

# The assessment of the selected professional groups' knowledge on the first aid in specific life-threatening situations

(Ocena wiedzy osób z wybranych grup zawodowych z zakresu udzielania pierwszej pomocy w określonych stanach zagrożenia życia)

U Drabik<sup>1 A,B,D</sup>, A Zorska-Krzanik<sup>2 C,E,F</sup>

**Abstract** – Introduction. Training the society at giving first aid has lately been considered a crucial issue. One who participates or observes a critical accident must possess the knowledge on the proper handling of rescue actions and should be ready to undertake such actions, which has been defined an obligation by the Emergency Medical Service Act and the clause 162§1 of the penal code. Actions defined as pre-medical aid are extremely important, particularly during first minutes of a sudden circulatory arrest.

The aim of the study: The purpose of the survey was to estimate theoretical knowledge on giving first aid in defined states of health endangerment by the members of selected professional groups as well as defining how often first aid courses are taken.

Materials and methods. The survey included 147 people, 30 men and women aged from 24 to 60, representing selected professional groups, e.g. nurses, paramedics, teachers, administrative employees of the Małopolskie region. Diagnostic survey method has been utilised in the survey, the research technique was survey, and the utilised tool was self-designed questionnaire. The Chi-squared test has been utilised in the statistical analysis, and the accepted materiality threshold was  $p=0.05$ .

Results. The research results indicate notable differences in the knowledge level by the nursing personnel compared to other professional groups, which seems understandable considering the direction of professional education of nurses. Knowledge on carrying out first aid by the respondents is unsatisfactory, as well as the frequency of such trainings. Nearly 26% of respondents have stated that courses take place every three years or more seldom and 38% of respondents gave no answer to this question.

Conclusions. Considering the fact that the knowledge of giving first aid by the respondents is insufficient, so as they could implement appropriate rescue actions the necessity appears of more frequent trainings for the trainees to be able to undertake appropriate rescue actions. Trainings at workplaces should be held regularly by professionals and the knowledge level must be verified.

**Key words** - first aid, knowledge, selected professional groups.

**Streszczenie** – Wstęp. W ostatnich latach dużą wagę przywiązuje się do szkoleń społeczeństwa z zakresu udzielania pierwszej pomocy. Człowiek będący świadkiem lub uczestnikiem zdarzenia niosącego zagrożenie życia powinien posiadać wiedzę z zakresu prawidłowego przeprowadzenia pierwszej pomocy oraz powinien podjąć działania ratujące życie poszkodowanego, do czego obliuguje go obowiązek wynikający z ustawy o Państwowym Ratownictwie Medycznym [1] oraz z artykułu 162§1 Kodeksu Karnego [2]. Czynności z zakresu pomocy przedmedycznej są niezmiernie istotne szczególnie w pierwszych minutach od nagłego zatrzymania krążenia.

Cel pracy. Celem badań była ocena wiedzy teoretycznej z zakresu udzielania pierwszej pomocy w określonych stanach zagrożenia życia u osób z wybranych grup zawodowych oraz określenie, jak często odbywają się szkolenia wśród badanych.

Materiał i metody. W badaniach wzięło udział 147 osób, w tym 30 mężczyzn i 117 kobiet w wieku od 24. do 60. lat, reprezentujących wybrane grupy zawodowe, tj.: pielęgniarki, sanitariusze, nauczyciele, pracownicy administracyjni województwa małopolskiego. W badaniach wykorzystano metodę sondażu diagnostycznego, techniką badawczą była ankieta, narzędziem autorski kwestionariusz ankiety. W analizie statystycznej zastosowano test  $\chi^2$ , za poziom istotności przyjęto  $p=0,05$ .

Wyniki. Wyniki badań wskazują na znaczne różnice w poziomie wiedzy u personelu pielęgniarskiego w stosunku do pozostałych grup zawodowych, co wydaje się zrozumiałe ze względu na kierunek kształcenia zawodowego pielęgniarek. Wiedza z zakresu udzielania pierwszej pomocy u badanych jest niezadowalająca, podobnie jak częstotliwość szkoleń z tego zakresu. Blisko 26% respondentów podała, że szkolona jest raz na trzy lata lub rzadziej, natomiast 38% badanych nie udzieliło odpowiedzi na to pytanie.

Wnioski. Z uwagi na fakt, że wiedza większości ankietowanych na temat pierwszej pomocy jest niewystarczająca, aby mogli podjąć właściwe działania ratownicze, zachodzi konieczność organizacji częstszych szkoleń z zakresu udzielania pierwszej

pomocy. Szkolenia w zakładach pracy powinny być prowadzone regularnie przez profesjonalistów, a znajomość wiedzy powinna być weryfikowana.

**Słowa kluczowe** - pierwsza pomoc, wiedza, wybrane grupy zawodowe.

**Author Affiliations:**

1. Medical Rescue Research Institute, Faculty of Health Sciences, Collegium Medicum, Jagiellonian University
2. Emergency Unit, Narutowicz Specialist Municipal Hospital in Krakow

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- A. The idea and the planning of the study
- B. Gathering and listing data
- C. The data analysis and interpretation
- D. Writing the article
- E. Critical review of the article
- F. Final approval of the article

**Correspondence to:**

Urszula Drabik, Medical Rescue Research Institute, Faculty of Health Sciences, Collegium Medicum, Jagiellonian University, Michałowskiego 12 Str., PL-31-128 Kraków, Poland, e-mail: ula\_dk@op.pl

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## I. INTRODUCTION

Cardiopulmonary resuscitation (CPR) performed by bystanders and passers-by can often save lives. Nevertheless, there are many factors which negatively affect the willingness to commence CPR, like panic, fear of infection, fear of harming the casualty, fear of conducting CPR incorrectly [3]. The broadening of the knowledge of potential witnesses of harmful events can boost their confidence and willingness to undertake first aid activities. The sequence of actions to be taken after a sudden cardiopulmonary arrest is often referred to as the so-called chain of survival. The elements of the chain are, among others, the early diagnosis of the situation and getting help, early commencement of CPR, early defibrillation, and early resuscitation care. The first link in the chain is the activity of bystanders who perform first aid and contact the emergency rescue services [4]. All of the chain links are of crucial significance, with the most emphasis being on the first two,

since they decide about the what is going to happen to the casualties.

First aid consists in rescue activities performed by bystanders or passers-by after an incident. The bill of September 8<sup>th</sup>, 2006 on National Medial Rescue) imposes, in article 4, the common obligation to aid those in a sudden and immediate threat to life and health (Polish Journal of Laws –Dz.U. of 2006, no. 191, pos. 1410) [1]. The Polish law makes every adult citizen obliged to perform first aid as stated in the article 162 §1 of the Penal Code [2].

The norm established by the article 4 of the National Medial Rescue bill pertains to anyone who witnessed an event the outcomes of which pose an immediate threat to human life. Thus, this norm is a common one, addressed to the general population of Poland, which, despite the lack of repercussions, triggers the so-called social obligation to get help. It would be hard to execute any sanctions because an average citizen cannot be expected to know medical rescue regulations or procedures. Therefore, the regulation appeals to human conscience, calling for us to be responsible for other people [5].

Certain situations and circumstances, such as the long distance to the place of the incident, have a negative impact on the time of arrival of Medical Rescue Teams. As a result of that, first aid has to be carried out by the witnesses of the incident, whose knowledge and skills have an impact on the casualties' lives and well-being. Therefore, education the society on performing first aid is of utmost importance. School education plays the major part, as it influences young people's development and can prepare pupils to react in stressful situations in which there is a necessity to perform first aid.

## I. MATERIALS AND METHODS

The study included 147 randomly selected people employed in the Małopolskie region. Among them were 117 women (80%) and 30 men (20%). The age of the study group varied from 24 to 60. The studied individuals belonged to one of the following four professional groups: high school teachers – 58 (39%), office workers – 45 (31%), nurses – 24 (16%) and paramedics – 20 (14%). The studied people took a course of first aid conducted per their employers' ordinance.

The diagnostic poll method was used during the study. The study technique was a survey, and the research tool was the authors' original questionnaire consisting of 11 questions, including four on the participant's sociodemographic data (one closed-ended question, two open-ended questions, and one semi-open-ended question) and 7 (two closed-

ended and five semi-open-ended) on the participant's knowledge of first aid focused on:

- basic resuscitation procedures,
- procedures for epileptic seizures,
- procedures in case of choking,
- procedures for massive haemorrhage after being wounded.

Additionally, the authors tried to obtain information on the frequency of first aid training. The participants filled in the questionnaire independently, before a course commenced.

In the statistical analysis, the independence test (the contingent tables test, on which the chi-squared test is based) was applied. The parameter  $p=0.05$  was assumed to be the statistical significance level. The study was anonymous and the responders were informed on the aim and course of the study before it commenced. They also knew how to fill in the survey and how the data gathered was going to be used. The authors have obtained voluntary spoken consent for the participation from all respondents. The poll taker was present when the surveys were filled in.

### III. RESULTS

As a result of the study, the information on the participants' knowledge of first aid in five selected types of health threats (epileptic seizure, choking, massive haemorrhage, circulatory arrest, no breathing) was gathered.

In the question 5 on the Basic Life Support (BLS) algorithm, more than a half of the participants (54%) showed the 30:2 compression to ventilation ratio was familiar to them. The correct answer was provided by 45% of paramedics, 48% of teachers, and 46% of office workers. In the teacher group, significant correlations were observed as 48% of the group were correct, 47% were wrong, and 5% did not provide any answer. No statistically significant differences were observed in the group of nurses, as while 92% provided correct answers, 8% were wrong.

In the group of office workers, nearly half of participants 46% were right, whereas 54% would conduct CPR in discord with the standards.

The next issue scrutinised (question no. 6) was the procedure in case of an epileptic seizure. 52% of the participants answered correctly that one should protect the casualty's head and other parts of the body from and injury. 28% of people claimed wrongly that it was placing a hard object between the casualty's teeth to prevent biting the tongue. Around 20% of the participants would call in an ambulance.

In the paramedic group, 52% gave the correct answer, which is statistically significant ( $p=0.05$ ), whereas 27% thought that placing a hard object between the casualty's teeth to prevent biting the tongue was a correct answer was well. 18% of the studied group would call and ambulance and 3% offered no answer.

The correct answers on the epilepsy case were provided by 58% of nurses, 52% of paramedics, 62% of teachers and 40% of office workers.

In response to the question number 7 on the procedures in cases of choking, the participants offered the following answers: 51% of them would perform compressions of the epigastric region, 35% would apply blows between the casualty's shoulder blades, and 3% would try to remove the obstruction from the airways. 11% did not respond.

Considering the frequency of answers to this question, the reaction offered most frequently was to perform compressions of the epigastric region, followed by blows between shoulder blades, which does not represent the correct behaviour.

The most common cause of choking in cases of children are small objects and candies, and a bite of food in cases of adults. The defensive reaction is coughing. If the airways are almost entirely blocked, one is choking, may lose consciousness after a dozen seconds or so, and after 3-4 minutes the circulation may be stopped [6]. No participant specified that the first thing they would do is encourage the casualty to cough, which is the most recommended behaviour.

The question no. 8 required the participants to know the procedure to be applied in cases of massive haemorrhages from a wound. The following responses were offered: 63% answered correctly, 30% thought a tourniquet should be placed above the wound, 5% provided no answer, 1% believed a tourniquet should be placed below the wound, and 1% thought the artery should be pressed.

Tourniquets are applied as a last resort only, as they do not stop the blood flowing out the damaged bones, and stop the blood supply to tissues, which causes oxygen deficiency [6].

### IV. DISCUSSION

People who find themselves first to arrive at the place of the incident should commence the resuscitation procedures, which are crucial in the first minutes after a circulatory arrest. Oxygen deficiency leads to a permanent brain damage after 4 minutes [7].

In the authors' own study, the respondents from the group of nurses had a high level of knowledge of CPR. In a simi-

lar study conducted by Wojczyk, respondents of the same profession had an medium level of knowledge [8]. That author's study shows that the society's knowledge of CPR is very low, especially if compared to the results obtained here – almost a half of the respondents, nurses excluded, provided correct answers. Similar results were obtained by Bock et al. – almost a half of the responders provided correct answers to CPR-related questions [9]. Additionally, Bock et al. showed that more than a half of the responders had practical training. Despite that fact, the percentage of correct answers was only a little higher (by 4%) than in the group of teachers who had only theoretical basics [9].

Having analysed the results obtained in other studies, one can observe a rise in the society's level of knowledge of first aid. Chemperek et al. conducted a study among schoolchildren and university students in 2010 and observed that a vast majority of respondents were aware of the 30:2 ratio between compressions and ventilations [10]. According to the study by Jurczak et al. of 2015, 100% of junior school youths were aware of the 30:2 ratio for CPR [11]. These indicate that the emphasis on educating adolescents on first aid is greater. Therefore, there is a necessity to educate various professional groups on the subject. What is more, the programme of first aid education at schools should be extended by the lower grade students.

## V. CONCLUSIONS

1. The respondents' level of knowledge on first aid is unsatisfactory. A half of the assessed responders' working as teachers, office employees and paramedics is not aware of the up-to-date standards.
2. The implementation of the first aid education system should be commenced in primary schools and continued later on at schools and at work to remind the population the potentially life-saving procedures. The training should be adjusted to the needs of various professional groups and led by professionals in accordance with the current standards. The knowledge should be verified.
3. The results of the study of various professional groups' level of knowledge on first aid are based on the analysis of the respondents' theoretical knowledge. In order to assess whether the information offered by the respondents are reflected by their practical skills, one would have to evaluate their performance in practical first aid.

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