O R I G I N A L   P A P E R

Development and Testing Of the School Staff First Aid Knowledge Test (SSFAKT)

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Abstract

Introduction: First aid knowledge is substantial and it is of crucial meaning for school staff to be aware of basic handlings. Most tests, however, are designed for healthcare professionals and not for laypersons.
Aim: To investigate the validity and reliability of the twenty-five item school staff first aid knowledge test (SSFAKT).
Method: The SSFAKT was administered to the school staff of twenty-four randomly selected special education schools. Validity, test-retest reliability and internal consistency were evaluated.
Findings: Validity was ensured by its content, readability and consistency. It was also assessed by comparing the scores between those who were trained in first aid and those who were not. Those who were trained scored significantly higher (U Mann-Whitney=1032.5, p<.000). The test-retest reliability (r_s=0.92, p<.000), and internal consistency (Cronbach's α = 0.79) were good. Factor analysis yielded nine factors for the twenty-five items.
Conclusion: The SSFAKT is a brief and easy-to-use instrument for school nursing practice. It shows good validity and reliability when used to laypersons. Nonetheless, its validity and reliability needs consecutive verification by different studies.

Key words: first aid, questionnaire/test, instrument development

Introduction

Everybody faces the possibility of encountering a health emergency where health professional care is not always available at the time of the incidence and time that passes is most valued. First aid is the immediate care given to an injured person or to someone who suddenly got sick (Baltopoulos, 2001). Basic knowledge of first aid handlings and immediate response in a health emergency can limit undesirable outcomes or even save lives.

Nonetheless, performing first aid actions requires a person's active and responsible participation based on the ability of taking the right decisions (Larsson et al, 2002; Younas et al, 2006). School staffs encounter health incidents and it is school nurses' responsibility to evaluate school personnel's ability to respond in such occasions as the school nurse cannot always be present (NASN, 1996; Heller & Tumlin, 2004; Gursky & Ryser, 2007).

The aim of the present study was to develop and evaluate a first aid knowledge measurement instrument that it would be valid and reliable and also it would refer to the knowledge of laypersons and not of professionals reflecting basic and general first aid actions for health emergences of school children. Moreover it should be comprehensible, quick to answer and not tiring to the people completing it.

The first step in either selecting or developing a questionnaire is to identify the information desired and define the concept to be measured. For this purpose a blueprint or table of specifications that identifies the content to be covered is usually developed. The blueprint is based on literature using the technique of brainstorming. The second step is to search the literature for questionnaires or items in questionnaires that much the blueprint criteria (Sproull, 1988; Polit & Hungler, 1991; Burns & Grove, 2009).

For the purpose of the present study a literature review was conducted in English and in Greek in the databases of Pubmed, SciVerse Scopus (Elsevier), Willey and Sage, and through Google Scholar seeking a first aid questionnaire with the aforementioned attributes. Key words used were: first aid, questionnaire/test, instrument development. Questionnaires found were used in the studies of Burckes (1982), Ransone et al (1999), Veskouki (2002), Singer et al (2004), Younas et al (2006), Uskun et al (2008), and Jiang et al (2008). All of the questionnaires were of high validity and reliability but they were either consisted of many questions making them time consuming or their questions were highly specialized referring to professional knowledge or referring to a certain specialty (i.e. cardiopulmonary resuscitation).

Further in the questionnaire's developing process, after concept definition and blueprint design, as items are constructed qualified individuals are asked to review them (Sproull, 1988; Polit & Hungler, 1991; Burns & Grove, 2009). Those people also called experts are usually people of high academic and professional qualifications who can give feedback in relation to accuracy, appropriateness or relevance to test specifications, technical flaws in item construction, grammar, offensiveness or appearance of bias, and level of readability (Burns & Grove, 2009).

The next step is to conduct preliminary item tryouts to a limited number of respondents (15 to 30) who represent the target population and then perform a field test on a larger sample with the final form of the questionnaire. Next, item analysis is conducted to examine the extent of intercorrelation among the items and then the highest coefficients are retained yielding the final form of the questionnaire. Ideally, more studies are performed to evaluate the validity and reliability of the instrument. Last, it is very substantial to publish the instrument developing process (Sproull, 1988; Polit & Hungler, 1991; Burns & Grove, 2009).

A questionnaire is tested on terms of validity and reliability. The validity of an instrument determines the extent to which it actually reflects the abstract construct being examined (Sproull, 1988; Polit & Hungler, 1991; Burns & Grove, 2009). Although validity has been discussed in the literature in terms of three types (content, construct and predictive) and their subtypes, currently it is considered a single broad method of measurement that is referred to as construct validity and includes all the previously identified types that are now considered as evidence of construct validity. For instance content related validity is obtained from the literature, the representatives of the relevant populations, the readability, and experts (Burns & Grove, 2009).

Reliability denotes the consistency of measures obtained in the use of an instrument and indicates the extent of random error (Sproull, 1988; Polit & Hungler, 1991; Burns & Grove, 2009). It is expressed as a form of correlation coefficient and it is measured in terms of stability, equivalence, and homogeneity. Stability, usually referred to as test-retest reliability, is concerned with the consistency of repeated measures of the same attribute with the use of the same instrument over time (Burns & Grove, 2009; Bland & Altman, 2010). Equivalence compares to versions of the same paper-and-pencil instrument (alternate forms or parallel forms reliability) or two observers measuring the same event (interrater reliability) and it is used with qualitative data (Burns & Grove, 2009). Tests of instrument's homogeneity address the correlation of various items within the instrument. For testing internal consistency statistical procedures used are split-half reliability and more often Cronbach's alpha coefficient for interval and ratio level data (Cronbach, 1951), Kuder-Richardson formula for dichotomous data (Kuder & Richardson, 1937), and factor analysis (Thomson, 2004; Burns & Grove, 2009).

Aim

The aim was to develop and evaluate a first aid knowledge test that validly and reliably measures school staff knowledge on health emergencies of school children. The objectives were to evaluate (a) test's validity, (b) test's stability through test-retest reliability, and (c) homogeneity-internal consistency reliability through computing Cronbach's alpha coefficient and through conducting factor analysis.

Test development

Questionnaire was developed following classic test theory (Burns & Grove, 2009). Concepts concerning the instrument (first aid, health emergencies of school population, basic handlings) were defined according to the

literature (Germenis, 1986; Veskouki, 2002; Baltopoulos, 2001; Papadimitriou-Papakosta, 2004; Makos et al, 2005; American Heart Association, 2005; Baskett et al, 2005; Biarrent et al, 2005; Handley et al, 2005). Also, worldwide practices and Greek legislation were taken under consideration. The above definitions through brainstorming led to the formulation of the questions/items. Questions then were reviewed by two experts for accuracy and appropriateness and by five postgraduate students for grammar and level of readability. Items were revised accordingly. The final test was administered to the participants and the collected questionnaires were statistically analysed.

Research Design

Test development was a part of a health education first aid program for special education school personnel which took place from January 2008 (1st measurement) to May 2008 (2nd measurement). Solomon four group experimental design was employed for conducting the health education program (Table 1).

Table 1 Solomon four group design

1st measurement			2nd measurement
Group 1	R_1	O_1	X O_3
Group 2	R_2		X O_4
Group 3	R_3	O_2	O_5
Group 4	R_4		O_6
R= randomized groups			
O= observation (knowledge evaluation),			
X= intervention (health education program).			

As shown in Table 1 there were two intervention groups (groups 1 and 2) and two control groups (groups 3 and 4). Intervention groups had undergone a training program in first aid, while control groups had not.

Sample

Study sample consisted of twenty-four schools of special education in Attiki, Greece. Cluster random sampling and cluster randomization by lottery were used (Burns & Grove, 2009).

Twenty-eight schools were randomly chosen by a list of all schools of special education in the region. Finally twenty-four schools accepted to participate in the study (response rate=85.72%), which were allocated randomly to the four groups of the study. A total of 180 people participated and a total of 283 questionnaires were collected.

The allocation can be seen in the Flow Diagram of the progress of the school cluster randomization (Figure 1). There was no loss of participants and all questionnaires were fully answered without omissions. The CONSORT statement: extension to cluster randomised trial (Campbell et al, 2004) was taken under consideration.

Ethical Considerations

For conducting the study ethical approval was asked and granted from the Department of Special Education of the Ministry of Education and from the Pedagogic Institution for the school year 2007-2008. The study was not registered because at the time there was not a registry for non pharmacological randomised trials. Informed consent was also asked and granted from each school principle and from each participant by an information letter. Participation in the study was voluntary and the data collected were anonymous and confidential. Each school and participant was given a code number to correspond with the questionnaires collected so as for anonymity and confidentiality to be preserved. Participants were informed about their right to withdraw from the study at their disposal. All questionnaires were distributed and collected by the author.

The school staff first aid knowledge test (ssfakt)

The SSFAKT consists two parts. The first part includes twelve closed questions concerning demographic, professional and academic qualifications, and training and experience on providing first aid. The second part includes twenty-five knowledge questions/items. The answering patterns are Right, Wrong, and I don not know. Questions refer to first aid concept, resuscitation, wounds, hemorrhage, foreign particles, bites, allergies, collapse, sunstroke, fractures, and poisoning. It takes up to 20 minutes to be completed.
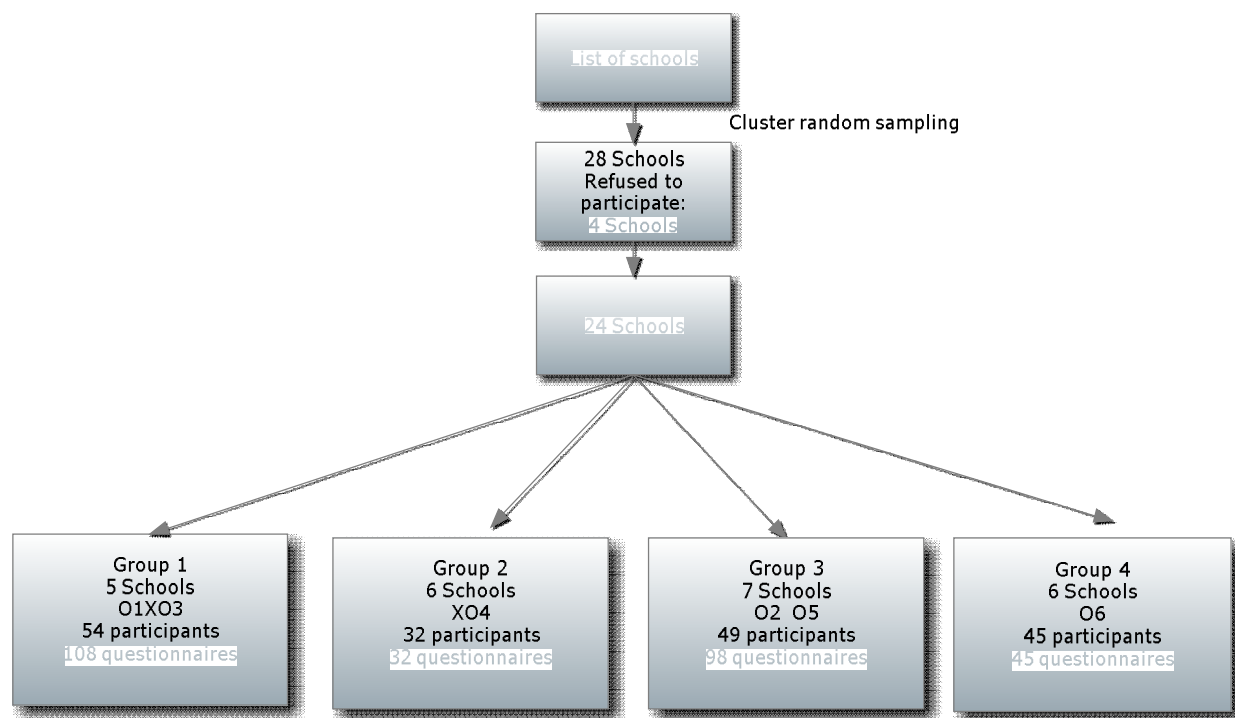
Figure 1: The Flow Diagram of the progress of the school cluster randomization

Statistical analysis

Data were analyzed using SPSS 16 for Windows (2007). Significance level was set at alpha≤.05 for two sided test. Non parametric tests were used as data were not following normal distribution. Validity was assessed by comparing the scores between those who had been trained and those who had not, using U Mann-Whitney Test. Test-retest reliability was assessed through Spearman's correlation coefficient. Correlation coefficients between 0.1 and 0.3 were considered low, between 0.31 and 0.5 moderate, and over 0.5 high.

Homogeneity-internal consistency reliability was determined by the calculation of Cronbach's α coefficient and by conducting factor analysis. Items with alphas equal to or grater than 0.70 were considered acceptable (Sproull, 1988; Polit & Hungler, 1991; Burns & Grove, 2009).
Exploratory factor analysis was used to examine the structure of relationships between the items of the questionnaire applying principal component analysis (Thomson, 2004; Burns & Grove, 2009).

Results

Sample characteristics

Sample characteristics and the participants' previous experience in providing first aid are shown respectively in Tables 2 and 3.

Validity testing

For ensuring test's validity as aforementioned items' formulation was based on literature (Germenis, 1986; Veskouki, 2002; Baltopoulos, 2001; Papadimitriou-Papakosta, 2004; Makos et al, 2005; American Heart Association, 2005; Baskett et al, 2005; Biarrent et al, 2005; Handley et al, 2005). Also, two experts were asked to review and comment on the items and five post graduate students assessed readability. Items were corrected accordingly. Furthermore, validity was assessed by comparing the scores between those who had been trained (Groups 1 and 2) and those who had not (Groups 3 and 4). It was hypothesized that participants that did not have any training in first aid would report lower values.

Respondents who were trained (Groups 1 and 2) scored significantly higher (mean score=52.66, SD=10.56) than those who were not (mean score=37.37, SD=6.75) (U Mann-Whitney=1032.5, p<.000).

Reliability testing

Test-retest reliability was assessed in groups 1 and 3, which answered the test twice. Correlation analysis between knowledge scores of group 1 yielded a moderate Spearman correlation coefficient (r_s=0.44, p<.001), whether for group 3 the analysis yielded a high correlation coefficient (r_s=0.92, p<.000). Internal consistency coefficient Cronbach's α was computed for all four groups (N=180) and it was 0.79.

Factor Analysis

Kaiser-Meyer-Olkin measure of sampling adequacy was employed to decide whether to perform a factor analysis.
The coefficient was 0.78 and factor analysis was performed. The analysis resulted in a nine-factor solution accounting for 61% of the total variance (eigenvalue equal or higher than 1.00, Table 4). Varimax rotation yielded the structure shown in Table 5.

Discussion

Questionnaires are designed to elicit information from written responses. Although formulating questions appears to be an easy task it is far from that, as well-designed items require considerable effort (Sproull, 1988; Polit & Hungler, 1991; Burns & Grove, 2009). The aim was to develop an instrument that would validly and reliably evaluate layperson's knowledge on first aid. The validity of an instrument determines the extent to which it actually reflects the abstract construct being examined (Sproull, 1988; Polit & Hungler, 1991; Burns & Grove, 2009). Documentation of validity evidence begins with development of the instrument as explained previously in Chapter 1 and 3. While designing the items the educational level of the participants was taken under consideration. Although it was tempting to add more questions, there was an effort to sustain a minimum number of items as to ensure a not lengthy questionnaire that might tire respondents resulting in blank answers. It was satisfactory that all respondents answered all questions and as well as there was no loss of participants.

Furthermore, when an item requests knowledge that the respondent does not posses the participant's guessing interferes with obtaining a valid and reliable answer (Dugdale et al, 1979; Burns & Grove, 2009). That is why a response category of "I do not know" was included. A cover letter explaining the purpose of the study, the name of the researcher, the approximate amount of time required to complete the test and the confidentiality of the answers accompanied the questionnaire. Clear instructions on how to respond were included at the beginning of the questionnaire. Last, but not least, the researcher administered and collected all the questionnaires from the participants during school breaks ensuring consistency of administration.

Test-retest reliability coefficient for group 3 was high in contrast to group 1 where the coefficient was moderate. The difference is due to the change that occurred in the factor that was being measured (first aid knowledge). Test-retest reliability requires the assumption that the factor being measured has not changed between the measurement points (Burns & Grove, 2009; Bland &Altman, 2010). Although, this assumption does not apply to the participants of group 1 as they had undergone the training program, it does apply to group 3 where conditions remained the same showing high stability of the instrument.As mentioned before instrument's homogeneity addresses the correlation of various items within the instrument. In other words it examines the extent to which all the items consistently measure the construct. For a newly developed psychosocial instrument a reliability coefficient of 0.70 is considered acceptable (Burns & Grove, 2009). As far as Cronbach's α coefficient of SSFAKT is concerned the findings were satisfactory.

Factor analysis examines interrelationships among large numbers of variables to identify clusters of variables that are most closely linked together (Thomson, 2004; Burns & Grove 2009). In an attempt to explain the clustering in nine factors of the SSFAKT possible explanations are the following:

- The 1st factor, which accounts for the larger percentage of variance, refers to handlings/interventions of life threatening health emergencies (items 5, 6, 9, 15, 16, 24, 25)

- The 2nd factor refers to supportive emergency response rather than interventional handlings (items 11, 23)
- The 3rd factor refers to formal actions (items 2, 3, 17)
- The 4th factor refers to blood circulation (items 8, 10)
- The 5th factor refers to sustaining and monitoring (items 18, 19, 22)
- The 6th factor refers to loss of consciousness (items 4, 7)
- The 7th factor refers to potential complications of health emergencies (item 12, 13)
- The 8th factor refers to prevention of complications (item 20, 21)
- The 9th factor refers to specialized care (item 1, 14)

Table 2 Sample characteristics			Intervention groups		Control groups	
Variables	Answer categories	Sample n=180 (%)	Group 1 n =54 (%)	Group 2 n =32 (%)	Group 3 n =49 (%)	Group 4 n =45 (%)
Gender	Male	44 (24.4)	12 (22.2)	7 (21.9)	14 (28.6)	11 (24.4)
	Female	136 (75.6)	42 (72.8)	25 (78.1)	35 (71.4)	34 (75.6)
Age	< 25	11 (6.1)	3 (5.6)	-	4 (8.2)	4 (8.9)
	25-34	57 (31.7)	18 (33.3)	12 (37.5)	12 (24.5)	15(33.3)
	35-44	55 (30.6)	21 (38.9)	5 (15.6)	17 (34.7)	12 (26.7)
	45-54	46 (25.6)	10 (18.5)	11 (34.4)	15 (30.6)	10 (22.2)
	> 55	11 (6.1)	2 (3.7)	4 (12.5)	1 (2)	4 (8.9)
Level of education	University	138 (76.7)	44 (81.5)	24 (75)	36 (73.5)	34 (75.6)
	Technological	17 (9.4)	2 (3.7)	5 (15.6)	6 (12.2)	4 (8.9)
	Secondary	25 (13.9)	8 (14.8)	3 (9.4)	7 (14.3)	7 (15.6)
	Compulsive	-	-	-	-	-
Academic qualification	Yes	112 (62.2)	38 (70.4)	19 (59.4)	30 (61.2)	25 (55.6)
	No	68 (37.8)	16 (29.6)	13 (40.6)	19 (38.8)	20 (44.4)
Categories of academic qualification (N=111)	Diploma	24 (21.6)	10 (27)	7 (36.8)	6 (20)	1 (2.2)
	BSc	45 (40.5)	11 (29.7)	7 (36.8)	13 (43.3)	14 (31.1)
	MSc	33 (29.7)	12 (32.4)	4 (21.1)	9 (30)	8 (17.8)
	PhD	6 (5.4)	2 (5.4)	1 (5.3)	2 (6.7)	1 (2.2)
	Other	3 (2.7)	2 (5.4)	-	-	1 (2.2)
Current studies (N=178)	Yes	24 (13.5)	10 (18.5)	-	6 (12.2)	35 (18.6)
	No	154 (86.5)	44 (81.5)	32 (100)	43 (87.8)	8 (81.4)
School personnel category	Teachers	101 (56.1)	31 (57.4)	18 (56.2)	27 (55.1)	25 (55.6)
	Specialists/Therapists	54 (30)	16 (29.6)	10 (31.2)	15 (30.6)	13 (28.9)
	Assistants	25 (13.9)	7 (13)	4 (12.5)	7 (14.3)	7 (15.6)
Pupils' special need categories (Iintellectual disabilities=1, Mobility disabilities=2, Deafness=3, Blindness=4, Other=5)	Iintellectual disabilities	34 (18.9)	4 (7.4)	8 (25)	15 (30.6)	7 (15.6)
	Mobility/Physical disabilities	3 (1.7)	-	3 (9.4)	-	-
	Deafness	3 (1.7)	-	-	3 (6.1)	-
	Blindness	11 (6.1)	11 (20.4)	-	-	-
	Other	12 (6.7)	1 (1.9)	2 (6.2)	9 (18.4)	-
	1+2	13 (7.2)	3 (5.6)	6 (18.8)	2 (4.1)	2 (4.4)
	1+4	1 (0.6)	1 (1.9)	-	-	-
	1+5	71 (39.4)	28 (51.9)	7 (21.9)	16 (32.7)	20 (44.4)
	1+2+3+5	3 (1.7)	3 (5.6)	-	-	-
	1+3+5	3 (1.7)	2 (3.7)	-	-	1 (2.2)
	1+2+5	24 (13.3)	1 (1.9)	5 (15.6)	4(8.2)	14 (31.1)
	1+2+3	1 (0.6)	-	1 (3.1)	-	-
	1+4+5	1 (0.6)	-	-	-	1 (2.2)
Years of experience x± SD (N=175)		7.33±7.44	7.53±6.64	9.93±10.2	7.44±6.88	5.1±5.8

Table 3 Answers on First Aid experience						
Variables	*Answer categories*	*Sample N=180 (%)*	*Intervention groups*		*Control groups*	
			Group 1 N=54 (%)	*Group 2 N=32 (%)*	*Group 3 N=49 (%)*	*Group 4 N=45 (%)*
First Aid training (N=179)	Yes	60 (33.5)	17 (31.5)	11 (34.4)	16 (32.7)	16 (36.4)
	No	119 (66.5)	37 (68.5)	21 (65.6)	33 (67.3)	28 (63.6)
Experience of giving First Aid	Yes	76 (42.2)	21 (38.9)	12 (37.5)	19 (38.8)	24 (53.3)
	No	114 (57.8)	33 (61.1)	20 (62.5)	30 (61.2)	21 (46.7)
Environment of delivering First Aid (N=76)	School setting	44 (57.9)	13 (61.9)	7 (58.3)	12 (63.2)	12 (50)
	Out school activity	8 (10.5)	2 (9.5)	3 (25)	1 (5.3)	2 (8.3)
	Both	24 (31.6)	6 (28.6)	2 (16.7)	6 (31.6)	10 (41.7)

Table 4 Explained variances of the School Staff First Aid Knowledge Test (SSFAKT)						
Factors	**Number of items**	**Mean**	**SD**	**Eigenvalues**	**Percentage of Variance**	**Cumulative Percentage**
Factor 1: Interventional response	7	1.52	.76	3.800	15.198	15.198
Factor 2: Supportive response	2	2.35	.75	1.949	7.798	22.996
Factor 3: Formal actions	3	2.3	.77	1.430	5.719	28.715
Factor 4: Blood circulation	2	1.73	1.05	1.418	5.672	34.387
Factor 5: Sustain and monitoring	3	1.44	1.12	1.379	5.515	39.903
Factor 6: Loss of consciousness	2	1.76	1.05	1.337	5.349	45.252
Factor 7: Potential complications	2	1.56	1.63	1.319	5.276	50.528
Factor 8: Prevention of complications	2	2.11	.04	1.317	5.266	55.794
Factor 9: Specialized care	2	1.91	1.02	1.310	5.240	61.034

Study Limitations

A pilot study was not conducted due to time and resource constraints although it would strengthen test's validity and reliability. Moreover, respondents were not asked to comment on clarity and readability of the test, which would also strengthen the SSFAKT potentials.

Conclusion and Implication for Nursing Practice

The SSFAKT is a brief and easy-to-use instrument for school nursing practice. It shows good validity and reliability when used to laypersons. Nonetheless, its validity and reliability needs consecutive verification by different studies. A valid and reliable instrument on first aid gives the school nurses the opportunity to quickly assess school staff needs and helps them prevent undesired results of health emergencies. Also, the use of such an instrument can be a part of evidence based practice that justifies improved school health services and proposals for school health policies.

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Table 5 Factor loading matrix of the items of the School Staff First Aid Knowledge Test (SSFAKT)										
Items	*Mean (SD)*	*Factors*								
		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
9. In CPR we perform 5 chest compressions and give 2 rescue breaths	1.53 (1.3)	**.816**	-.038	.051	.173	.042	-.157	-.103	.012	.040
25. When a child swallows correction fluid we give milk	1.5 (1.19)	**.812**	.112	.067	.013	-.016	.007	-.028	-.184	-.018
15. To remove a bee sting we squeeze the bitten area and we apply cortisone ointment	1.08 (1.38)	**.752**	.211	.069	-.036	.055	.030	.088	.057	.076
24. When a child swallows any substance the first step is to induce vomiting	1.46 (1.42)	**.735**	.225	-.035	.157	.021	.013	.179	-.086	-.029
5. In case of emergency the wrist is the first place to check for pulse	1.48(1.44)	**.518**	.154	.253	.196	-.116	-.159	.028	.034	.389
6. When a child is without breath and pulse first we call for specialized care (ambulance/911) and then we perform CPR	1.72(1.41)	**.486**	-.286	.041	.356	-.086	.222	.132	.199	-.179
16. In case of a wedged foreign particle in the eye. ear or nose we try to extract it with delicate handlings and we apply gauze	1.85 (1.29)	**.482**	.478	.159	-.270	.213	.055	.137	.050	-.061
23. When we suspect spinal fracture we move and place the child in a supine position	2.18 (1.16)	.206	**.746**	.041	.082	.023	.035	-.007	.027	.012
11. In nose bleeding we tell the child to tilt backwards and wait for the bleeding to stop	2.52 (1.08)	.063	**.598**	-.099	.129	-.046	-.049	.010	.029	.041
2. The person providing first aid is committed to stay with the child until someone with similar or better qualifications takes over or until specialized care(ambulance/911) arrives	2.97(.27)	.018	-.220	**.798**	-.066	-.027	.061	.057	.107	-.006
3. Children's and their family's consent is necessary in order to provide first aid	2.47(1.05)	.138	.238	**.595**	.129	-.034	-.038	-.226	-.360	.181
17. When a child who has asthma presents difficulty in breathing we try to relax him/her and we give him/her water	1.46 (1.24)	.260	.281	**.377**	-.065	.129	-.164	.163	.081	-.136
10. To an injured child with excessive external bleeding we implement continuous pressure without changing dressings	2.47 (.98)	.114	.202	-.074	**.729**	.033	.068	-.068	.070	-.085
8. The best indication of proper chest compressions in CPR is the change in colour of the child	.98 (1.04)	.145	-.129	.132	**.392**	.270	-.353	.245	-.175	.220
18. If a child faints we keep him/her lying down with his/her legs uplifted	2.48 (1.03)	.093	-.042	.026	-.030	**-.817**	.194	.022	-.019	-.021
22. First step in an open or closed fracture is to immobilize the limb	.26 (.68)	.272	-.272	-.107	-.123	**.479**	.186	-.095	-.121	.286
19. When a child without any known allergies is bitten by an insect and develops severe itching we only need to apply cortisone ointment	1.57 (1.35)	.142	.186	.238	.167	**.451**	.262	.143	-.259	-.257
7. The first step before performing CPR is to check for blood circulation	1.01 (1.17)	.140	.122	.023	.000	-.004	**-.822**	-.007	.073	-.037
4. When checking for breathing in a child with loss of consciousness we look. listen and feel the movement of air and of chest	2.5(.96)	.191	.235	.080	.335	-.195	**.457**	-.079	.101	-.022
12. In injuries of little external bleeding what concerns us more is the risk of infection rather than hemorrhage	2.73 (.77)	.002	.046	.064	.194	.091	.033	**-.782**	.054	-.059
13. The first step when caring for wounds with little external bleeding is to apply antiseptic to minimize infection	.42 (1.01)	.186	.158	.124	.302	.120	.001	**.601**	.056	.094
21. In case of leg bruises we need to put something cold on it and uplift the leg	2.14 (1.21)	-.006	.159	.069	.151	-.108	-.012	-.001	**.824**	.017
20. When a child is under the sun for a long time and presents sunstroke symptoms (headache. nausea. hot skin etc) we only tell him/her to drink plenty of fluids	2.08 (1.31)	.294	.308	.166	.256	-.088	.059	.113	**-.405**	.049
1. First aid substitute specialized medical healthcare	1.19(1.43)	.315	.136	.134	-.133	.171	.160	.006	.206	**.678**
14. When there is a foreign particle in the throat of a child that remains conscious first we encourage coughing and then we perform Heimlich handling	2.63 (.88)	.289	.066	.113	-.005	.060	.116	-.253	.233	**-.617**