients.	227(64.7)	561(14.5)	73(20.8)
17. Pulse control in pediatric patients, firstly from the femoral artery; if not, from the carotid artery, should be considered.	159(45.3)	88(25.1)	104(29.6)
18. For effective chest compression in an adult patient, lay the patient on a soft surface over the sternum. Put your hand on it, place your other hand on it, and interlock your fingers; stretch the chest wall 5-10 press quickly and forcefully, at least 150 times per minute, to collapse cm.	66(18.8)	38(10.8)	247(70.4)
19. Compression (heart massage) / ventilation (artificial respiration) ratio for single rescuer adult and child (except newborn) should be 30 /2 in the patient	271(77.2)	38(10.8)	42(12)
20. The ″Look-listen-feel″ flowchart in BLS has been removed for all rescuers, healthcare professionals or not.	139(39.6)	96(27.4)	115(32.8)
21. In case of suffocation, trauma, intoxication, or any child respiratory arrest, the first 5 rounds of CPR should be performed, and then 112 should be called for help.	190(54.1)	70(19.9)	90(25.6)
22. (If you are not a healthcare professional, skip to question 23). Asystole is a defibrillated rhythm.	73(20.8)	43(12.3)	220(62.7)
23. Breathing normally from mouth to mouth and nose in infants and mouth to mouth in a child is applied two times; each breath is given for 1 second, and raising of the rib cage indicates effective exhalation.	267(76.1)	57(16.2)	27(7.7)
24. Airway patency is also provided by the chin thrust maneuver. This maneuver is for those with cervical injuries. It is recommended for patients to be performed by healthcare professionals.	267(76.1)	51(14.5)	33(9.4)
25. (If you are not a healthcare professional, skip to question 26). Defibrillators depend on the nature of the current they deliver. They are divided into biphasic and monophasic. Biphasics have a lower current than monophasics.	167(47.6)	129(36.8)	43(12.3)
26. In an adult without trauma, the airway was opened with the head-back-chin-up maneuver	293(83.5)	39(11.1)	19(5.4)
27. (If you are not a healthcare professional, skip to question 28) Defibrillation dose applied in an adult patient 360j for biphasic defibrillators	121(34.5)	62(17.7)	159(45.3)
28. A child with a pulse above 60 who is not breathing or has a normal breathing pattern in patients at a rate of at least 12-20/min (3-5 seconds) until rescued breathing and spontaneous breathing returns should be given	221(63)	107(30.5)	23(6.6)
29. Adult and pediatric basic life support flowchart after compression, AED (automatic If an external defibrillator has been reached, defibrillation should be performed.	151(43)	91(25.9)	109(31.1)
30. Pulse control is not recommended for rescuers who are not medical personnel; rescuers lack breathing or start chest compressions depending on the superficiality.	169(48.1)	70(19.9)	111(31.6)
31. When the OED comes on, turn on the device and place the pads on the chest; while the device performs the rhythm control, give three continuous shocks; if there is a shockable rhythm, check the pulse after the shock; if there is no pulse, start CPR.	128(36.5)	56(16)	167(47.6)
32. Airway patency in children of all age groups is provided by placing an elevation under the head.	91(25.9)	100(28.5)	160(45.6)

33. While applying BLS with a single rescuer, lay the patient on a hard surface for effective chest compression; in the child/infant patient with two fingers in the middle of the sternum, 1/3 of the anterior-posterior diameter of the rib cage, approximately 4 cm in infants, approximately 5 cm in children, press quickly and firmly at least 100 times per minute	254(72.4)	58(16.5)	39(11.1)
34. VF (ventricular fibrillation) is not a defibrillated rhythm.	47(13.4)	40(11.4)	250(71.2)
35. The dose for defibrillation in a pediatric patient is 2-4j/kg .	155(44.2)	166(47.3)	16(4.6)

DISCUSSION

Resuscitation is a clinical intervention that has attracted people's attention since ancient times. Today, it has become a branch of science emphasized by modern medicine. Resuscitation guidelines published every five years reflect the international consensus and are translated into many languages to be accessible worldwide. The main goal is to optimize the return of spontaneous circulation of cardiac arrest victims without neurological deficits.

The changes made in the 2010 guidelines are significant and noteworthy. BLS was significantly simplified, and different approaches were proposed for paramedics and public rescuers. For community rescuers, the recommendation to start a chest massage without checking for a pulse in an unresponsive patient was emphasized (1). While the BLS steps for adult and pediatric patients were A-B-C, in the 2010 guideline they were changed to C-A-B, and the compression/ventilation ratio was changed to 30/2. The "Look, Listen, Feel" application was removed. The chest compression application method was updated as the sternum should collapse at least 5 cm with compression, and the compression rate should be at least 100/min. The AED use was integrated as part of BLS, and it was mentioned that healthcare professionals and public rescuers can apply AEDs (1, 2).

The 2015 BLS guidelines are not a comprehensive revision of the 2010 guidelines. Some recommendations in the 2010 guidelines were emphasized and some were withdrawn. The BLS steps for adult and pediatric patients are C-A-B, and the compression-to-ventilation ratio is 30/2, as in the 2010 guidelines. The "look-listen-feel" method is again recommended to check whether breathing is normal. As in the 2010 guideline, the same chest compression depth is recommended. In this context, while a depth of 5 cm is recommended, it is warned not to compress more than 6 cm. The rate of chest massage was set as 100-120/min, and it was mentioned that the chest should be allowed to expand totally after each massage (1, 3, 4).

There are many studies in the literature concerning the level of knowledge and skills of healthcare personnel on BLS. In our study, the level of knowledge about adult BLS was evaluated over 20 questions. In 12 questions, the ratio of correct answers was above 50%, and

the knowledge level of the participants was considered moderate. The level of knowledge about pediatric BLS was evaluated over 9 questions. The ratio of correct answers was more than 50% in 5 questions, and the knowledge level of the participants was considered moderate. There was no difference according to gender in terms of the correct answer rates given to the survey questions. However, the ratio of correct answers was significantly higher in the 18-25 age group and those who had been working for less than 5 years compared to the other age and working time groups.

Bilir et al. found that gender and tenure did not affect the level of knowledge in their study (5). Wilson et al. found that age, gender, and previous education did not affect BLS knowledge and skills (6). Kımaz et al. found that age, gender, tenure, and previous BLS training did not affect the level of knowledge (7). In a study conducted by Ülger et al. in 2013, it was reported that the life support success scores of the personnel in the 18-25 age group, and the group with 1-5 years of experience were higher (8). In a study conducted by Kartal in 2017 on CPR applications, it was reported that gender did not affect the level of knowledge and that the correct answer rates of the group aged 18-25 years and those working more than or equal to 10 years in the profession were higher (9).

In our study, the BLS knowledge level of healthcare personnel working in clinical sciences was significantly higher than those working in basic medical sciences. The highest rate of correct answers among clinical sciences belongs to emergency medicine personnel. Paramedics and research assistants were the most successful occupational group, while intern doctors and health technicians were generally considered unsuccessful. Bilir et al. found no difference between the basic life support knowledge levels of physicians in basic and clinical medical sciences (5). Still, the knowledge levels of physicians working in the units of internal sciences were higher than others. On the other hand, Şener et al. reported that the knowledge and skill levels of the physicians working in anesthesia and reanimation and ED were better than those working in other clinical departments (10). Demirtaş et al. found that the mean knowledge level score of ED physicians was statistically significantly higher than physicians working in other departments (11). The mean life support knowledge score of healthcare personnel working in the emergency clinic was higher than those working in the intensive care clinic in the study of Kartal (9). Our results support the findings of Şener et al. and Demirtaş et al. (10, 11). This difference may be due to their

training and the fact that they perform more resuscitations in their daily clinical practice.

In our study, the correct answer rates were low in questions 8, 13, 16, 20, 29, and 30 which included 2010 guideline updates, and questions 25, 27, 31, and 35 which were related to the general characteristics of defibrillators doses and defibrillation application. The results of this study show that healthcare workers do not follow the guidelines closely and their BLS knowledge is not up to date. We believe that the low rate of AED training and use by the participants affected the correct answer rates to these questions. Supporting these data, Kallestedt et al. revealed that 37% of healthcare workers did not know the current information about CPR (12). In the study conducted by Çelikli et al. 16.7% of the participants answered the question "How should the order of BLS applications be?" and 44% of the participants answered the question "By whom should be applied?" correctly. The rate of health personnel following current BLS information was found to be 34.7% (13). In the study of Kara et al., 11 questions were asked about the level of BLS knowledge, the response rates to only 3 questions were found to be above 50% and it was concluded that their level of BLS knowledge was insufficient, and they did not follow the current information on the subject (14). When the answers given to the questions in Karta's study were examined; it was found that 41.7% knew that the basic life support sequence in adults was C-A-B. 75% did not know the location of the paddles during defibrillation, and 73% did not know the appropriate joule level according to the type of defibrillator (monophasic/biphasic) during defibrillation. At the end of the study, it was observed that the information on the topics included in the current guidelines was not up to date (9).

There are different results regarding the level of BLS knowledge in the literature. BLS practices should be well-known and effectively implemented by physicians and nurses. However, some studies have shown that the level of knowledge and skills may not be sufficient even among physicians and nurses. In our study, the level of BLS knowledge was found to be moderate. Kalhori et al. determined the awareness level of nurses working in a training and research hospital as good under the 2010 CPR guideline (15). Some studies that found the level of knowledge low and insufficient. Kavalcı et al. found that only 54% of research assistants in a medical faculty hospital had sufficient knowledge (16). Silverplats et al. found that only 41% of the physicians surveyed had sufficient theoretical knowledge about CPR and were successful in performing CPR (17). Irfan et al. showed that the mean score on a 100-point questionnaire of the BLS was 53.5% for physicians and 38.4% for nurses. They also found that physician participants with previous BLS training and

length of employment were important determinants of knowledge level (18). Similarly, Binkhorst et al. found that older specialist pediatricians had lower BLS skills than their younger colleagues (19). Kendir et al. investigated the level of knowledge of nurses, emergency medical technicians, and paramedics about basic and advanced life support guidelines in children. They found that the basic life support knowledge scores of paramedics and professionals working in emergency departments and pediatric intensive care units were low, but advanced life support knowledge scores were high (20). Mavioğlu et al. showed that trainees failed in BLS theoretical and practical exams in their study titled "Evaluation of pediatric BLS application skills. The most successful occupational group was found to be trainee paramedics and research assistants (21). Çolak et al. showed that the level of knowledge of those who followed the guidelines and had previously received CPR training was significantly higher but that the knowledge level of the participants about CPR practices was not good in general (22). In the study conducted by Aygin et al. based on the 2015 guidelines, the rate of those who correctly answered the BLS sequence for pediatric patients was 41.2% and the level of BLS knowledge was found to be moderate (23). Yıldırım et al. found that although healthcare personnel received training about the guidelines, they could not fully comprehend the life support issue (24).

Although the importance of cardiopulmonary resuscitation has been proven in the literature, it is reported that survival rates are low and the reason for this is ineffective management of the CPR process. The importance of current CPR guidelines in effective management is emphasized and it is stated that adequate knowledge of healthcare workers on this subject plays a critical role in survival from cardiac arrest (17). It has been reported that CPR training significantly contributes positively to the level of knowledge and CPR success rates are higher in those with high self-confidence. Many studies have shown that practical BLS training will further increase the effectiveness of the training. However, studies have shown that knowledge and skills on CPR are inadequate, and the theoretical and practical skills gained are insufficient for different reasons and decrease further over time (25). Therefore, the importance of training was emphasized in the guidelines, and it was aimed to provide public rescuers, civil defense teams, healthcare workers in the field, emergency healthcare teams, or resuscitation teams with the ability to perform CPR at the level of actual clinical performance (4). The 2010 guidelines recommend that physicians receive CPR training more frequently than every six months. The authors also suggested that doctors and nurses working in departments with a high

likelihood of intervening in a critically ill patient should be trained. It is stated that BLS and AED courses within the scope of in-hospital resuscitation training can be attended not only by physicians and nurses working in departments with a high probability of intervening in a critically ill patient but also by healthcare personnel working in clinics with a relatively low probability of encountering cardiac arrest and outside the clinic (1).

As a result, although the BLS training status and self-confidence of the participants in our study were high, their knowledge levels were found to be moderate. Although it is not expected that the need to follow current information about BLS is identical in health professional groups with different working areas and responsibilities, we think that the difference in BLS training may be due to the frequency of CPR cases and the lack of following current guidelines.

Limitations

First of all, our study is a single-center study. Participants were not asked any questions about the time since their last BLS training. Since it was a questionnaire study, skill levels in practical applications were not evaluated; questions were answered based on thoughts, memories, and experiences. Our study was prepared according to the 2010 BLS guidelines. Two new guidelines have been published since 2012 when the study was conducted. First of all, it should be noted that there were no major innovations in the 2015 and 2020 guidelines; some of the recommendations in the 2010 BLS guideline were emphasized, and some were pushed to the background. In addition, the 2020 BLS guideline was published during the pandemic period and recommendations were made for BLS in COVID-19 patients despite the lack of clear evidence regarding the optimal treatment of COVID-19 patients and the risk of transmission and infection. In addition, guidelines are published to establish certain standards for healthcare professionals and to ensure consensus and agreement. The published information is not a definitive rule for healthcare professionals, but rather is a recommendation. As a matter of fact, the ERC 2015 guideline is not the only way for resuscitation; it contains widely accepted opinions for the safe and effective implementation of resuscitation. It was emphasized that the publication of new and updated treatment recommendations should not be perceived as unsafe or ineffective clinical approaches applied currently (3,4).

CONCLUSION

The success of resuscitation is closely related to the quality of the training, training approaches, and education methods. Healthcare professionals can obtain knowledge, competence, and self-confidence in BLS through theoretical and practical training at regular intervals organized by a resuscitation

committee supported by hospital administration and in accordance with guidelines.

Ethics Committee Approval: Ethics Committee Approval: Ethics approval for this study was obtained from the Hacettepe University Senate Ethics Committee (ethics committee date: 08.02.2012, ethics committee number: 698).

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