

## Original Article

## The Effects of Basic First Aid Education on Teachers' Knowledge Level: A Pilot Study

**Senay Karadag Arli, PhD**

Assistant Professor, Department of Nursing, Agri Ibrahim Cecen University School of Health, Turkey

**Zubeyde Yildirim, MScN, RN**

Department of Nursing, Agri Ibrahim, Cecen University School of Health, Turkey

**Correspondence:** Assist Prof. Dr. Senay Karadag Arli, Department of Nursing, Agri Ibrahim Cecen University School of Health, Turkey Email: senay1981@ yahoo.com sarli@agri.edu.tr

### Abstract

**Aim:** This study aims to compare teachers' knowledge levels before and after the basic first aid education they were provided.

**Background:** There is lack of experimental studies about the importance of first aid knowledge level of teachers.

**Introduction:** The teacher is the first person to apply first aid to children during the accidents that might occur at school. Therefore, it is highly important for teachers to have sufficient knowledge about first aid.

**Methods:** This study, which utilized pretest-posttest control group design, is experimental in nature. It was conducted with 24 experimental group participants and 20 control group participants. The participants' first aid knowledge levels were assessed through a questionnaire administered as pretest. Following this, the experimental group was provided with theoretical and practical education on first aid. Then all the participants were administered the posttest.

**Results:** It was found that there was a significant difference between pretest and posttest scores of the experimental group ( $z = -4.215$ ,  $p < 0.01$ ). This result indicates that the first aid education given to the experimental group was effective.

**Conclusion:** Teachers, who are always with children, need basic first aid education so that they can do first aid in case of an accident or injury. First aid practices are very important because with simple interventions, it can be possible to prevent death or further injuries. In conclusion, the basic first aid education given to the teachers increased the knowledge level of the teachers.

**Keywords:** First aid, school health, teacher, knowledge

### Introduction

Accidents and diseases are inevitably encountered in all kinds of environments and during various periods of life. School health services are often neglected in many countries. This is reflected into lack of awareness and education about common illnesses and first-aid care. Particularly involuntary injuries in childhood resulting from accidents are a global public health problem; and they are among the first causes of death and disabled life (Altundag & Ozturk 2007; Inanc et al. 2008; Bhatia et al. 2010). Every year, involuntary injuries cause the death of at least 875,000 children under the age of 18 worldwide, and more than 95% of these deaths occur in low and middle income countries (World Health Organization 2006).

Children are at risk for injury due to some factors related to their developmental and behavioral characteristics such as lack of awareness of danger and having a vigorous nature as well as physical features such as narrower airways, smaller body mass, and thinner and more sensitive skin (Peden et al. 2009).

While home accidents are important in terms of child injuries in the first four years, school accidents become important after the age of four (Rogmans 2009). It is usually the teachers who have to do the first intervention in case of the emergency cases and diseases happening at school. First aid knowledge level studies conducted with the participation of teachers are quite limited in number in our country. First aid practices are of great importance because even

simple interventions could prevent death or further injuries (Uskun, Alptekin, Ozturk, & Kisioglu 2008). For this reason, teachers need to be knowledgeable about the basic first aid rules.

### **Purpose of the Study**

This study aims to compare teachers' knowledge levels about basic first aid practices before and after the education provided to them.

### **Method**

#### **Study Design**

This study, which utilized pretest-posttest control group design, is experimental in nature.

#### **Setting and Study Period**

The study was conducted in one private and one state school located in the eastern part of Turkey between 1<sup>st</sup> of August 2016 and 1<sup>st</sup> of October, 2016.

#### **Sample**

The sample of the study was a group of teachers who wanted to receive basic first aid education. The experimental group consisted of 24 teachers working in a private school, and the control group was formed with 20 teachers working in a state school which had qualities close to a private school. Both the experimental group and control group were administered the same questionnaire as pretest and posttest.

#### **Ethical Considerations**

Official permissions were obtained from the institutions where the study was conducted. Besides, the participants' consent was obtained after they were informed about the purpose of the study and the data collection forms used in the study.

#### **Procedures and Data-Collection Instruments**

The experimental group was given theoretical and practical first aid education. The education was given using a computer, projector, video, and cardiopulmonary resuscitation model materials. The control group was not provided with any education.

**Descriptive Features Form:** The form, which consisted of 8 questions, was prepared by the researchers in line with the related literature.

**First Aid Knowledge Level Questionnaire:** The questionnaire consisted of 28 questions that included first aid topics such as basic first aid information; basic life support; first aid for respiratory tract emergencies; first aid for

poisonings; first aid for bleedings; first aid for drowning; first aid for animal bites; first aid for foreign objects in eyes, ears and nose; first aid for impaired consciousness; first aid for fractures, dislocations and sprains; and first aid for burns and freezing. Each correct answer in the questionnaire was given 1 point, and each wrong answer was given 0.

#### **Data Analysis**

The data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive findings were presented with numbers, percentages, means, and standard deviations. Normality of the data was tested with Kolmogorov-Smirnov test. As the data did not display normal distribution, comparisons of the groups were performed using Mann-Whitney U test and Wilcoxon Signed Ranks test. Statistical significance was taken  $p < 0.05$ .

#### **Results**

##### **Participant Characteristics**

Of all the experimental group participants, 58.3% were female, 50.0% were married, 87.5% had bachelor's degree, 58.3% received first aid education before, and 20.8% wanted to learn all first aid topics. Average age of the experimental group participants was found  $32.00 \pm 7.39$ . As to the control group participants, 80% were female, 70.0% were married, and 90.0% had bachelor's degree. 63.2% did not receive first aid education before, and 15.0% wanted to learn all first aid topics. Average age of the participants was found  $31.15 \pm 6.90$ . Statistical analysis results in terms of independent control variables of the experimental and control groups showed no significant differences between the groups ( $p > 0.05$ ) (see Table 1). Mann Whitney U test results indicated no significant differences in terms of the pretest scores of the experimental and control groups ( $U=174.000$ ,  $p > 0.05$ ), but it showed significant differences in terms of the posttest scores of the experimental and control groups ( $U=147.000$ ,  $p < 0.05$ ) (see Table 2). Wilcoxon signed ranks test revealed no significant differences between the pretest and posttest scores of the control group ( $z=-1.090$ ,  $p > 0.05$ ); but it indicated significant differences between the pretest and posttest scores of the experimental group ( $z=-4.215$ ,  $p < 0.001$ ) (see Table 3). These statistical results indicate the effect of first aid education provided to the experimental group.

**Table 1. Independent Control Variables**

Variables		Experimental		Control		x <sup>2</sup>	p
		S	%	S	%		
<b>Gender</b>	Female	14	58.3	16	80.0	2.361	>0.05
	Male	10	41.7	4	20.0		
<b>Marital Status</b>	Married	12	50.0	14	70.0	1.805	>0.05
	Single	12	50.0	6	30.0		
<b>Education Level</b>	Bachelor's degree	21	87.5	18	90.0	.068	>0.05
	Master's degree	3	12.5	2	10.0		
<b>Having received education or not</b>	Yes	14	58.3	7	36.8	1.960	>0.05
	No	10	41.7	12	63.2		
<b>The topic on which the participants want to receive education</b>	<b>Knowledge about</b>					10.744	>0.05
	Basic First Aid	2	8.3	5	25.0		
	Basic life Support	0	0	1	5.0		
	First aid for respiratory tract emergencies	3	12.5	2	10.0		
	First aid for poisonings	3	12.5	5	25.0		
	First aid for bleedings	3	12.5	0	0		
	First aid for drowning	1	4.2	0	0		
	First aid for animal bites	2	8.3	0	0		
	First aid for foreign objects in eyes, ears and nose	2	8.3	3	15.0		
	First aid for injuries	1	4.2	0	0		
	First aid for burns and freezing	2	8.3	1	5.0		
	All	5	20.8	3	15.0		
		$\bar{X} \pm SD$		$\bar{X} \pm SD$		t	p
<b>Age</b>		32.00 ± 7.39		31.15 ± 6.90		.391	>0.05

**Table 2. Comparison of the Differences between the Pre-test and Post-test Scores of the Experimental and Control Groups**

<b>Pretest</b>	<b>N</b>	<b>Mean rank.</b>	<b>Total rank</b>	<b>U</b>	<b>p</b>
<b>Experimental Group</b>	24	19.75	474.00	174.000	.117
<b>Control Group</b>	20	25.80	516.00		
<b>Posttest</b>	<b>n</b>	<b>Mean rank.</b>	<b>Total rank</b>	<b>U</b>	<b>P</b>
<b>Experimental Group</b>	24	26.38	633.00	147.000	<b>.028*</b>
<b>Control Group</b>	20	17.85	357.00		

**Table 3. Comparison of the Differences between the Pretest-Posttest Scores of the Control Group and Experimental Group**

<b>Control Group</b>	<b>n</b>	<b>Mean rank.</b>	<b>Total rank</b>	<b>z</b>	<b>p</b>
<b>Negative rank</b>	6	7.83	47.00	-1.090	.276
<b>Positive rank</b>	10	8.90	89.00		
<b>Equal</b>	4				
<b>Experimental Group</b>	<b>n</b>	<b>Mean rank.</b>	<b>Total rank</b>	<b>z</b>	<b>p</b>
<b>Negative rank</b>	0	.00	.00	-4.215	<b>.000*</b>
<b>Positive rank</b>	23	12.00	276.00		
<b>Equal</b>	1				

## Discussion

First aid topics frequently needed in schools include bleeding, respiratory insufficiency, fainting, convulsions, allergic reactions, burns, poisonings, head trauma, upper respiratory tract infections, skin infections, diarrhea, vomiting, stomach ache, buckling, and fracture and dislocation (Erkan & Goz 2006).

For example, chances of living for a student who spends the majority of his time in school and has cardiac arrest in school could be increased through a right heart massage done by the closest person (Gursoy & Cilingir 2008). A study conducted by Erkan and Goz aimed to measure primary school teachers' knowledge level about first aid and found that 68.4% of the teachers did not receive any education about first aid, and all of them acknowledged the necessity of health education (Erkan & Göz 2006). Teachers should be educated about basic life support issues so that it could be possible to decrease mortality and morbidity rates at schools (Dincer, Atakurt, & Simsek 2000).

In our study we found no significant differences between the teachers who received education about first aid before and those who did not. This case is considered to result from the fact that majority of the teachers reportedly received education about first aid in the driving courses they attended. It is known that the education given in driving courses in our country are provided by teachers who do not have first aid certificate (Yurumez et al. 2007). Pamuk et al. found that 76% of teachers learned first aid from out-of-school sources (driving course, mass media); however, they also emphasized that this information was not sufficient (Pamuk, Dramalı, & Ozcan 2005). These findings suggest that teachers' information sources about first aid vary, which accounts for the reason why they have similar level of knowledge about first aid (Baser et al. 2007; Hirca 2012; Sonmez, Uskun, & Pehlivan 2014; Yurumez et al. 2007). Another shortcoming is demonstrated by the fact that teachers do not receive any first aid education in university (Erkan & Goz 2006).

In this study we found that the pretest scores of the control group were high (25.80), and posttest scores were low (17.85). This case is considered to result from the fact that the control group was not provided with any interventions; or the questionnaires might not have been filled carefully. The scores were found to increase

significantly in the experimental group. This increase is considered to result from the education given to the participants as well as the teachers' willingness about receiving education.

Nayir et al. found that the teachers' first aid knowledge level was moderate, and majority of them perceived their knowledge about first aid inadequate. Hence, they were willing to learn about first aid practices (Nayir et al. 2011).

Some other studies also indicate that there was an increase in knowledge level and standardization in various occupational groups after the first aid education (Bayraktar, Celik, Unlu, & Bulut 2009; Li et al. 2012; Ozyurek et al. 2013; Sonmez, Uskun, & Pehlivan 2014; Ulger et al. 2013).

These findings suggest that first aid education should be disseminated in every segment of society. Parallel to these studies, our study also revealed that there was an increase in the knowledge level and knowledge standardization in the experimental group as a result of the education given. It is considered that the effectiveness of the education was increased by the factors such as conducting the first aid education face to face, in a way all the participants could see each other, and giving the opportunity to apply the practices in the middle of the class, using a model. Therefore, first aid education should be given to teachers in some certain intervals by people who are professional on the issue.

## Limitations

Limitations of the present study include its being conducted at a university located in the Eastern part of Turkey and with a limited number of participants.

## Nursing Implications

Nurses have important roles particularly in education. Unfortunately, not all schools in Turkey have health professionals. Thus, even small accidents could cause difficult situations because of teachers who do not know how to intervene or who intervene wrongly. For instance, as s/he does not know how to do first-aid, the teacher gets nervous and thus cannot help the student. Therefore, nurses, particularly those who have the health educator role, should visit schools in some certain intervals and give basic first aid education. This way, teachers could perform first aid in a more conscious and rapid manner.

## Conclusion

Results of the structured first aid education provided to a group of teachers indicated that teachers' knowledge level about first aid increased significantly. This result shows the effectiveness of the education. However, continuity and evaluation of education is very important. In the future, efforts should be made to evaluate the basic first aid education in practice as well.

## Acknowledgement

We would like to thank to the school principals who provided the participation of the teachers for this study and the teachers who took their time to participate. We also would like to thank to Asst. Prof. Dr. Ayse Berivan Bakan for performing statistical analysis of the data.

## References

- Altundag, S., & Ozturk, M. C. (2007) The effects of home safety education on taking precautions and reducing the frequency of home accidents. *Turkish Journal of Trauma & Emergency Surgery*, 13(3), 180-185.
- Baser, M., Coban, S., Tasci, S., Sungur, G., & Bayat, M. (2007) Evaluating first-aid knowledge and attitudes of a sample of Turkish primary school teachers. *Journal of Emergency Nursing*, 33(5), 428-432.
- Bayraktar, N., Celik, S. S., Unlu, H., & Bulut, H. (2009) Evaluating the effectiveness of a first aid training course on drivers. *Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi*, 16(1), 047-058. (In Turkish)
- Bhatia, V., Puri, S., Mangat, C., & Kaur, A. (2011) An intervention study to strengthen first aid care in schools of Chandigarh, India. *The Internet Journal of Family Practice*, 8 (1).
- Dincer, C., Atakurt, Y., & Simsek, I. (2000) A study on the lever of the first aid knowledge educators working in preschools. *Journal of Ankara University Faculty of Medicine*, 53(1), 31-38. (In Turkish)
- Erkan, M., & Goz, F. (2006) Determination of the Teacher's Level of Knowledge about the First Aid Subject. *Journal of Anatolia Nursing and Health Sciences*, 9(4), 63-68. (In Turkish)
- Gursoy, A. A., & Cilingir, D. (2008) Changes in advanced life support: review. *Turkiye Klinikleri Journal of Medical Sciences*, 28(6), 916-922. (In Turkish)
- Hirca, N. (2012) Does teachers' knowledge meet first aid Needs of Turkish schools? Review of Turkish Literature. *Journal of European Education*, 2, 16-23.
- Inanc, C. D., Baysal, U. S., Cosgun, L., Taviloglu, K., & Unuvar, E. (2008) Underlying factors in childhood injuries. *Türk Pediatri Arşivi*, 43(3), 84-88. (In Turkish)
- Li, F., Jiang, F., Xingming, J., Qiu, Y., & Xiaoming, S. (2012) Pediatric first aid knowledge and attitudes among staff in the preschools of Shanghai, China. *BMC Pediatrics*, 12(1), 121-127.
- Nayir, T., Uskun, E., Turkoglu, H., Uzun, E., Ozturk, M., & Kisioglu, A. N. (2011) The first aid knowledge levels and attitude of the teachers who work in Isparta city center. *Suleymen Demirel University Journal of Faculty of Medicine*, 18(4), 123-127. (In Turkish)
- Ozyurek, P., Bayram, F., Bestepe, G., Ceylantekin, Y., Cigerici, Y., Celik, Y., Kuyucuoglu, N., Karaca, S., Temel, S., & Yilmazer, A. (2013) The efficiency evaluation of the training basic first aid given to high school teachers. *Sosyal Bilimler Dergisi*, 15(1), 183-198. (In Turkish)
- Pamuk, N., Dramali, A., & Ozcan, A. (2005) Determination of the teacher's level of knowledge about the first aid subject. *IV. National Nursing Students Congress Book*, Ankara: Kok Publishing, 308. (In Turkish)
- Peden, M., Oyegbite, K., Ozanne-Smith, J., Hyder, A. A., Branche, C., Rahman, F. A., Rivara, F., & Bartolomeos, K. (2009) World report on child injury prevention. World Health Organization & United Nations Children's Fund. Geneva; 2008. [http://whqlibdoc.who.int/publications/2008/9789241563574\\_eng.pdf](http://whqlibdoc.who.int/publications/2008/9789241563574_eng.pdf).
- Rogmans, W. (2009) Education and legislation are key to preventing child injuries. *Bull World Health Organ*, 87: 334-335.
- Sonmez, Y., Uskun, E., & Pehlivan, A. (2014) Knowledge levels of pre-school teachers related with basic first-aid practices, Isparta sample. *Turkish Archives of Pediatrics*, 49(3), 238-246.
- Ulger, H., Deniz, T., Saygun, M., Ciftci, N., Karakus, A., & Kandis, H. (2013) The efficiency evaluation of the training activity given to ambulance personnel. *TAF Preventive Medicine Bulletin*, 12 (2), 151-156. (In Turkish)
- Uskun, E., Alptekin, F., Ozturk, M., & Kisioglu, A. N. (2008) The attitudes and behaviors of housewives in the prevention of domestic accidents and their first aid knowledge levels. *Turkish Journal of Trauma & Emergency Surgery*, 14: 46-52. (In Turkish)
- World Health Organization Child and adolescent injury prevention: A WHO plan of action 2006-2015. [http://whqlibdoc.who.int/publications/2006/9241593385\\_eng.pdf](http://whqlibdoc.who.int/publications/2006/9241593385_eng.pdf).
- Yurumez, Y., Yavuz, Y., Saglam, H., Koken, R., & Tunay, K. (2007). Evaluation of the level of knowledge of first aid and basic life support of the educators working in preschools. *Academic Emergency Medicine Journal*, 5(3), 17-20.