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## **Attitudes of university students towards First Aid and CPR. Pilot study with online questionnaires measuring training and performing First Aid and CPR**

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### **Abstract**

According to the Hungarian National Core Curriculum (NAT 2012) learning about First Aid is compulsory in primary school but cardiopulmonary resuscitation (CPR) is neglected. Pupils first learn about accident prevention and emergencies, and later (at the age of 12-15) a bit more about emergency situations and first aid embedded in biology and natural science subjects.

The Hungarian population's accident assistance is very low. In case of road accidents it is only 10% and the results are even worse for resuscitation, in spite of the fact that a successful exam in first aid and CPR is required for obtaining a driving license.

How can this situation improve? Is it about the lack of knowledge or there are problems with attitude? Teachers have a huge responsibility for shaping both.

**Purpose:** The present pilot study investigated the CPR knowledge and First Aid attitudes of university students (60 female and 41 male, mean age is 21,98 years) studying different majors like physical education, teacher training, coaching, recreation and sports. The main purpose of this research was to find out how the future teachers think about the first aid and resuscitation as a should be taught subject and what knowledge they have in this topic.

**Methods:** The CPR attitude online questionnaire contained 12 items and answers on a 1-5 Likert scale indicated the students' predicted willingness to

help in sudden death situations (cronbach  $\alpha$ :0,85). The second 15 items questionnaire using a 1-5 Likert scale also, provided statements about the importance of First Aid and CPR studies in primary education (cronbach  $\alpha$ :0,74). There were also additional questions concerning students' socio-economic backgrounds physical self esteem and sporting habits.

**Results:** By calculation Pearson Correlation and linear regression with SPSS 22.0 program, significant correlation was found between sporting habits during primary school and first-aid readiness/willingness ( $p= 0,05$ ). Compared to male students, females tended to be more hesitant in a sudden death situation concerning a homeless man, due to fear of infection and prejudice. Former school studies in First Aid and CPR affected the willingness to help positively and both genders thought, that CPR should be taught in primary school already.

**Conclusions:** So primary school training in first aid and CPR can be a defining part of a strategy for increasing bystander resuscitation rates and quality. Starting first aid education at early school age could be a successful method for training young people and change the attitude of the society

**Keywords:** First Aid, CPR, school, student

## Introduction

First aid means first aid to a person who is injured or suddenly ill. In a broader sense, first aid is a medical intervention that a health care professional or layman performs before the final care is taken to prevent further damage of health and prevent further deterioration. (Deutsch 2012).

First aid is an action which consists of many psychological and physiological elements. With the occurrence of the event, the assistant detects and senses the stimuli of the environment, understands them, and initiates action based on their meanings.

This process is characterized by strong tension and increased emotional state. As a result of the stress situation, the activity of the sympathetic nervous system is increased, which is associated with an increase in heart rate, respiratory rate and blood pressure, as well as increased functioning of the gastrointestinal tract. Whether we are helping in an emergency or not have been explained in many ways by psychology and sociology.

Psychology assumes selfless behavior and altruism in the background of assistance, which is tied to the existing empathic skills of the helper. It follows that a higher level of empathy requires a greater willingness to help. The explanation for this is that the greater the tension in the assistance provider, the greater the level of empathy. Thus, greater tension generates greater will. Studies have shown an interesting relationship between altruistic behavior and self-esteem. They found that aid has self-esteem effect.

There are also noteworthy results of several case studies and experiments which have shown that the more people are present at the scene of an accident, the less chance of assistance. It is also known from social psychological research that, unfortunately, people are waiting for each other in first aid situations. This is called bystander effect (Thornberg 2007, 2010).

Assuring or rejecting assistance is therefore the result of human decisions in a given situation in which personal values, habitus, family and school education, available knowledge and skills, and even the state of mind associated with the current situation and social expectations (Deutsch 2012).

Preventing accidents and providing first aid at a right level in case of accidents should be an important part of the health culture of every country. International and domestic datas show that first aid needed accidents are the third common causes of death after cardiovascular and cancer diseases. Therefore, it is particularly important to perform quick position recognition and primary life saving interventions. These activities fundamentally determine the fate of the distressed individual.

In western European countries, the basic steps of first aid have been taught for a long time, not only as a part of the requirements of getting driving license or health qualifications, but also as an important tool for the development of good health behavior and a supportive attitude (Engeland et al. 2002). The training starts at an early age, thus developing the individual's basic first aid skills and the social attitudes and willingness to help.

Teaching of layperson first aid in school shows excellent results based on international surveys (Plant, Taylor 2013).

Norwegian researchers examined the results of basic first aid education (5x45 minutes) for first-year students (6-7 years). After a half-year retest, it was found that first-aid education for primary school pupils should be started in the first grade (Bollig et al. 2009). Also the results of a Norwegian survey of kindergarten children, supported the importance of early childhood first aid training (Bollig et al. 2011). Thus, the development of attitudes related to assistance can be realized from the age of preschool. An Austrian survey evaluating the outcomes of primary resuscitation training for 9-18 year old students concluded that the youngest members of the sample were able to provide a satisfactory level of resuscitation.

It was found that the quality of implementation, body weight, height and not age, or gender differences are determinative (Fleischhack et al. 2009).

In Hungary, nearly one million emergency calls are received each year. Almost 200 children under the age of fourteen die as a result of accidents. 10% of road accidents have any assistance provided so it is not surprising that less than 1% of the Hungarians can provide first aid effectively. Teaching first aid and promoting assistance are social interests.

The first-aid motivation of Hungarian adults is high, but the level of their knowledge is low (16). This was confirmed by research among parents of preschool children.

Based on the first aid and accident prevention skills, parents were measured by a questionnaire (234 evaluable questionnaires). Results of the evaluation showed that only 4.3% of the parents were able to answer all the questions correctly.

Significant correlations were found between good responses and the economic status of respondents, but at the same time there was also a positive correlation between education and first aid training (Bánfai et al. 2015).

Turkish researchers measured first aid skills among primary school teachers. The result was depressing, as the proportion of the wrong respondents was 65%, 63% and 88%. Although 62.5% of the responding teachers took part in a former first aid training course, they did not do so during their university or college education.

Knowing their weaknesses, 56.4% of teachers would like to receive further first aid training. As a result of the dangers to children, between 7 and 14 years of age, deaths from accidents can be between 20-60%. According to the study, 88% of child-related accidents are directly related to physical activity, while 20% of these accidents occur in school hours. Thus, the results confirmed the importance of training teachers for first aid (Mürüvvet et al. 2007).

In Hungary since 1995 a Government Decree (130/1995.X.26.) on the National Core Curriculum provides for the integration of first aid training into the Primary School 8th grade Biology and Household subjects. In 2003 according to the Decree (243/2003.XII. 17.) on the issue it was also recorded in the curriculum of classes 9-12. Parliamentary Health Committee's Decree (8/2006-2010.2008. IV. 2) contains the following topics: The primary and secondary school education systematically incorporates first aid knowledge. It is also a prerequisite for a driver licence course to acquire first aid skills. Returning to the National Core Curriculum, it can be said that it has been more specific since 2012. In classes 1-4, students should learn about accident prevention, emergency assistance in the framework of environmental awareness and in grade 5-6 it should be first aid for the students. Within the Human and Nature Education Area 7-8. and grades 9-12. In grade one, resuscitation is also emerging among the knowledge to be learned, but we also can find relevant parts in physics and chemistry and physical education (16).

Despite this curriculum background of First Aid education, Hungary has rather poor indicators (16):

- Why do have other countries better results in lay resuscitation or in help willingness?
- Do we have problem with attitude to help?
- Is it only the attitude we do not have or there is also a lack of knowledge and confidence we need?
- Are the Hungarians afraid of giving First Aid or BLS or they are only afraid of doing something wrong?
- Where should we start?

These questions were the basis for this study. So the answer can be probably found in education. The systematic education of first aid and resuscitation within the school framework. That is the reason why I started my research with examining teacher training students because they could do one day something for the changes.

## **Methods**

In this study I interviewed first-year full time students of the Gyula Juhász Faculty of Education at the University of Szeged, Hungary about the present education and future possibilities of first aid and resuscitation trainings at school. Students have not yet received such training during their short period university studies. I was wondering what level of knowledge they have in resuscitation.

Students also completed an imaginary situational questionnaire to test their resuscitation motivation.

My measuring tools are self-edited relying on early literature and the current protocol of the European Resuscitation Society 2015.

This pilot study used the next online questionnaires:

- BLS knowledge multiple choice questionnaire (18 items) which is based on the ERC (European Resuscitation Council) protocol 2015. self edited
- BLS education attitude questionnaire (15 items) with 1-5 Likert Scale, Cronbach  $\alpha$ : 0,74
- BLS willingness questionnaire (12 items) with 1-5 Likert Scale, Cronbach  $\alpha$ : 0,85 based on Petric et al. 2013.
- PSDQ (Physical Self Description Questionnaire - 46 items) with 1-5 Likert Scale, designed by Marsh 2010.

The research took place in October-November 2017 in Szeged, Hungary by a link sent to the students. The data was processed using the SPSS 22.0 statistical program. In the evaluations, descriptive statistical procedures, Pearson correlation and linear regression calculations were used to find out which variables and correlations

may help for a future development of willingness to aid and the motivation for resuscitation.

## Results and Discussions

During the investigation period 101 students completed evaluable questionnaires. Table 1 shows the distribution of students by gender and their study majors. The average age was 21,98 years.

**Table 1.** Distribution of students in % by gender and majors

study majors	prim. teacher		sport & recr.		PE and coach		PE		other		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	2	2	6	5,9	17	16,8	14	13,9	2	2	41	40,6
Female	13	12,9	23	22,8	13	12,9	7	6,9	4	3,9	60	59,4
Total	15	14,9	29	28,7	30	29,7	21	20,8	6	5,9	101	100
Age (mean±SD)	21,98±3,72											

During their previous studies, students received only a small amount of first aid training. Table 2 shows the forms of education by distribution. These results point to the presumed school situation of first aid and resuscitation.

**Table 2.** Distribution of the students' former first aid education  
in % by forms

First Aid training in Primary School	%
did not learn first aid	42,6
learned first aid in biology	37,6
learned first aid in afternoon class	5
learned in environmental lesson	5
learned in sportsdays and other lessons	9,8

Students also answered questions about their family status, habits, and physical activity. Based on the responses I received Pearson's Correlation Calculation attempts to highlight the context of variables that can determine an individual's first aid motivation (table 3).

The analysis of physical self-assessment was made from the consideration that physical activity and self-image may help to solve real or perceived accident situation. The frequency of sport during the primary studies (3 times at least 1 hour physical activity/week) showed correlation with the willingness to help in case of accident.

Of course, previous studies on the subject may also be helpful during an intervention and it is also useful to have sufficient confidence in the need for first aid. Age was also decisive which means by age an individual can be more determined and willing to help (table 3).

**Table 3.** Significant correlation links between variables

2 tailed Pearson Correlations, p<0,01\*\*,p<0,05\*

variables		variables
mother's qualification	,209*	family physical activity
mother's qualification	,221*	physical self esteem
sports frequency in primary school	,220*	would give fist aid in case of accident
learned BLS before	,256**	would give fist aid in case of accident
learned BLS before	,335**	BLS questionare score
learned first aid	,201*	BLS questionare score
learned BLS before	,259**	willing to give BLS in case of accident
age	,254**	willing to give BLS in case of accident

Existing knowledge, primary school sports habits (at least 3 times 1 hour organized physical activity/week), and physical self-esteem are likely to contribute to more decisive intervention in first aid (table 4).

**Table 4. Based on answeres: student could give first aid in case of accident**

by calculation of linear regression of variables, sign. p<0,01, p<0,05

Independent variables	B	Std.error	Beta	sign.
BLS questionare scores	,057	,022	,244	<b>,010</b>
physical self esteem	,705	,288	,229	<b>,016</b>
sports frequency in primary school	,119	,044	,253	<b>,008</b>
age	,024	,014	,170	,079

In a hypothetical resuscitation situation there are other variables which may have a positive effect on the intervention. Primary School sports habits still show a positive correlation to willingness and age is also decesive (table 5).

**Table 5. Based on answeres: student would be willing to help an unconscious person**

by calculation of linear regression of variables, sign. p<0,01, p<0,05

Indipendent variables	B	Std.error	Beta	t	sign.
BLS qquestionare scores	,009	,019	,044	,452	,652
physical self esteem	,326	,249	,127	1,308	,194
sports frequency in primary school	,087	,038	,221	2,270	<b>,025</b>
physical appearance	,053	,097	,054	,541	,590
age	,035	,012	,296	2,986	<b>,004</b>

For the situations that require resuscitation, students gave surprising answers. It can be clearly seen that family and other emotional attachments can have a positive influence on a necessary intervention. At the same time prejudices expressed in the students' answers which is unfortunately characteristic of the present society (table 6).

**Table 6.** Distribution of willingness to give BLS and CPR

with dichotom variables in %

<b>unconscious situations</b>	<b>%</b>
family member is found	96
small kid on a football field	88
neighbor collapses	87
old lady in a shop	81
man with strange outfit	71
drunk man in the street	56

For that debate of the poor results of first aid giving and BLS in the Hungarian society students answered that people probably are afraid of doing something wrong during the aid situation and could make it worse so they are not aware of that the worst way to get first aid and resuscitation if that person who could help at the scene does not even try it (table 7). But there are respondents who would always be willing to help in an accident. 19.2% of respondents who think that they are not trying to give BLS because of their uncertain knowledge. This result may be thought-provoking in terms of teaching the knowledge of resuscitation. It outlines the importance of training and the importance its' regularity (table 7).

**Table 7.** Distribution of reasons why a student would not try to give

BLS and CPR in %

<b>reasons</b>	<b>%</b>
afraid that makes the situation worse	42,6
not sure about the own knowledge	19,8
sick of giving mouth to mouth breath	7,8
afraid of getting infections	5
willing to do it in any case	24,8

It has been proven by international literature that regular first-aid training integrated into school education is most effective (Lucas et al. 2016). Training started at a sufficiently early age provides an opportunity to develop a change of attitude and effective accident assistance.

Despite the responding students would consider regular and early schooling to be important for first aid and resuscitation. They think it would be too early to start this in first class. But at the same time, they consider it important to regularly update their knowledge and consider the inclusion of first aid training in physical education as feasible.

**Table 8.** Percentage distribution of answeres concerning students' attitude to First Aid and BLS education in primary school

<b>answers/statements</b>	<b>%</b>
should teach both in primary school	92
age determinates help giving	76
many are afraid to help	80
could start teaching both in 5th class	81
should repeat the training in 6 months	88
should teach both from 1st class	37
<u>training should be in PE lesson</u>	64

## **Conclusions**

Although the Hungarian National Core Curriculum (2012) contains first aid as a knowledge to be taught the reality is somewhat different. The results of this pilot study are identical to the contents of the references cited. Complementing them with own experience, it can be concluded in the relation of the sample of this study that:

- willingness to help in case of accident can be positively affected by a physically active background and regular physical activity in early childhood and also positive physical self esteem.

- pupils receive first aid training but the lessons are not regular, usually held by external organizations, healthcare providers because the primary education system have no trained teachers self and there is also a lack of time for first aid training within a certain lesson.

- It can be assumed that in many cases resuscitation is missed to carry out due to prejudice and the lack of self confidence.

There is sufficient evidence today for resuscitation education programs to be started in primary schools using the own teaching staff. The European Patient Safety Foundation (EUPSF) and other organisations have published a statement entitled „Kids Save Lives” on training schoolchildren in CPR in January 2015. This statement is approved and supported by the World Health Organisation (WHO) to promote the apparatus of CPR training in early education throughout the world (Böttiger, Van Aken 2015). Despite the evidence and the numerous publications available, CPR training in primary schools has still not yet been widely implemented in Europe. Although many countries are starting to develop evidence-based curriculums on CPR training in schools (De Buck et al. 2015) there is still a lack of standardised Europe-wide curriculum.

Training schoolchildren in CPR can be a defining part of a strategy for increasing bystander resuscitation rates and quality. Starting first aid education at early school age is a successful method for training young people and change the attitude of the society. There

is evidence that age-appropriate CPR training can be provided for a wide range of pupils. However it is still unclear which profession is most suitable for teaching them first aid and resuscitation.

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