

The willingness and own skills assessment concerning cardiac arrest recognition and providing proper chest compressions among Basic Life Support courses participants

dr n. med. Filip Jaśkiewicz, Zakład Medycyny Ratunkowej i Medycyny Katastrof Uniwersytet Medyczny w Łodzi
Filip Jaskiewicz Ph.D., Emergency Medicine and Disaster Medicine Department, Medical University of Lodz, Poland

✉ filip.jaskiewicz@umed.lodz.pl

- Sudden cardiac arrest is a serious public health problem associated with low survival rates. This mainly applies to communities with a low frequency of CPR by bystanders [1, 2].
- Increasing the readiness of bystanders to respond to cardiac arrest is of key importance for improving survival [2-6].
- Resuscitation training programs focused not only on practical skills training but also increasing the readiness and willingness to undertake resuscitation by the witnesses of the incident may have a direct impact on the increase in survival rate in OHCA [6-8].
- The literature review shows a potential relationship between the self-assessment of skills and the willingness of bystanders to undertake resuscitation and CPR training [9-15].

BACKGROUND



General objective of the study was to analyze the factors influencing assessment of own skills crucial in basic life support and willingness to provide CPR to individual victims.

The influence on the ability to recognize symptoms of cardiac arrest and the ability to perform correct chest compressions was analyzed depending on the following factors:

- participation in a first aid course in the past
- the time that has elapsed since the first aid course in the past
- training of consciousness assessment and the presence of normal breathing in the past (skill CBA: consciousness and breathing assessment)
- training of chest compressions on the manikin in the past (skill CCs: chest compressions)
- completing the course in accordance with the planned methodology



OBJECTIVE
assessment of
own CPR skills

Specific objectives were also to evaluate:

- whether the willingness of participants to provide resuscitation on individual victims depends on completing the course in accordance with the planned methodology
- how the current training is changing participants decision about willingness to undertake CPR on individual victims if previous training history is taken under consideration

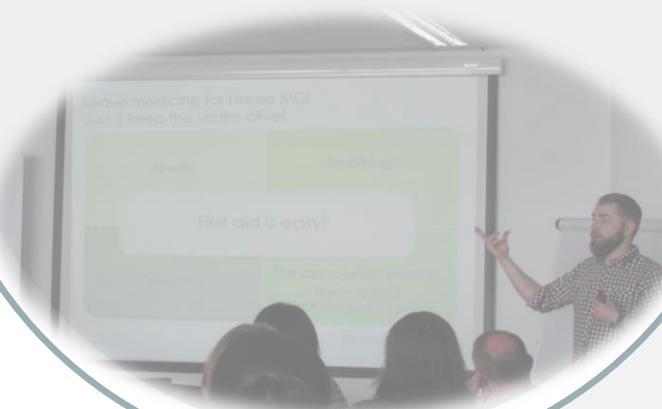
OBJECTIVE
willingness to
provide CPR

- A pre-test and post-test quasi-experimental design was used in this study. The data was collected from 04/12/2019 to 03/10/2020 in workplaces from 14 Polish voivodeships.
- The data was collected during Basic Life Support and Automated External Defibrillation (BLS AED) courses.
- The study received a positive opinion of the Bioethics Committee at the Medical University of Lodz (number RNN / 222/19 / KE).

METHODS

- Data from 967 out of 984 voluntary questionnaires (17 were excluded due to incompleteness) obtained from working adults were used for the analysis.
- The mean age of the respondents was 36 ± 8.7 years (Me = 36; Min = 19; Max = 64).
- 733 (76%) participants attended a first aid course in the past. Of these:
 - 620 (85%) trained the skills of consciousness and the presence of normal breathing assessment (on a manikin or other trainee),
 - 630 (86%) trained chest compressions on an adult manikin
 - 360 (49%) on a child's manikin.
 - Only 346 (47%) subjects trained a use of an automatic external defibrillator during course in the past.

RESULTS



- The analysis of the pre-test data showed a highly statistically significant relationship between the self-assessment of the ability to recognize cardiac arrest symptoms depending on whether a given participant had received first aid training in the past ($p = 0.000$). Highly statistically significant differences were also found in the time that elapsed from the training among the respondents who participated in such training (Tab. I)

Participation in the first aid course in the past	Yes, < 1 year	Yes, 1 - 2 years	Yes, > 2 years	No never
	n = 220	n = 105	n = 408	n = 235
PRE-TEST Do you think you can recognize the symptoms of cardiac arrest? (Scale: 1 - I am not able, 2 - I'm not sure, 3 - I am able, 4 - I am definitely able)	x (SD), [IQR]			
	2.9 (0.66), [3-3]	2.4 (0.59), [2-3]	2.3 (0.67), [2-3]	1.9 (0.65), [1-2]
p value	0.000			



- In those participants who had first aid course in the past a statistically significant difference was also found in the results of self-assessment scores for of ability to recognize cardiac arrest symptoms depending on previous training in the skills of assessing consciousness and the presence of normal breathing on a manikin or on another course participant (n = 620) and than those who did not (n = 113) - respectively $x = 2.6 \pm 0.63$ vs. $x = 2.1 \pm 0.59$; $p = 0.00009$

RESULTS



- Pre-test data analysis showed a highly significant relationship between the self-assessment scores of ability to conduct proper chest compressions depending on whether a given participant had received first aid training in the past ($p = 0.000$). Highly statistically significant differences were also found in the time that elapsed from the training among the respondents who participated in such training (Tab. 2)

	Yes, < 1 year	Yes, 1-2 years	Yes, > 2 years	No never
Participation in the first aid course in the past	n = 220	n = 105	n = 408	n = 235
PRE-TEST Do you think you can conduct proper chest compressions?	x (SD), [IQR]			
(Scale: 1 - I am not able, 2 - I'm not sure, 3 - I am able, 4 - I am definitely able)	3 (0.61), [3-3]	2.5 (0.64), [2-2]	2.4 (0.68), [2-3]	1.7 (0.62), [1-2]
p value	0.000			



- In those participants who had first aid course in the past a statistically significant difference was also demonstrated in the results of self-assessment scores of ability to conduct proper chest compressions between respondents who previously trained chest compressions on the manikin (n = 630) and those who did not (n = 103) - respectively $x = 2.7 \pm 0.68$ vs. $x = 2.0 \pm 0.63$; $p = 0.00001$

RESULTS



- Comparison of pre-test and post-test data (before and after the current training) concerning self-assessment scores of ability to recognize cardiac arrest symptoms demonstrated a highly statistically significant difference (respectively $x = 2.3 \pm 0.73$, IQR [2-3] vs. $x = 3.4 \pm 0.56$, IQR [3-4]; $p = 0.00000$).
- Analysis of self-assessment scores of ability for conducting proper chest compressions between pre-test and post-test also differed significantly (respectively $x = 2.4 \pm 0.78$, IQR [2-3] vs. $x = 3.4 \pm 0.6$, IQR [3-4]; $p = 0.00000$).

RESULTS

pre-test / post-test



- Last question in both **pre-test** and **post-test** concerned the number of study group participants who declared that they would undertake CPR on individual victims. **In all cases, statistically significant differences were found in participants declarations before and after the current BLS AED training (Tab. 3).**

Victim characteristic	Pre-test, (%)	Post-test, n (%)	p value
Family member	911 (94.2)	933 (96.5)	0.01512
Child	833 (86.1)	903 (93.4)	0.00000
Person you know	887 (91.7)	927 (95.9)	0.00006
Stranger	723 (74.8)	883 (91.3)	0.00000



CONCLUSIONS

- The self-assessment of skills in cardiac arrest recognition and conducting a proper chest compressions is positively influenced by: the fact of being trained in the past, no more than 1 year since the last training and practical training of these skills in the past.
- Also, completion of hands-on training with a planned methodology has a highly significant impact on the increase in self-assessment in these crucial for the cardiac arrest victims skills.
- Completion of hands-on training according to a planned methodology has a highly significant, beneficial effect on the readiness to undertake resuscitation for all types of cardiac arrest victims.

START THE CPR AND PUSH FAST, PUSH HARD, PUSH ALL THE TIME!

Potential conflict of interest: None to declare

Founding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Ethics approval statement: The study received a positive opinion of the Bioethics Committee of the Medical University of Lodz

(decision number: (number RNN / 222/19 / KE).

Contact details: Filip Jaskiewicz , Emergency Medicine and Disaster Medicine Department, Medical University of Lodz, Poland



filip.jaskiewicz@umed.lodz.pl

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