

# EVALUATION OF THE LEVEL OF KNOWLEDGE OF FIRST AID AND BASIC LIFE SUPPORT OF THE EDUCATORS WORKING IN PRESCHOOLS

YURUMEZ Y\*, YAVUZ Y.\*, SAGLAM H.\*\*\*, KÖKEN R.\*\*\*, TUNAY K.\*

\*Assistant Professor, Afyon Kocatepe University of Medical School,  
Department of Emergency Medicine, Afyonkarahisar,

\*\* Assistant Professor, Afyon Kocatepe University of Medical School, Department of Cardiology, Afyonkarahisar,

\*\*\* Assistant Professor, Afyon Kocatepe University of Medical School, Department of Pediatric, Afyonkarahisar,  
Turkey

As.Prof. Yusuf YÜRÜMEZ

Afyon Kocatepe University of Medical School, Department of Emergency Medicine 03200/AFYONKARAHISAR/ TURKEY

Phone : +90 272 2142065, Fax : +90 272 2142060, e-mail: yurufurumez@yahoo.com

Başvuru tarihi:16.04.2007

Kabul tarihi:08.06.2007

## OKUL ÖNCESİ EĞİTİM KURUMLARINDA ÇALIŞAN PERSONELİN İLK YARDIM VE TEMEL YAŞAM DESTEĞİ KONULARINDAKİ BİLGİ DÜZEYLERİNİN DEĞERLENDİRİLMESİ

### ÖZET

**GİRİŞ:** Tüm dünyada çocukluk çağı yaralanmaları okul öncesi ve okul çağı çocuklarında ölümlere neden olmaktadır. Bu çalışmada okul öncesi eğitim kurumlarında çalışan personelin ilkyardım ve temel yaşam desteği konularındaki bilgi düzeylerinin değerlendirilmesi amaçlandı.

**GEREÇ VE YÖNTEM:** Çalışma Mayıs 2005 döneminde Afyonkarahisar il merkezinde bulunan okul öncesi eğitim kurumlarında çalışan personelin katılımı ile gerçekleştirildi. Veriler demografik bilgileri içeren soruların yanı sıra ilkyardım ve temel yaşam desteği konularındaki çoktan seçmeli soruları içeren 34 soruluk bir anket formunun doldurulması ile toplandı.

**BULGULAR:** Çalışmaya toplam 118 personel [68'i öğretmen, 14'ü usta öğretici (okul öncesi eğitim konusunda ustalık belgesi almış kişi), 24'ü stajyer öğrenci ve 12'si yardımcı personel] katıldı. Çalışmaya katılanların 111'i (%94.1) bayan ve yaş ortalamaları 27.7 (min:16 max:52) idi. Katılımcıların %61.9'unun daha önceden ilkyardım eğitimi aldıkları ve eğitimin daha çok (%54.2) teorik şeklinde olduğu tespit edildi. Ankete katılanların %84.7'sinin kendisini ilkyardım konusunda yeterli hissetmediği ve %85.6'sının ilkyardım eğitimi almak istediği saptandı. İkyardım ve temel yaşam desteği konuları ile ilgili sorulardaki başarı puan ortalamaları 48.9 (min:20 max:75) olarak tespit edildi.

**SONUÇ:** Okul öncesi eğitimde görev alan personelin ilkyardım konularındaki genel bilgi düzeylerinin yetersiz olduğu ancak eğitim alma hususunda istekli oldukları görülmektedir. Özellikle okul öncesi eğitimin hızla yaygınlaştığı ülkemizde bu alanda çalışan personelin ilkyardım konularında da hızlı, doğru ve tekrarlayan eğitimler almasının gerekli olduğunu düşünmekteyiz.

**Anahtar kelimeler:** İlk yardım, İlkokul, Çocuklar, Temel Yaşam Desteği

### SUMMARY

**Objective:** Childhood injuries are the leading cause of death for children in the preschool and school age in world. The purpose of this study is to determine of the level of knowledge of first aid and basic life support of the educators working in preschools in Afyonkarahisar region by using a written questionnaire.

**Methods:** Study was conducted in Afyonkarahisar providence on preschool teachers working in school district in May 2005. The written questionnaire was formed with 34 questions. These multiple choice questions, varied from demographic to first aid and basic life support, aimed on testing the knowledge of the employees on related topics.

**Results:** All 118 participants answered the questionnaire. The mean age of the sample population was 27.7±9.1 years and 111 (94.1%) participants was female. 61.9% of participants stated that they have previously taken the first aid education with 54.2% of mentioning that it was theoretical one. Besides, 84.7% of participants felt being inadequate in first aid and 85.6% of them made inquiry to have the first aid education. The mean score of achievement for the participants in first aid and basic life support is found to be 48.9. Conclusion: Although the educators of preschool in the study have inadequate knowledge on the first aid and basic life support providing, they are interested in getting proper training. We think that especially as the preschool education is wide spreading in our country, people participating in this field should have urgent, true and repetitive training on the first aid providing.

**Key Word:** First Aid, Preschool, Children, Basic Life Support

## Introduction

The National First Aid Science Advisory Board defined first aid (FA) as assessments and interventions that can be performed by a bystander (or by the victim) with minimal or no medical equipment. Administration of FA must not delay activation of the emergency medical services system or other medical assistance when required. The National First Aid Science Advisory Board strongly believes that education in FA should be universal: everyone can learn first aid and everyone should<sup>(1)</sup>. Emergencies and injuries commonly occur in children at home and in school setting. Childhood injuries are the leading cause of death for children in the preschool and school-going age in World<sup>(2)</sup>. Early and appropriate treatment of such emergencies can help reduce morbidity and mortality<sup>(3)</sup>. Properly administered FA can mean the difference between life and death, rapid versus prolonged recovery, and temporary versus permanent disability<sup>(4)</sup>. Although the epidemiology of childhood injuries has been well studied in many developed countries, there are still only a few studies done on parental and teacher knowledge and attitudes concerning childhood injury<sup>(2)</sup>. The purpose of this study is to determine of the level of knowledge of first aid and Basic Life Support (BLS) of the educators working in preschools in Afyonkarahisar region by using a written questionnaire.

## Material and Methods

Study was conducted in Afyonkarahisar providence on preschool educators working in school district in May 2005. The written questionnaire was formed with 34 questions. These multiple choice questions, varied from demographic to FA and basic life support, aimed on testing the knowledge of the employees on related topics. Moreover, 20 multiple choice items were related with the knowledge of the FA and BLS. These multiple choice items tested the employees knowledge of what to do and what not to do in FA and BLS. After a brief instruction about the study, questionnaires were administered. All responses in questionnaire were evaluated and scored out of hundred. Then, an achievement score for each individual was assigned. The obtained data was analyzed by using the SPSS version 11.0. The results were reported by using percentage as descriptive statistics with mean values expressed in mean  $\pm$  standart deviation.

## Results

All 118 participants answered the questionnaire. The mean age of the sample population was 27.7 $\pm$ 9.1 years (range, 16-52 years) and 111 (94.1%) participants were female. Findings were assessed with participants categorization in four groups (teachers, expert caregivers, interns, helpers). The demographic characteristics of the subjects were listed in Table 1. 61.9% of participants stated that they have previously taken the FA education with 54.2 % of mentioning that it was theoretical one. Besides, 84.7% of participants felt being inadequate in FA and 85.6% of them made inquiry to have the FA education. Subjects experiences with emergency care and BLS of participants were listed in Table 2. The mean score of achievement for the participants in FA and BLS is found to be 48.9 (min: 20 and max: 75). The mean score of achievement

for the teachers in first aid and basic life support is found to be 54.4 (min: 20 and max: 75). Percentages of correct answers to some questions about FA and BLS are shown in Table 3.

## Discussion

The American Academy of Pediatrics (AAP) publishes and disseminates patient education information to instruct adult laypersons in basic FA principles. The AAP attempts to teach adults to effectively provide care for children and infants who experience common emergencies including bites and stings, nosebleeds, poison exposure, fractures and sprains, fever, head injuries, burns and scalds, skin wounds, eye injuries, dental emergencies, fainting, and seizures<sup>(3)</sup>. If cardiac arrest occurs in an out-of-hospital setting, the chance of survival is very slim<sup>(6-10)</sup>. However, if early cardiopulmonary resuscitation (CPR) is initiated by nearby individuals, the survival rate of out-of hospital cardiac arrests can be improved substantially<sup>(11-15)</sup>. The American Heart Association suggested that at least 20% of adults need to be trained in CPR before morbidity and mortality from out-of-hospital arrest can be reduced substantially<sup>(5)</sup>. Occupational accidents cause serious consequences. Providing FA in the workplace can reverse unpleasant results<sup>(16)</sup>. The outcome of occupational injuries depends not only on the severity of the injury but also on the rendering of first aid care. The provision of first aid training has traditionally been recommended in proportion to the extent of workplace occupational safety and health risks. Thus, the greater the risk, the greater the need for more people trained in FA. The recommended ratio of "first aiders" to those not trained in FA ranges from 1:25 to 1:50 depending on the extent of workplace occupational health and safety risk<sup>(4)</sup>. In recent years with new laws, Turkey requires in all state or privately operated companies to employ one employee who has the FA and basic life support education for every 20 employees. For this purpose, with permission of and under the control of Turkish Ministry of Health, the FA education centers were opened. However, none of the teachers who participated in our study had this certificate. Participants reported that these courses were provided theoretically at driving licence schools. This education was given by teachers who were not certified in FA education. In the study of Hatzakis et al<sup>(16)</sup> carried out on industrial workers, the vast majority of workers were unable to provide efficient FA as long as they can't estimate vital signs and provide satisfactory CPR. In the study of Rasmus et al<sup>(17)</sup> carried out on police officers, the majority of the surveyed population assess their CPR ability as inadequate the surveyed population believe that CPR training needs to be expanded and improved. Taking into account results of the CPR knowledge assessment questions, it can be concluded that CPR knowledge in Poland is low and a standardized curriculum for CPR training is needed. Akpek et al<sup>(18)</sup> determined the level of CPR knowledge in the public in Turkey that it was rather low. In this study, the level of CPR and first aid knowledge in our population is unsatisfactory. These participants had mean knowledge score of only 49 out of 100. The single most important information for a FA provider is to know how to get help. Rescuers should learn how and when to access the EMS system, how to activate the on-site emergency response plan<sup>(1)</sup>. In this work, all

participants knew how to achieve EMS. However, 65.3% of the participants told that they would call the ambulance before evaluating the victim. This indicates that most of the participants don't know properly when to call for help. The participants were especially inadequate on the cardiac arrest diagnosis, the determination of cardiac massage region and the range of cardiac massage/ventilation. On the other hand, they were partially successful on the determination, treating and protecting of airway. In the study, although attitudes of the community toward BLS are positive, theoretical knowledge relating to BLS is poor. This suggests that present community BLS educational strategies have limited efficiency<sup>(19)</sup>. Most of the participants in our study felt themselves inadequate on the first aid BLS and they wanted to be trained on this subject. Some study were done to activate the training strategies. In 2000, the AAP disseminated a first aid poster with instructions to care for children with the above injuries to various health care providers throughout the country for office and waiting

room display. A prior study conducted in Norway found that mass distribution of a calendar that included algorithms for removal of a foreign body from the airways, and infant and child CPR improved knowledge of these skills<sup>(20)</sup>. Evidence that simple measures can improve FA knowledge is further supported by a Brazilian study that evaluated the impact of a brief television clip on overall first aid knowledge<sup>(21)</sup>. In the view of these suggestions, it is required that all the teachers dealing with the average of 20-40 students and charged people must have serious theoretical and practical first aid training. Our opinion is that further studies are necessary to improve the most adequate training strategy in our country. Although the employees of preschool in the study have inadequate knowledge on the FA and BLS providing, they are interested in getting proper training. We think that especially as the preschool education is wide spreading in our country, people participating in this field must have urgent, true and repetitive training on the FA providing.

Table 1  
Subjects' demographic characteristics (Mean  $\pm$  SD[range])

	Teachers	Expert Caregivers	Interns	Helper	Total
N	68	14	24	12	118
Age (Years)	30.3 $\pm$ 7.4 (22-50)	24.3 $\pm$ 10.9 (16-52)	18.2 $\pm$ 3.2 (16-25)	36.6 $\pm$ 7.3 (24-50)	27.7 $\pm$ 9.1 (16-52)
Gender (Male/Famale)	66/2	14/0	24/0	07./05	111/7
Education* (n)					
Elementary School	0	1	0	12	13
High School	2	10	22	0	34
Universty	66	3	2	0	71

Table 2  
Subjects' experiences with emergency care and BLS (Percentage)

	Teachers	Expert Caregivers	Interns	Helper
Previous BLS course (Yes/No)	69.1/30.9	57.1/42.9	62.5/37.5	25/75
Time				
0-2 years	23.4	37.5	42.9	33.3
>2 years	76.6	62.5	57.1	66.7
Training type				
Theoretical	87.2	87.5	92.9	9.4
Theoretical+Practical	12.8	12.5	7.1	0
Training place				
School	59.6	87.5	85.7	100
Driver course	40.4	12.5	0	0
First aid course	0	0	0	0
Other	0	0	14.3	0
Feeling of adequacy (Yes/No)	13.6/86.4	7.7/92.3	4.2/95.8	11.1/88.9
Training demand (Yes/No)	89.1/10.9	85.7/14.3	87.5/12.5	91.7/8.3

Values are given as percentage (%). FA, First Aid; BLS, Basic life support.

Table 3

Percentage of correct answers to theoretical questions about FA and BLS

	Teachers	Expert Caregivers	Interns	Helper	Total
Initial management of BLS	2.9	0	12.5	16.7	5.9
Cause of obstruction the respirator tract in unconcussion	82.4	64.3	29.2	75	72.9
Initial management of patients with respiratory distress	70.6	42.9	50	41.7	55.9
Diagnosis of respiratory arrest	48.5	28.6	33.3	25	40.7
Diagnosis of cardiac arrest	0	0	0	0	0
Ventilation/cardiac massage ratio in adult	11.8	0	20.8	0	11.0
Decision to terminate ventilation efforts	52.9	50	83.3	66.7	60.2
Region of cardiac massage	41.2	14.3	33.3	16.7	33.9
Proper administration of ventilation to baby	60.3	42.9	50	8.3	54.2
Heimlich maneuver	32.4	7.1	16.7	25	25.4
Telephone number of EMS	100	100	100	100	100
Telephone number of fire department	85.3	85.7	95.8	100	89.0
Initial treatment of bee bite	44.1	64.3	54.2	50	49.2
Initial treatment of burn	11.8	7.1	16.7	8.3	11.9
Vaccine for contaminated wound	85.3	78.6	79.2	75	82.2
Initial treatment of cutting and stabbing wounds	48.5	35.7	58.3	16.7	45.8
Initial treatment of external bleeding	67.6	28.6	54.2	41.7	57.6

Values are given as percentage (%). FA, First Aid; BLS, Basic life support; EMS, Emergency medical services.

## REFERENCES

1. International Liaison Committee on Resuscitation. 2005 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations. *Circulation* 2005;112:196-203.
2. Thein MM, Lee BW, Bun PY. Knowledge, attitude and practices of childhood injuries and their prevention by primary caregivers in Singapore. *Singapore Med J* 2005; 46:122-26.
3. Singer AJ, Gulla J, Thode HC, Cronin KA. Pediatric first aid knowledge among parents. *Pediatr Emerg Care* 2004; 20:808-11.
4. Lingard H. The effect of first aid training on Australian construction workers' occupational health and safety motivation and risk control behavior. *Journal of Safety Research* 2002; 33:209-30.
5. Selby ML. Indicators of response to a mass media CPR recruitment campaign. *Am J Public Health* 1982;72:1039-42.
6. Bernard S. Outcome from prehospital cardiac arrest in Melbourne, Australia. *Emerg Med* 1998;10:25-9.
7. Westal RE, Reissman S, Doering G. Out-of-hospital cardiac arrest: an 8-year New York City experience. *Am J Emerg Med* 1996;14:364-68.
8. Kuisma M, Maata T. Out-of-hospital cardiac arrest in Helsinki: Utstein style reporting. *Heart* 1996;76:18-23.
9. Wong TW, Yeung KC. Out-of-hospital cardiac arrest: two and a half years experience of an accident and emergency department in Hong Kong. *J Accid Emerg Med* 1995;12:34-9.
10. Leung LP, Wong TW, Tong HK, Lo CB, Kan PG. Out-of-hospital cardiac arrest in Hong Kong. *Prehosp Emerg Care* 2001;5:308-11.
11. Gallagher EJ, Lombardi G, Gennis P. Effectiveness of bystander cardiopulmonary resuscitation and survival following out-of-hospital cardiac arrest. *JAMA* 1995;274:1922-25.
12. Kuisma M, Jaara K. Unwitnessed out-of-hospital cardiac arrest: is resuscitation worthwhile? *Ann Emerg Med* 1997;30:69-75.
13. Stueven H, Troiano P, Thompson B, et al. Bystander/first responder CPR: ten years experience in a paramedic system. *Ann Emerg Med* 1986;15:707-10.
14. Ritter G, Wolfe RA, Goldstein S, et al. The effect of bystander CPR on survival of out-of-hospital cardiac arrest victims. *Am Heart J* 1985;110:932-37.
15. Wik L, Steen PA, Bircher NG. Quality of bystander cardiopulmonary resuscitation influences outcome after prehospital cardiac arrest. *Resuscitation* 1994;28:195-203.
16. Hatzakis KD, Kritsotakis EI, Angelaki HP, Tzanoudaki IK, Androulaki ZD. First aid knowledge among industry workers in Greece. *Ind Health* 2005; 43:327-32.
17. Rasmus A, Czekajlo MS. A national survey of the Polish population's cardiopulmonary resuscitation knowledge. *Eur J Emerg Med* 2000;7:39-43.
18. Akpek AE, Kayhan Z. Knowledge of basic life support: a pilot study of Turkish population by Baskent University in Ankara. *Resuscitation* 2003;58:187-192
19. Larsen P, Pearson J, Galletly D. Knowledge and attitudes towards cardiopulmonary resuscitation in the community. *N Z Med J* 2004;117:870-75.
20. Sunde K, Wik L, Naess AC, et al. Impact of a first aid wall calendar on lay people's skills and knowledge of infant CPR. *Resuscitation* 1998; 36:59-64.
21. Capone PL, Lane JC, Kerr CS, et al. Life supporting first aid teaching to Brazilians by television spots. *Resuscitation* 2000;47:259-265.