

A Cross Section of Practicing Teachers' and Prospective Teachers' knowledge of First AID

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Abstract: *The research described in this article investigated the levels of knowledge of first aid possessed by practicing teachers and prospective teachers. Quantitative research methods employed a questionnaire of 25 items given to 82 teachers in various primary and secondary schools in Istanbul and to 352 prospective teachers in their senior year of university. The highest possible score on the First Aid Knowledge Level (FADKL) was 75. The knowledge level of prospective teachers ($\bar{x}=25.37$) was lower than that of practicing teachers ($\bar{x}=38.62$). There was no significant difference between the scores of primary and secondary teachers. Prospective teachers in science education ($\bar{x}=34.37$) had higher scores than those in other departments. The mean FADKL of participants who had taken a driving license course was greater ($\bar{x}=33.98$) than the mean of participants ($\bar{x}=18.5$) who had taken such a course from the university. Although all prospective teachers had received some first aid education in secondary school and some had additional first aid education in university, their collective FADKL was not high enough to qualify them to teach first aid and for the treatment of students. The primary and secondary teachers had higher FADKL scores as a result of their teaching experience.*

Keywords: *First aid, first aid education, teacher education, health education, prospective teachers*

1. INTRODUCTION

According to the World Health Organization (WHO), good health is a state of complete physical, mental, and social wellbeing, not merely the absence of disease or infirmity. Health education is any combination of learning experiences intended to help individuals and communities improve their health by increasing their knowledge or influencing their attitudes. First Aid is the application of emergency treatment to an injured or ill person without recourse to complex medical equipment. In Turkey in 2009, 11.176 people died from poison and physical injury, 9.005 died from accidents, 3.909 from sanitary transport, and 214 from poisoning (TUIK, 2013). A total of 609 children died in 2012 according to data collected from newspapers and TV: 20 died in the workplace, 28 from violence in the family, 4 from violence among peers, 20 in schools, 16 from homicide, 11 in hospitals, 114 from traffic accidents, 47 from other accidents, 15 from electric shocks and forty children of foreigners died in Turkey (www.gundemcocuk.org; 2013). Even though the number of infant deaths decreased from 17,552 in 2009 to 13,900 in 2013 (TUIK, 2013), the current figure is far short of the national goal (Lozano et al, 2014). In Turkey, children comprise about 30% of the population; to protect their wellbeing, first aid education is essential. Moreover, the state of affairs in Turkey is not exceptional. In England in 2002, for example, 3,000,000 people required first aid treatment in the emergency rooms of hospitals (Campbell, 2012).

In Cambodia, a developing country of 13 million people, there are an estimated 20,000 burns and 2000 burn deaths annually (Hsiao et al, 2007). Since 1996, health education in Turkish schools has been taught for two hours a week in 9th grade. In 2013, first aid was taken out of the 9th grade unit and moved to "Traffic," a course taught in 12th grade (MEB, 2012). Reassuringly, a study of 314 teachers in the Konya region revealed that teachers who were educated in health science knew more about first aid than other teachers in the region (Bildik et al, 2010). In the city of Isparta,

primary teachers' knowledge of first aid was greater than the knowledge of secondary teachers. Also, the results showed that 61.5% of the teachers studied had not had any first aid education, and 86% of them expressed a wish to be more informed (Nayır et al, 2011). More promisingly, on the other hand, when prospective teachers in a university were given 20 hours of instruction about first aid, there was significant improvement in their first aid knowledge (Bildik et al, 2010).

A study of 561 mothers described 53.11% of them as "knowing" about first aid, 42.24 % as "knowing little," and 4.5% as "not knowing" (Dereliet al, 2010). It was found that the rate of accidents consisting in pre-schools decreased when the education level of mothers increased (Ozturk et al, 2010). A study of 6-7 year-old students in primary schools showed that basic first aid instruction resulted in significant improvement of their first aid knowledge and skills (Bollig, 2009). The main sources of information about burn prevention were school (40%), family (22%), books (15%), television (12%), physicians (9%), and Internet (0.5%) (Hsiao et al, 2007). Also, other research in primary schools showed that practical teaching as opposed to theoretical teaching was more effective (Lubrano et al, 2005). When one imagines the nature of accidents in schools, it seems likely that the first responsible adult to reach a child in need would be a teacher, so teachers' should be well versed in first aid knowledge and skill (Usaklı and Cengiz, 2001). Teachers would tend to act correctly when faced with incidents of burns, bruises and fractures, but in case of life threatening situations, for example cardiopulmonary resuscitation, intoxication, unconsciousness and asphyxia, less than 20% would be able to provide the appropriate first aid (Slabe and Fink, 2012). In the other research in Turkey, 65.1% of 320 teachers gave incorrect answers regarding epistaxis, 63.5% for bee stings, and 88.5% for abrasion. It was found out that as the age of the teacher increase; appropriate first-aid practice becomes more and more unlikely (Baser et al, 2007).

Health education, like environmental education, is a government, community, and individual responsibility (Moscatelli, 2012). To attain sustainable first aid education, prospective teachers need to be taught general health knowledge, protective health procedures, traffic, prevention of accidents, and, specifically, first aid intervention. Using case studies and realistic online education would contribute to practical first aid education (Campbell, 2012) but more than one approach is recommended; educational programs, protective public health services, legal regulations, and fiscal support should all be used collectively (Miller, 1996).

The aim of this research was to investigate and compare the first aid knowledge level of practicing teachers in schools and prospective teachers in university. Sub-problems were:

- Is there any difference in the first aid knowledge of prospective teachers who had previous first aid education and those who had none?
- Is there any difference in the first aid knowledge of prospective teachers who had learned about first aid in different settings?
- Is there any difference in the first aid knowledge of prospective teachers in different university departments?
- Is there any difference in the first aid knowledge of prospective teachers and practicing teachers?

2. METHOD

The research method employed a survey technique. Independent variables were prospective teachers' departments in the university, whether or not they had received first aid education in the past, and, if so, where they had received it. Most of the prospective teachers (98%) were women, so gender was not identified as a variable factor. The dependent variable was the first aid knowledge level of the prospective teachers.

2.1. Participants

The research sample was composed of prospective teachers in their senior year at Istanbul Aydın University (n=127), Mersin University (n=101), Marmara University (n=68), and Inonu University (n=56) and of primary and secondary school teachers (n=82) selected randomly from various schools in Istanbul.

2.2. Instrumentation

The researchers prepared a measurement tool, the First Aid Knowledge Level (FADKL), comprising 25 open-ended items and additional demographic questions. The demographic questions elicited data about the prospective teachers' departments, whether they had learned any first aid previously, and, if so, where, they learned at university or a driving license course. The instrument was examined and approved by two other experts in the field. Its reliability was found to be Cronbach alpha (α) 0.867. Samples sub-units include:

What are the most important symptoms of a fracture?

In which kind of poisoning does vomiting never occur?

What is the name of the gas that can cause poisoning?

Which of our organs is first affected by blockage of the trachea?

What should be the first response to help a person whose clothes are burning?

The topics fracture-luxation, poisoning, respiration, cardiac arrest, burning, electric shock, and bleeding were allotted two items each; sanitary transport, organ transplantation, sunstroke, removal of insect from an ear, and open wounds were allotted one item each. General first aid knowledge was allotted six items.

2.3. Procedure

We administered the FADKL during one hour-long lesson in the education faculty of four universities. Also, we tested practicing primary and secondary teachers during a scheduled in-service session. All the data were collected during one month at the beginning of the 2013 academic year.

2.4. Data Analysis

Responses to the FADKL of 352 prospective teachers and practicing teachers were rated by the researcher and one other expert in the field and the results were compared for inter-rater agreement. If there was agreement, points were calculated by taking the median of two researchers (Ozturket al, 2012). There were definite correct responses for each item; each correct response was scored 1 and incorrect or blank responses were scored 0. The total possible score for the FADKL was 75. The data were analyzed by ANOVA, Kruskal-Wallis, Mann Whitney U, and t- test.

3. RESULTS AND DISCUSSION

The mean scores of prospective teachers from FADKL test and also mean scores from the sub-units, the comparison of FADKL scores of prospective teachers depending on their departments were mentioned in this part. Also the scores of participants who gained first education in driving course were compared with the participants who gained first education at the university. The FADKL results of teacher and prospective teachers were also compared.

Table I. The mean scores of FADKL test for prospective teachers (n=352).

	\bar{x}	S
FADKL	25.37	15.10
Fracture-Luxation	1.19	1.32
Poisoning	0.72	1.39
Respiration	2.24	2.27
Cardiac Arrest	2.18	2.20
Burning	3.61	2.24
Electric Shock	1.59	1.94
General First Aid Knowledge	0.85	1.51
Bleeding	2.96	4.07
Sanitary Transport	1.80	1.84
Organ Transplantation	2.03	1.77
Sunstroke / Open Wounds / Removal Of Insect From An Ear	2.53	2.53

According to the table I, the mean FADKL score for prospective teachers was 25.37 out of a possible 75, revealing a general lack of knowledge. Scores for specific topics, from highest to lowest, were “burning” ($\bar{x}=3.61$); “bleeding” ($\bar{x}=2.96$); “sunstroke,” “removal of insect from an ear,” and “open wounds” ($\bar{x}=2.53$); “respiration” ($\bar{x}=2.24$); “cardiac arrest” ($\bar{x}=2.18$); “organ transplantation” ($\bar{x}=2.53$); “sanitary transport” ($\bar{x}=1.80$); “electric shock” ($\bar{x}=1.59$); “fracture-luxation” ($\bar{x}=1.19$); “general first aid knowledge” ($\bar{x}=0.85$); “poisoning” ($\bar{x}=0.72$).

Table II. The results of Kruskal-Wallis and Mann Whitney U-test of FADKL and its sub-units of prospective teachers depending on their departments.

Departments	n	Mean rank	sd	χ^2	p	Significant difference
Pre-school: PRS	145	128.79	3	75.22	0.00*	S-PRS
Primary school :PS	106	215.56				
Science : S	68	234.04				S-OD
Other Departments: OD	32	135.55				

* $P < 0.005$

When the data according to university departments were analyzed by a Kruskal-Wallis and Mann Whitney U-test, prospective teachers in science education ($\bar{x}=34.37$) were found to be more knowledgeable than prospective teachers in other departments, a consequence, probably, of courses in anatomy, physiology, biology, and chemistry. There was a meaningful difference (χ^2 (sd=3, n= 351)=75.22, $p < .01$) between the scores of prospective teachers in science and those of prospective teachers in other departments, but there was no difference between prospective teachers in science and prospective primary school teachers.

Table III. The t-test results of prospective teachers who had taken first aid at driving course and who had taken from university course depending on sub-units of FADKL test.

		n	x	S	sd	t	p
FADKL	University	121	18.50	18.3	165	5.458	0.00*
	Driving License Course	46	33.98	9.42			
Fracture-Luxation	University	121	0.47	1.14	165	2.62	0.01*
	Driving License Course	46	1.09	1.81			
Poisoning	University	121	1.85	2.34	165	4.11	0.00*
	Driving License Course	46	3.46	1.99			
Respiration	University	121	1.42	2.02	165	4.51	0.00*
	Driving License Course	46	3.04	2.22			
Cardiac Arrest	University	121	2.53	2.62	165	5.54	0.00*
	Driving License Course	46	4.80	1.51			
Burning	University	121	1.06	1.83	165	2.75	0.00*
	Driving License Course	46	1.93	1.84			
Electric Shock	University	121	0.74	1.48	165	1.76	0.08
	Driving License Course	46	1.22	1.72			
General First Aid Knowledge	University	121	4.96	4.96	165	4.88	0.00*
	Driving License Course	46	8.70	2.44			
Bleeding	University	121	1.29	1.81	165	3.39	0.00*
	Driving License Course	46	2.35	1.78			
Sanitary Transport	University	121	1.59	1.79	165	4.29	0.00*

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	Driving License Course	46	2.83	1.27			
Organ Transplantation	University	121	0.91	1.28	165	2.48	0.01*
	Driving License Course	46	1.48	1.41			
Sunstroke / Open Wounds / Removal Of Insect From An Ear	University	121	1.75	2.52	165	2.43	0.01*
	Driving License Course	46	2.78	2.23			

P<0.005

The mean FADKL score of prospective teachers who had taken a driving license course was greater ($\bar{x}=33.98$) than that of prospective teachers who had been educated in university, a significant difference between these two groups ($t_{(167)}=5.458$, $p<.01$) as indicated in Table III. The significant differences were in those related to "fracture-luxation" ($t_{(167)}=2.62$, $p<.01$), "poisoning" ($t_{(167)}=4.11$, $p<.01$), "respiration" ($t_{(167)}=4.51$, $p<.01$), "cardiac arrest" ($t_{(167)}=5.54$, $p<.01$), "burning" ($t_{(167)}=2.75$, $p<.01$), "electric shock" ($t_{(167)}=1.76$, $p<.01$), "general first aid knowledge" ($t_{(167)}=1.76$, $p<.01$), "bleeding" ($t_{(167)}=3.39$, $p<.01$), "sanitary transport" ($t_{(167)}=4.29$, $p<.01$), "organ transplantation" ($t_{(167)}=2.48$, $p<.01$), "sunstroke," "removal of insect from ears," and "open wounds" ($t_{(167)}=2.43$, $p<.01$).

Table IV. The results of t- test analysis of FADKL for teachers and prospective teachers.

		n	\bar{x}	S	sd	t	p
FADKL	Teacher	82	38.62	10.07	432	7.56	0.00*
	Prospective teacher	351	25.37	15.1			

P<0.005

The mean FADKL of practicing teachers was higher ($\bar{x}=38.62$) than that of prospective teachers ($\bar{x}=25.37$). There was a significant difference between the teachers and prospective teachers ($t_{(433)}=7.56$), $p<.01$).

Table V. The results of t- test analysis of FADKL for primary teachers and secondary teachers.

		n	\bar{x}	S	sd	t	p
FADKL	Primary teachers	45	38.02	9.64	80	0.59	0.56
	Secondary teachers	37	39.35	10.66			

P<0.005

Among the practicing teachers, however, there was no significant difference between the FADKL scores of primary teachers and those of secondary teachers ($t_{(82)}=.59$, $p>.01$) as shown in Table V. The mean score of educated prospective teachers ($\bar{x}=25.37$) is not adequate for the mean value ($\bar{x}=35$) of measurement tool. When we asked those students who had high scores ($\bar{x}=33.98$) where they had learned about first aid, most identified a driving course. It should be noted that all the prospective teachers had health education in 9th grade (after 1966) and that all education faculties (after 1998). Our results suggest that lectures given by nurses and doctors in driving courses are more effective than those given in schools and universities. Lessons in first aid have been shown to increase learners' knowledge of first aid (Bayraktar et. al, 2009; Bollig, 2009; Bildik et al, 2010) and learning first aid in a context with practical application is better than theoretical learning (Lubrano et al, 2005; Campbell, 2012). Instructors giving first aid lessons should be practitioners themselves, and they should use educational materials were being indicated by the most of the government researches (www.gov.uk). Perhaps school nurses should be given the opportunity to teach the first aid unit in schools (Ramos et.al, 2013). On the other hand, prospective teachers in science also had high scores; it would seem that a broad education in biology, anatomy and physiology, and chemistry can also contribute to expertise in first aid. The practicing teachers had higher FADKL scores than the prospective teachers. Even though their

knowledge of first aid was not impressive, the results suggest that the practicing teachers had gained in knowledge from the experience of teaching, corroborating other research in the field of health education (Bodur, 2012) but opposing the other research (Baser et al, 2007). It can be explained with the restructured curriculum of education faculties. The prospective teachers had all taken at least one course with a unit on first aid, yet their knowledge of first aid was severely lacking (Ozcelikay, 1996). Good first aid instruction has the potential to make the world a safer place, not only for children, but for anyone hurt in an accident at home or in a public place. School children can learn the rudiments of first aid as readily as adults. They learn quickly, are easy to motivate, and they can help teach other children (Eisenburger and Safar, 1999). The availability of first aid in times of need, in schools, in the workplace, and at home, is a social necessity (Moscatelli, 2012).

3.1. Limitations

The survey was administered to just 352 prospective teachers in their senior year at four universities in Turkey, not enough from which to generalize the results to all teacher education programs in Turkey. The same limitation applies to the number of teachers in the study (n=82). Given more time and larger samples, the number of items for each topic in the questionnaire could also be increased.

4. CONCLUSIONS

The results suggest that in Turkey, prospective teachers from all departments in the university need both conceptual and practical first aid education. Also, the results also suggest that the first aid knowledge of practicing teachers is less than adequate for teaching children about first aid and for helping children who are hurt in accidents occurring in schools.

4.1. Implications for School Health

Effective first aid education in all Turkish schools could affect a large segment of the population. Thereafter, the prevalence of knowledge about accidents and how to treat them in their immediate aftermath could reduce the death rate nationwide. Suggestions based on this research:

- prospective teachers in all subjects should receive first aid instruction;
- first aid instruction should be given by qualified doctors or nurses;
- first aid instruction should include practical as well as conceptual knowledge;
- information about human physiology should be included in primary school teacher education programs;
- schools should engage whole families in learning about first aid;
- The mass media should help by communicating the importance of first aid.

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