

## Assessment of teachers' knowledge about first aid.



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### ABSTRACT

**INTRODUCTION:** Knowledge and skills of correct providing first aid by witnesses of an incident are crucial in the Chain of Survival. One of the places of increased risk of occur a state of emergency health risk are large groups of people, such as schools. For this reason, teachers working in them should demonstrate a high level of knowledge in the field of first aid for both adults and children. The aim of the study was to assess of teachers' knowledge about first aid.

**MATERIAL AND METHODS:** The study was conducted in central Poland in June 2018 among 80 teachers of various specialties. The research tool was the author's questionnaire consisting of 20 questions, of which 4 were sociodemographic questions. The statistical results were analyzed with use of the rho-Spearman test. The significance level was assumed at  $p < 0.05$ .

**RESULTS:** In the study involved 68 women and 12 men. The average age was 44 years ( $SD \pm 9.54$ ). The average result obtained by all surveyed pedagogues was 8.99 points ( $SD \pm 3.40$ ) on a scale of 0 to 16, giving just 56.19%. Teachers coped with questions related to resuscitation in adults the best, giving 69% of correct answers, while the worst with resuscitation in children - 34% of correct answers. The statistical analysis showed correlations between the level of knowledge and age ( $\rho\text{-Spearman} = -0.238$ ;  $p = 0.034$ ) and gender ( $\rho\text{-Spearman} = 0.315$ ;  $p = 0.004$ ). No impact of residence was demonstrated ( $\rho\text{-Spearman} = -0.073$ ;  $p = 0.519$ ). The author showed a strong correlation of the test result with the field of science conducted by teachers school subject ( $\rho\text{-Spearman} = 1$ ;  $p = 0.003$ ). Teachers of natural and technical sciences were below the pass rate (51%).

**CONCLUSIONS:** The examined teachers show significant gaps of knowledge in the field of first aid. They should undergo cyclically training on how to deal with various health or life threatening situations. There is a strong correlation between the level of first aid knowledge and the school subject that teachers teach.

**KEY WORDS:** first aid, teacher, resuscitation, knowledge, pedagogue, teaching staff

## INTRODUCTION

Every day, in various places, people experience situations of sudden health or life threats. In such moments, the help of witnesses of the incident becomes invaluable, and thus their knowledge and skills in providing first aid, which increases the chances of a positive therapeutic effect. Available studies indicate that if sudden cardiac arrest occurs and witnesses take appropriate rescue measures, the chances of survival can be increased by up to 70% [1].

The provision of first aid can be defined as the taking of rescue actions by an incident witness against a person who has a sudden health or life threat with the possibility of using material goods, including medical devices and available medicines. First aid can be given by anyone, regardless of the situation. It is also worth noting that in many countries there is a legal obligation to provide assistance to a injured person by an incident witness. The school is an educational institution where are attended many children and young people every day. They may have various health conditions, e.g. diabetes [2, 3], epilepsy [4], respiratory disorders or cardiovascular diseases [5]. In addition, in schools, due to the presence of a large number of people, there is a fairly high probability of body injury [6].

Teachers as employees of educational institutions and persons with a legal obligation to look after children should demonstrate high knowledge in the scope of providing first aid in various situations of health or life threats. It depends on their knowledge and skills that in the emergency incident, they will be able to give first aid properly and effectively to their colleague or student, and thus prevent the occurrence of serious damage to health or loss of life [7, 8]. For this reason, schools should provide pedagogues the possibility of cyclical training in this area so that they be ready to take appropriate rescue actions at any time. The aim of the study was to assess teachers' knowledge of providing first aid in various situations of sudden health or life threat in adults and children.

## MATERIAL AND METHODS

The survey was conducted in June 2018 in selected primary and secondary schools in central Poland. To the study group were included eighty teachers actively performing their profession and teaching school subjects classified to various scientific categories.

The research tool was the author's own questionnaire created for the needs of the study, which contained a total of 20 questions - four sociodemographic and sixteen single-choice test questions covering the scope of first aid. For every correct answer was awarded 1 point, and 0 points were awarded for no or incorrect answer. The maximum possible rating was 16 points. The questions raised such issues as:

- BLS – basic life support;
- Resuscitation in adults and children;
- Legal aspects of providing first aid;
- Occurrence of sudden illness, e.g. convulsions, acute coronary syndrome, hypoglycemia, stroke;
- Occurrence of sudden injuries and incidents e.g. bleeding, burns, choking.

The obtained results were subjected to statistical analysis. To calculate the significance of the correlation was used the rho-Spearman test. The significance level was assumed at  $p < 0.05$ .

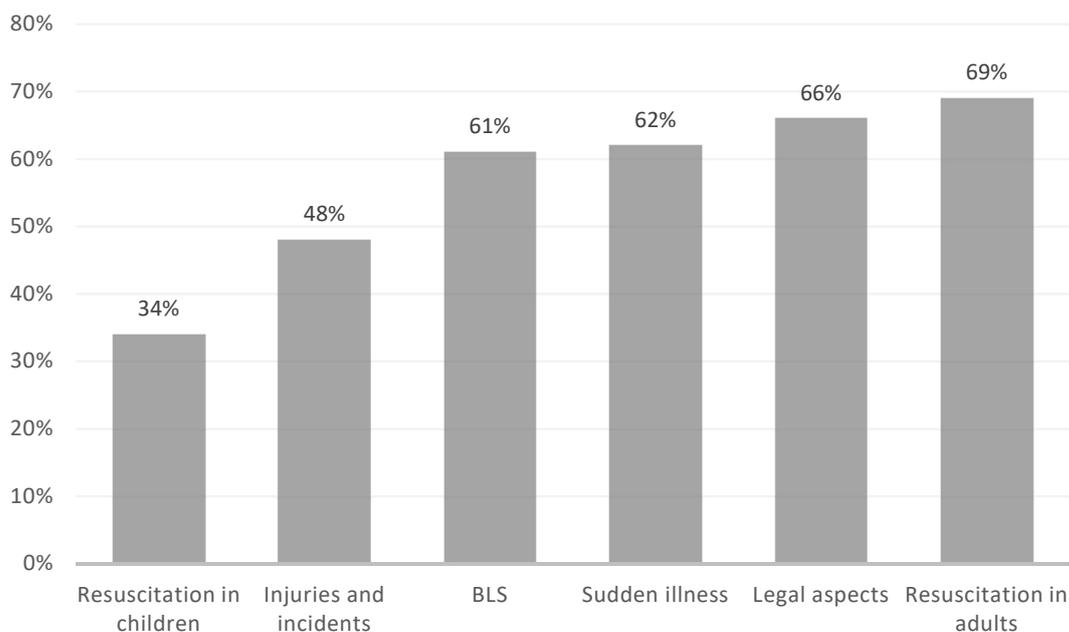
## RESULTS

The study was conducted among 80 pedagogues, including 68 women and 12 men. The average age was 44 years ( $SD \pm 9.54$ ). Sixty-three teachers declared living in urban areas, and seventeen - in rural areas. The maximum score possible to obtain was 16 points. In the conducted knowledge test, the average result obtained by the surveyed pedagogues was 8.99 points. ( $SD \pm 3.40$ ). A detailed summary of results is presented in Table 1.

**Table 1.** Comparison of average results obtained from knowledge tests by teachers.

Field of science	Number of teachers	Average score in points and percentage rating [%]	Max Result (points)	Min Result (points)
Mathematics	13	10,77 [67,31%]	14	5
Humanities	51	9,02 [56,38%]	14	2
Economics	1	9 [56,25%]	9	9
Health sciences	5	8,2 [51,25%]	11	6
Natural sciences	8	7,5 [46,88%]	13	4
Technics	2	4,5 [25,13]	6	3

The knowledge test has been divided into 6 issues regarding first aid. The most problems for teachers were questions about resuscitation in children, in which they gave only 34% of correct answers, whereas they coped best with the issue of resuscitation in adults with 69% of correct answers. Detailed results in individual thematic categories are presented on Figure 1.



**Figure 1.** Comparison of results from individual issues included in the knowledge test.

The statistical analysis showed a weak correlation between age and knowledge test result ( $\rho$ -Spearman = -0.238;  $p = 0.034$ ), as well as an average between gender and knowledge test result ( $\rho$ -Spearman=0.315;  $p=0.004$ ). The analysis did not show the significance of the correlation of residence ( $\rho$ -Spearman= -0.073;  $p=0.519$ ). A strong correlation of the level of knowledge was demonstrated in the aspect of the field of science of the conducted school subject ( $\rho$ -Spearman= 1;  $p=0.03$ ).

## DISCUSSION

Teachers should have a high level of first aid knowledge. However, the study showed, that they have significant deficiencies obtaining an average score of 8.99 points (56,19%) on a scale of 0 to 16. This can create understandable fears about whether, in the event of a student's emergency, they will be able to help

him in the right way. In addition, due to the lack of proper knowledge, they can lead to deterioration of the injured person's condition instead of helping him. Available studies also indicate a lack of knowledge of pedagogues in the field of first aid over previous years, which indicates insufficient activities that could improve the state of knowledge of teachers in this topic [9, 10].

The least problems were questions about conducting cardiopulmonary resuscitation in an adult, in which teachers obtained 69% of correct answers. At a similar level their knowledge was classified in legal aspects (66%), sudden illness (62%) and basic life support (61%). In turn, the most problems were questions about children's resuscitation, where pedagogues received only 34% of correct answers, as well as injuries and incidents - 48%, which indicates their inadequate preparation to help children with whom they have frequent contact at school.

Representatives of natural and technical sciences obtained a score below the pass threshold, while health sciences - score on the limit of passing. The study undermines trust in pedagogues who take school subject, for example, "Education for safety" or "Physical education". Teachers who should have a high level of knowledge due to acquired qualifications may require urgent first aid training.

The statistical analysis made it possible to demonstrate the impact of sociodemographic aspects on the knowledge of first aid. Gender, age, place of residence and field of science of conducted the school subject were analyzed. Both age and gender have little impact on the level of knowledge in first aid among teachers. It has also been shown that the level of knowledge correlates significantly with the school subject taught by the teacher.

Schools should pay particular attention to the condition of teachers' knowledge about first aid. It seems sensible to organize periodic trainings for teachers in this field by the school directorates in order to raise and consolidate their knowledge. They should be conducted by appropriate training companies, under the watchful eye of specialists, to ensure the transmission of reliable knowledge. In addition, it would be worth making teachers aware of the need for self-improvement in this field. It is also worth considering the introduction of compulsory theoretical and practical first aid classes during pedagogical studies.

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## CONCLUSIONS

The pedagogues who took part in the study show a fairly diverse level of knowledge in the field of first aid, but the average result obtained by them indicates their significant deficiencies, which may prove crucial in case of emergency. For this reason, teachers should undergo regular first aid training of various health and life threatening situations.

### Disclosure statement

The authors did not report any potential conflict of interest.

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