Original article

The degree of readiness of students and their parents for the early implementation of basic life support training

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Abstract.

Introduction: Sudden cardiac arrest is one of the most common causes of death in the world. Today, cardiopulmonary resuscitation in the prehospital phase, although crucial in the emergency care system, remains a weak link in the survival chain. Training in basic life support should begin in the school years in order to reach a larger population over time. ***The aim of the study*** was to assess the degree of readiness of students and their parents for the early implementation of training in basic life support. ***Materials and Methods:*** we surveyed 236 people, of which 118 students (group 1) of the primary school in Sumy and 118 - their parents (group 2). The survey was conducted anonymously. The questionnaire included 24 statements that determined the personal attitude to the need for early implementation of basic life support skills in primary school students, which later allowed us to determine the degree of readiness of students and their parents to solve this urgent problem for the world community. Correlation analysis was performed for groups 1 and 2 for more significant indicators. ***Results:*** the results of the study indicate that the level of readiness of students and parents contributes to the possibility of early implementation of resuscitation training in schools, which can help increase the number of people in communities who have basic life skills and will be ready to use them if needed. ***Conclusions:*** Thus, our research indicates that students and their parents are positive about learning basic life support in primary school and tend to think that mastering BLS skills will significantly increase students' self-confidence when they witness an emergency.

Keywords: basic life support; cardiopulmonary resuscitation; schoolchildren.

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Introduction:

Sudden cardiac arrest is one of the most common causes of death in the world [1-2, 4-6, 12, 13]. In economically developed countries with a high level of organization of emergency medical services, the number of resuscitation activities conducted by the public is much higher compared to countries such as Ukraine [4-12, 14]. Today, cardiopulmonary resuscitation (CPR) of the prehospital stage, although crucial in the emergency care system, remains a weak link in the survival chain [5-8]. To increase the number of timely interventions for those who may witness sudden cardiac death, it is necessary to increase the number of adults who have the appropriate level of CPR skills and can apply them in a timely manner in emergencies associated with cardiac arrest [7-9]. Lack of systematic CPR training and inability to constantly maintain the level of knowledge and practical skills, which eventually leads to their loss. It is desirable to start training in basic life support in the school years in order to cover a larger number of society over time. With the increase in the number of students who will study CPR, in the future the share of people who have approximately professional skills in resuscitation will increase, which will increase the level of resuscitation care for those in need. One of the most important steps in increasing the number and quality

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of resuscitation measures at the early pre-hospital stage in Ukraine is the need to educate school-age children. Recent studies show that cardiopulmonary resuscitation of bystanders remains a key factor in determining survival in outpatient cardiac arrest [8-12]. Therefore, it is extremely important to determine the degree of readiness of students and their parents to prepare school-age children for cardiopulmonary resuscitation, as one of the possible methods of improving the qualitative and quantitative indicators of CPR among outside observers.

Purpose of the study:

The aim of our work was to assess the degree of readiness of students and their parents for the early implementation of training in basic life support.

Materials and Methods:

Research design

The object of the study were group of respondents,which included 236 people, of which 118 students (group 1) of the primary school in Sumy and 118 - their parents (group 2).

Sampling

We developed questionnaires, which included the main questions and indicators on the attitude of students and their parents to the early implementation of training in basic life support (BLS). The assessment was based on the following statements: BLS training should start in primary school; the best place to teach students is a school, not a medical facility; BLS training for students should be conducted by school teachers, not health professionals; school teachers must know BLS, school teachers must be competent in teaching BLS; school teachers do not want to teach BLS, BLS teaching will increase students' trust in doctors; by learning BLS students will be able to avoid risky behavior; while learning BLS, students will take more care of their friends; by learning BLS students will be better able to cope with emergencies; students are not overwhelmed to prevent them from learning BLS; there is a place in the students' schedule to study BLS; students are mentally able to learn BLS methods and apply them to people who need it; students are physically able to apply chest compressions to people who need CPR; BLS education in schools is supported by parents; BLS teaching in schools is supported by the public; everyone should know how to apply BLS; parents need to teach their children BLS; more people could use BLS if everyone learned it in school; Students are not afraid of infectious diseases that they can get from mannequins used for CPR; students are not afraid to use BLS, despite the infections they may get from a person in need; students are not afraid to use BLS, despite the potential harm they may cause to those in need; students are not afraid to use BLS, despite their ignorance of technology; more people will be willing to use BLS if their training involves only chest compression without resuscitation of the mouth to mouth or mouth to nose. All the above statements were answered, among which respondents had to choose one. These included: "strongly disagree", "no, disagree", "disagree", "rather agree", "agree" and "absolutely agree".

The group of respondents included 236 people, of which 118 students (group 1) of the primary school in Sumy and 118 - their parents (group 2). The survey was conducted anonymously.

The significance of differences in the values between group 1 and group 2 was assessed using the Fisher angular transformation method [3]. In the correlation analysis, the relationship between the indicators was evaluated as strong at the absolute value of the correlation coefficient $r \geq 0.70$, which has an average strength at r from 0.69 to 0.30 and as weak at $r \leq 0.29$. Correlation-regression analysis was used to determine the relationships between the indicators studied. Initially, the available indicators and the answers to them encoded certain values in the form of an ordinal number of numbers with the formation of ranks. Then the values of average ranks were calculated for each of the traits and in groups, followed by determination of rank correlation coefficients (Spearman and Pearson).

Statistical processing of the results was performed using Windows 10 Software, Microsoft Excel 2016 (license No. 00339-10000-00000-AA340).

Ethical approval: This study was approved by the Ethics Committee of Sumy State University, Ukraine.

Results:

The results of our research are presented in the tables.

Table 1: Evaluation of indicators by the answers "strongly disagree", "no, disagree", "disagree"

N	Control questions	strongly disagree				no, disagree				disagree				p
		Pupils (n=118)		Parents (n=118)		Pupilsi (n=118)		Parents (n=118)		Pupils (n=118)		Parents (n=118)		
		abs.	%	abs.	%	abs.	%	abs	%	abs	%	abs	%	
1	BLS training should begin in the early grades.	2	1,7	1	0,8	0	0	0	0	0	0	0	0	0.024
2	The best place to teach students is a school, not a medical facility	0	0	0	0	1	0,8	1	0,8	2	1,7	28	23,7	0.012
3	BLS training for students should be conducted by school teachers, not health professionals.	8	6,8	25	21,2	9	7,6	40	33,9	89	75,4	43	36,4	0.028
4	School teachers need to know BLS.	0	0	0	0	0	0	0	0	0	0	0	0	0
5	School teachers must be competent in teaching BLS.	0	0	0	0	0	0	0	0	0	0	0	0	0
6	School teachers do not want to teach BLS.	0	0	18	15,2	21	17,8	50	42,4	47	39,8	31	26,3	0.028
7	BLS training will increase students' trust in doctors.	0	0	0	0	0	0	0	0	0	0	0	0	0
8	By learning BLS, students will be able to avoid risky behaviors.	0	0	0	0	0	0	4	3,4	0	0	0	0	0.03
9	By learning BLS, students will take more care of their friends.	0	0	0	0	0	0	0	0	0	0	0	0	0
10	By learning BLS, students will be better able to deal with emergencies.	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Students are not overwhelmed to prevent them from learning BLS.	0	0	6	5	6	5	6	5	12	10,2	24	20,3	0.024
12	There is a place in the student schedule to study BLS.	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Students are mentally able to learn BLS methods and apply them to people who need it.	0	0	3	2,5	6	5	6	5	0	0	0	0	0.01
14	Students are physically able to apply chest compressions to people who need CPR.	18	15,2	21	17,8	24	20,3	24	20,3	24	20,3	36	30,5	0.018
15	BLS education in schools is supported by parents.	0	0	3	2,5	0	0	0	0	0	0	3	2,5	0.03
16	BLS education in schools is supported by the public.	0	0	0	0	0	0	3	2,5	6	5	9	7,6	0.028
17	Everyone should know how to use BLS.	0	0	0	0	0	0	0	0	6	5	4	3,4	0.03

N	Control questions	strongly disagree				no, disagree				disagree				p
		Pupils (n=118)		Parents (n=118)		Pupilsi (n=118)		Parents (n=118)		Pupils (n=118)		Parents (n=118)		
		abs.	%	abs.	%	abs.	%	abs	%	abs	%	abs	%	
18	Parents need to teach their children BLS.	7	5,9	5	4,2	3	2,5	6	5	9	7,6	12	10,2	0.017
19	More people could use BLS if everyone learned it at school.	0	0	0	0	0	0	11	9,3	2	1,7	3	2,5	0.02
20	Students are not afraid of infectious diseases that they can get from mannequins used for CPR.	7	5,9	2	1,7	24	20,3	15	12,7	10	8,5	11	9,3	0.03
21	Students are not afraid to use BLS, despite the infections they may get from a person in need.	0	0	0	0	2	1,7	0	0	23	19,5	22	18,7	0.024
22	Students are not afraid to use BLS, despite the potential harm they may cause to those in need.	0	0	0	0	7	5,9	10	8,5	0	0	4	3,4	0.028
23	Students are not afraid to use BLS, despite their ignorance of the technique.	0	0	1	1,8	4	3,4	8	6,8	9	7,6	12	10,2	0.03
24	More people will be willing to use BLS if their training involves only chest compression without resuscitation of the mouth or mouth to nose.	0	0	0	0	0	0	0	0	0	0	0	0	0

According to the results of the survey (Table 1), it became known that 21.2% of parents and 6.8% of students strongly disagree with the fact that BLS training for students should be conducted by school teachers and not by health professionals; 17.8% of parents and 15.2% of students strongly disagree that students are physically able to apply chest compressions to people who need CPR; 15.2% of respondents (parents only) answered the same question about the fact that school teachers do not want to teach BLS; 5% of this group (parents only) categorically object that students are not overwhelmed to prevent them from learning BLS; 4.2% of parents and 5.9% of students strongly disagree with the need for parents to teach their children BLS; 2.5% of parents strongly disagree with the fact that students are mentally able to learn BLS methods and apply them to people who need it and BLS education in schools is supported by parents; and less than 2% of parents answered "strongly disagree" with the question that BLS training should begin in primary school; students are not afraid of infectious diseases that they can get from mannequins (5.9% of responses among students) used for CPR and students are not afraid to use BLS, despite their ignorance of technology.

It was found that 9 questions out of 24 were answered in the negative. Content and discrimination were examined by examining the interpositional correlation for 9 control items.

Spearman's correlation coefficient (r) for groups 1 and 2 with 9 negative responses is 0.371. The connection between the studied groups is direct, the strength of the connection on the Chaddock scale - moderate. The dependence of the signs is statistically insignificant ($p > 0.05$).

According to surveys of students and their parents (Table 1), 42.4% of parents and 17.8% of students answered "no, disagree" with the statement that school teachers do not want to teach BLS; one third of parents (33.9%) and 7.6% of children disagree that

BLS training for students should be conducted by school teachers and not by health professionals; the same number of parents and children (20.3%) also answered the question that students are physically able to apply chest compressions to people who need CPR; 12.7% of parents answered "no, disagree" and 20.3% of students said that students are not afraid of infectious diseases that they can get from mannequins used for CPR. Less than 10% of students and their parents responded to other allegations, or did not respond at all.

It was found that 14 questions out of 24 were answered in the negative. Content and discrimination were examined by examining the interpositional correlation for 14 control items.

Spearman's correlation coefficient (r) for groups 1 and 2 with 14 negative responses is 0.736. The connection between the studied groups is direct, the strength of the connection on the Chaddock scale - high. The dependence of the signs is statistically significant (p <0,05).

More than a third of parents (36.4%) and 75.4% of students disagree that BLS for students should be taught by school teachers and not by health professionals; 30.5% of parents and 20.3% of children answered that they do not agree that students are physically able to apply chest compressions to people who need CPR; the same answer was given by 26.3% of parents and 39.8% of students regarding the statement that school teachers do not want to teach BLS; 23.7% of adults answered "we do not agree" that the best place to teach students is a school, not a medical institution; 20.3% of parents and 10.3% of children do not agree that students are not overworked to prevent them from learning BLS; 18.7% of adults and 19.5% of children disagreed with the answer "students are not afraid to use BLS, despite the infections they can get from a person in need"; 10% or less of respondents disagreed with other statements.

It was found that 14 questions out of 24 were answered in the negative. Content and discrimination were examined by examining the interpositional correlation for 14 control items.

Spearman's correlation coefficient (r) for groups 1 and 2 with 14 negative responses is 0.816. The connection between the studied groups is direct, the strength of the connection on the Chaddock scale - high. The dependence of the signs is statistically significant (p <0,05).

Table 2: Evaluation of indicators according to the answers "quickly agree", "agree", "absolutely agree"

N	Control questions	quickly agree				agree				absolutely agree				p
		Pupils (n=118)		Parents (n=118)		Pupils (n=118)		Parents (n=118)		Pupils (n=118)		Parents (n=118)		
		abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	
1	BLS training should begin in the early grades.	8	6,8	16	13,5	75	63,5	84	71,2	17	14,4	17	14,4	0.028
2	The best place to teach students is a school, not a medical facility	25	21,2	56	47,4	69	58,5	24	20,3	9	7,6	9	7,6	0.024
3	BLS training for students should be conducted by school teachers, not health professionals.	7	5,9	10	8,5	5	4,2	0	0	0	0	0	0	0.078
4	School teachers need to know BLS.	0	0	0	0	58	49,1	67	56,7	51	43,2	51	43,2	0.058
5	School teachers must be competent in teaching BLS.	78	66,1	86	72,9	13	11	24	20,3	8	6,8	8	6,8	0.017
6	School teachers do not want to teach BLS.	50	42,4	19	16,1	0	0	0	0	0	0	0	0	0.03

N	Control questions	quickly agree				agree				absolutely agree				p
		Pupils (n=118)		Parents (n=118)		Pupils (n=118)		Parents (n=118)		Pupils (n=118)		Parents (n=118)		
		abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	
7	BLS training will increase students' trust in doctors.	84	71,2	96	81,3	29	24,6	18	15,2	4	3,4	4	3,4	0.038
8	By learning BLS, students will be able to avoid risky behaviors.	12	10,2	21	17,8	45	38,1	60	50,8	33	28	33	28	0.056
9	By learning BLS, students will take more care of their friends.	18	15,2	50	42,4	34	28,8	68	57,6	0	57,6	0	57,6	0.054
10	By learning BLS, students will be better able to deal with emergencies.	0	0	54	45,8	55	46,6	36	30,5	28	23,7	28	23,7	0.072
11	Students are not overwhelmed to prevent them from learning BLS.	30	25,4	33	28	39	33	41	34,7	8	6,8	8	6,8	0.012
12	There is a place in the student schedule to study BLS.	48	40,7	56	47,4	68	57,6	60	50,8	2	1,7	2	1,7	0.034
13	Students are mentally able to learn BLS methods and apply them to people who need it.	33	28	42	35,6	27	22,3	33	28	40	33,9	40	33,9	0.065
14	Students are physically able to apply chest compressions to people who need CPR.	6	5	15	12,7	6	5%	3	2,5	19	16,1	19	16,1	0.082
15	BLS education in schools is supported by parents.	27	22,3	36	30,5	33	28	45	38,1	31	26,3	31	26,3	0.085
16	BLS education in schools is supported by the public.	36	30,5	54	46,8	24	20,3	24	20,3	28	23,7	28	23,7	0.03
17	Everyone should know how to use BLS.	18	15,2	19	16,1	30	25,4	54	45,8	41	34,7	41	34,7	0.028
18	Parents need to teach their children BLS.	18	15,2	43	36,4	48	40,7	80	67,8	42	35,6	42	35,6	0.064
19	More people could use BLS if everyone learned it at school.	72	61	80	67,8	29	24,6	13	11	11	9,3	11	9,3	0.062
20	Students are not afraid of infectious diseases that they can get from mannequins used for CPR.	60	50,8	63	53,4	17	14,4	27	22,3	0	0	0	0	0.027
21	Students are not afraid to use BLS, despite the infections they may get from a person in need.	89	75,4	93	78,8	4	3,4	3	2,5	0	0	0	0	0.081

N	Control questions	quickly agree				agree				absolutely agree				p
		Pupils (n=118)		Parents (n=118)		Pupils (n=118)		Parents (n=118)		Pupils (n=118)		Parents (n=118)		
		abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	
22	Students are not afraid to use BLS, despite the potential harm they may cause to those in need.	48	40,7	34	28,8	63	53,4	70	59,3	0	0	0	0	0.034
23	Students are not afraid to use BLS, despite their ignorance of the technique.	63	53,4	74	62,7	39	33	21	17,8	2	1,7	2	1,7	0.012
24	More people will be willing to use BLS if their training involves only chest compression without resuscitation of the mouth or mouth to nose.	93	78,8	100	84,7	20	17	15	12,7	3	2,5	3	2,5	0.068

According to the analysis of indicators (Table 2), it was found that 84.7% of parents and 78.8% of children answered "more quickly agree" that more people would be willing to use BLS if his training was only about chest compression without resuscitation of mouth to mouth or mouth to nose; 81.3% of adults and 71.2% of children are more likely to agree that BLS training will increase students' trust in doctors; 78.8% of parents and almost as many (75.4%) children gave the same answer to the question that students are not afraid to use BLS, despite the infections they can get from a person in need; 67.8% of adults and 61% of students are more likely to agree that more people would be able to use BLS if everyone studied it at school; 62.7% of parents and 53.4% of students agreed with the statement that students are not afraid to use BLS, despite their ignorance of technology; more than half of the respondents (53.4% and 50.8%) answered that students are not afraid of infectious diseases that they can get from mannequins used for CPR; 47.4% of parents and 40.7% of students also agreed that there is a place in the students' schedule to study BLS; 46.8% of parents and 30.5% of children agreed that BLS education in schools is publicly supported; 45.8% of adults answered positively to the question that by learning BLS students will be better able to cope with emergencies, but students did not react at all; 42.4% of parents and 15.2% of students were more likely to agree that students will take more care of their friends while learning BLS; 36.4% of parents and 15.2% of students responded with agreement on the statement "parents need to teach their children BLS"; 35.6% of adults and 28% of children answered "we rather agree" that students are mentally able to learn BLS methods and apply them to people who need it; less than 30% of respondents answered "rather agree" to other statements.

It was found that 23 out of 24 questions were answered in the affirmative. Content and discrimination were examined by examining the interpositional correlation for 14 control items.

Spearman's correlation coefficient (r) for groups 1 and 2 with 23 positive responses is 0.783. The connection between the studied groups is direct, the strength of the connection on the Chaddock scale - high. The dependence of the signs is statistically significant ($p < 0,05$).

Discussion:

According to the results of the analysis of indicators (Table 2), it was found that 71.2% of parents and 63.5% of students agree that BLS training should begin in primary school; 67.8% of adults and 40.7% of children surveyed believe that parents need to teach their children BLS; more than 50% of respondents agree with the following control questions: school teachers need to know BLS; by learning BLS students will be able to avoid risky behavior; while learning BLS, students will take more care of their friends; there is a place in the students' schedule to study BLS; students are not afraid to use BLS, despite the

potential harm they may cause to those in need.

It was found that 23 out of 24 questions were answered in the affirmative. Content and discrimination were examined by examining the interpositional correlation for 14 control items.

Spearman's correlation coefficient (r) for groups 1 and 2 with 23 positive responses is 0.752. The connection between the studied groups is direct, the strength of the connection on the Chaddock scale - high. The dependence of the signs is statistically significant (p <0,05).

The results of the evaluation of indicators with the answers "absolutely agree" (table 2) showed that more than 50% of respondents, both parents and students strongly agree with the statement that learning BLS students will care more about their friends; school teachers need to know BLS; more than a third of respondents fully agree that by learning BLS students will be better able to cope with emergencies; students are mentally able to learn BLS methods and apply them to people who need it; BLS education in schools is supported by parents; parents need to teach their children BLS.

It was found that 19 questions out of 24 were answered in the affirmative. Content and discrimination were examined by examining the interpositional correlation for 19 control items.

Spearman's correlation coefficient (r) for groups 1 and 2 with 23 positive responses is 0.808. The connection between the studied groups is direct, the strength of the connection on the Chaddock scale - high. The dependence of the signs is statistically significant (p <0,05).

Thus, it was found that the correlation coefficient for groups 1 and 2 was from 0.371 to 0.816. Only indicators with high binding strength and statistically significant dependence of traits (p <0.05) were taken into account.

The strongest connections between the study groups, with a strength of communication r = 0.816, which provided negative answers to control questions, that more than a third of parents (36.4%) and 75.4% of students disagree with the question that learning BLS for students should be conducted by school teachers, not health professionals.

The strongest connections between the studied groups, with the strength of the connection r = 0.808, which provided positive answers to control questions, that school teachers should be competent in teaching BLS.

Conclusions

Thus, our research indicates that students and their parents are positive about learning basic life support in primary school and tend to think that mastering BLS skills will significantly increase students' self-confidence when they witness an emergency. This is evidenced by the fact that most children and their parents have a high interest in mastering BLS skills and are ready to use them despite the threats they may face during resuscitation. But along with this, there are concerns expressed by students about harming a person who needs to apply BLS skills, which can lead to restraint or no help at all. Launching BLS in schools, including early school age, can be one of the most successful strategies to combat sudden cardiac death in Ukraine and around the world. Early introduction of resuscitation training in schools may increase the number of people in the community who will have BLS skills and will be ready to apply them in the event of sudden cardiac death, which determines the need for further research in this area. Both students and parents reported that they preferred the BLS to be taught by medical staff rather than school teachers, whereas school teachers should also be competent in teaching BLS. We believe that this view is related to the public perception of BLS as a set of complex skills that should be taught by staff with real experience, which does not preclude the parallel introduction of basic life support training for both primary and secondary school teachers. But we are confident that such concerns can be addressed through widespread public education through public campaigns. The issue of early implementation of basic life support training in primary school for many years remains relevant for Ukraine and no less relevant for the world community. Therefore, the introduction of training for students in basic life support in schools should be addressed at the level of the national program in Ukraine.

Implications for practice

Studying the level of readiness of students to learn basic life support will allow us to predict the likelihood of school-age children, conducting practical training

or the introduction of a particular discipline.

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Authors'scontribution

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References:

1. Nikonova V. V. () Vnezapnaia kardialnaia smert u detei i podrostkov. Problemy diahnostyky. Napravlenyia profilaktyky (obzor literatury). Medytsyna neotlozhnykh sostoianyi, 2013.**3**, 22–29.
2. Fedorova, T., Semenenko, N., Tazina, S., Mamonov, A., & Sotnikova, T. (2022). Metabolic syndrome and chronic heart failure: a modern aspect of the problem. Bangladesh Journal of Medical Science, **21**(1), 105–113. https://doi.org/10.3329/bjms.v21i1.56335
3. Hoiko O. V. (2004) Praktychne vykorystannia paketa STATISTICA dlia analizu medyko-biolohichnykh danykh: navch. Posibnyk. Kyivska medychna akademiia pisliadyplomnoi osvity imeni P. L. Shupyka, 76 s.
4. Arjunan, P., Ramakrishnan, T. V., & Gandhamaneni, S. (). Characteristics and survival rates of patients experience In-hospital cardiac arrest: A retrospective study in a Tertiary care Indian Hospital. Bangladesh Journal of Medical Science, 2020.**19** (3), 537–542. https://doi.org/10.3329/bjms.v19i3.45872
5. Cave DM, Aufderheide TP, Beeson J, Ellison A, Gregory A, Hazinski MF ta in. () Vazhlyvist ta realizatsiia navchannia z sertsevo-lehenevoi reanimatsii ta avtomatyzovanoi zovnishnoi defibryliatsii v shkolakh: Naukova rekomendatsiia Amerykanskoi kardiolohichnoi asotsiatsii. Tyrazh. 2011.**123** :691–706. https://doi.org 10.1161/CIR.0b013e31820b5328.
6. Mintser O. P. (2003) Obroblennia klinichnykh i eksperymentalnykh danykh u medytsyni: navch. posibnyk / O. P. Mintser, Yu. V. Voronenko, V. V. Vlasov. – K.: Vyshcha shkola, – 350 s.
7. Lukas RP, Van Aken H, Mölhoff T, Weber T, Rammert M, Wild E ta in.(Dity riatuiut zhyttia: shestyrichne pozdovzhnie doslidzhennia shkoliariv, yaki navchaiutsia sertsevo-lehenevii reanimatsii: Khto povynen provodyty navchannia i chy tryvatymut naslidky? Reanimatsiia, 2016;**101**:35–40.
8. Zubov L. A. (2008) Vnezapnaia serdechnaia smert u detei y podrostkov. Medytsyna neotlozhnykh sostoianyi. Izbrannie klinicheskie lektsii, 10, 281–306.
7. Böttiger BW, Bossaert LL, Castrén M, Cimpoesu D, Georgiou M, Greif R, et al. Dity riatuiut zhyttia - vyslovlennia pozytsii ERC shchodo navchannia ditei shkilnoho viku v umovakh SLR: "Ruky, yaki dopomahaiut - Navchannia ditei trenuietsia na vse zhyttia" Reanimatsiia. 2016 https://doi.org S0300-9572 (16) 30100-9.
8. Students' and parents' attitudes toward basic life support training in primary schools / Petrić J., Mališki M, Marković D., Meštrović J. // Croat Med J., **54**(4): 376–380. https://doi.org 10.3325/cmj.2013.54.376
9. Cave DM, Aufderheide TP, Beeson J, Ellison A, Gregory A, Hazinski MF, et al. (2011) Importance and Implementation of Training in Cardiopulmonary Resuscitation and Automated External Defibrillation in Schools: A Science Advisory From the American Heart Association. Circulation, 123, 691–706. https://doi.org 10.1161/CIR.0b013e31820b5328.
10. Plant N, Taylor K. () How best to teach CPR to schoolchildren: A systematic review. Resuscitation, 2013; **84**: 415–21. https://doi.org 10.1016/j. resuscitation.2012.12.008
11. Berdowski J, Berg RA, Tijssen JG, Koster RW. (Hlobalni vypadky pozalikarnianoi zupynky sertsia ta pokaznyky vyzhyvannia: systematychnyi ohliad 67 prospektyvnykh doslidzhen. Reanimatsiia, 2010;**81**:1479–87. https://doi. org 10.1016/j.resuscitation.2010.08.006.
12. Dzhons I, Whitfield R, Colquhoun M, Chamberlain D, Vetter N, Newcombe R. () U yakomu vitsi shkoliari mozhut vykonuvaty efektyvni kompresii hrudnoi klitky? Observatsiine doslidzhennia za prohramoiu pidhotovky shkil Heartstart UK. BMJ. 2007;**334**: 1201. https://doi. org 10.1136/bmj.39167.459028.DE.
13. Mosalanejad, L., Sani, M. S., Hosseini, Y., & Abdollahifrad, S. (). Implementation of Serial Workshop by Students Educational Need: Trend to Accountability in Medical Education. Bangladesh Journal of Medical Science, 2018; **17**(1) :78–83. https://doi.org/10.3329/ bjms.v17i1.35285
14. Abraham, R. M. (). Reflection on improving feedback skills and a framework for moving towards feed forward. Bangladesh Journal of Medical Science, 2022; **21** (1): 206–212. https://doi.org/10.3329/bjms.v21i1.56351