

Assessment of Knowledge, Attitude and Practice of School's Roles about Pediatric Basic Life Support Skills

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ABSTRACT

Background: Children are more prone to get injuries. Additionally, 32% of times had bad practice while 68% of times had adequate practice, as determined by the total score.

Objective: The aim of the present work was to assess the knowledge, attitude and practice of schools' role about pediatric basic life support aiming at prevention and early management of serious emergencies.

Subjects and methods: A cross-sectional study was conducted on 100 schools' roles who teach or deal with students in primary school about pediatric basic life support. A convenience sample was collected from some five schools at Ismailia governate, between January and March 2019.

Results: A total of 64 (64%) of participants had never received a course in emergency medicine before. Up to 84% of participants had strong knowledge on average, whereas 16% had low knowledge. Female teachers of math, science, and elementary school students (5-12 years old) who worked more than 4 hours daily had considerably better understanding than the others (P-value <0.05). Additionally, 32% of times had bad practice, while 68% of times had adequate practice, as determined by the total score. Teachers of math, science, and grade levels (5-12 years old) who worked more than 4 hours daily had considerably better practice than their counterparts (P-value <0.05).

Conclusion: The majority of the teachers in Ismailia governate were familiar with first aid. Knowledge of first aid was highly correlated with sex, type of teachers and work hours.

Keywords: KAP, First Aid, Pediatric, Teachers, cross sectional study, Suez Canal University.

INTRODUCTION

Basic life support (BLS) is a quick and easy procedure that, when done correctly and on time, will boost survival rates in the majority of emergency circumstance ⁽¹⁾. Numerous researches have been carried out abroad to examine public perceptions of and attitudes regarding BLS among various populations. Studies specifically conducted on high school students revealed varying levels of understanding and attitude concerning BLS ⁽²⁻⁶⁾.

According to research by **Halawa et al.** ⁽⁷⁾ falls (25%) and burn injuries (20.3%) were the two most frequent accidental injuries among the population under study. Boys (57.2%) had a considerably greater frequency of these injuries than did girls, and children aged 2 to 6 years had a significantly higher incidence (70%) than did older and younger children. Home and its immediate surroundings (64.4 %) was the most common setting for injuries.

More than 875,000 children under the age of 18 die each year from injuries worldwide, predominantly in low- and middle-income countries (LMICs), and injuries are responsible for 13% of all childhood morbidities in children under the age of 15 ^(2,3).

There has been little research on injuries among developing-country children. In Arab countries, public health systems are widely regarded as ineffective and are given minimal priority in national budgets. Despite the resources available in several Arab countries, the development and effectiveness of public health systems are lower than projected, with a continual emphasis on treatment rather than prevention. Unfortunately, some

reports from LMICs have showed an increase in childhood injuries, which could be attributed to the higher occurrence of these injuries as well as the limited resources available to address the issue ⁽⁸⁾.

Insufficient research has been done locally to determine the attitudes and knowledge of school students concerning BLS.

The aim of the present work was to assess the knowledge, attitude and practice of schools' role about pediatric BLS aiming at prevention and early management of serious emergencies to reduce mortality and morbidity of children.

SUBJECTS AND METHODS

A cross-sectional study was conducted on 100 schools' roles who teach or deal with students in kindergarten and primary school. A convenience sample was collected from 5 schools at Ismailia governate, between January and March 2019. The included schools were 24 October, Elobor, Salah Eldin, Elzohor and Elfarouk Omar primary schools.

Eligibility criteria:

All teachers of both genders, enrolled in one of the above schools were eligible to participate in this survey. Participants who refused to participate in the study were automatically excluded.

Sample size calculation:

Epi Info StatCalc was used to calculate the sample size. We used a 5% acceptable margin of error, a design effect of 1.0, a cluster effect of 1.0, and an 80 percent power, yielding an estimated sample size of 91

individuals at a 95% confidence interval (95% confidence interval). To account for non-response due to the cross-sectional design, 10% of the projected sample size was added, resulting in a final sample size of 100 participants.

Data collection

By three different questionnaires: one for assessment of awareness and needs of the schools' roles, then another two questionnaires for pretest and posttest evaluation of the scientific and practical skilled gained after their training on BLS skills.

The first questionnaire consisted of 2 parts: Part A covered personal particulars such as participants' age, residence, education, occupation and total number, gender and age group of children under his supervision. Part B. collected information about the medical situation and types of injuries and use of health services, equipments and if they attended any medical meetings. The questionnaire comprised questions to examine the primary caregivers' or schools' knowledge, attitude, and practice (KAP) concerning first aid measures (defined as the assessments and interventions that can be performed immediately with minimal or no medical equipment) (9) for various childhood injuries; this portion consisted of 13 multiple-choice questions about frequent childhood emergencies.

The questions were created using the American Academy of Pediatrics' PedFACTs textbook and an instructor's resource material (8). Each correct answer was worth one point, with no points awarded for unanswered questions or "Not sure" answers.

Ethics approval and consent to participate:

Both the Institutional Review Board and the Local Committee of Ethics approved the protocol of this research in the Faculty of Medicine, University of Suez Canal. Before the study began, the Ministry of Education of Suez governate approved the conduction of the study. A written consent of being informed was collected from all participants prior to being enrolled in the study. This study was executed according to the code of ethics of the World Medical Association (Declaration of Helsinki) for studies on humans.

Statistical analysis

The collected data were introduced and statistically analyzed by utilizing the Statistical Package for Social Sciences (SPSS) version 26.0 for windows. Qualitative data were defined as numbers and percentages.

Chi-Square test and Fischer exact test were used for comparison between categorical variables as appropriate. Quantitative data were tested for normality by Kolmogorov-Smirnov test. Normal distribution of variables was described as means and standard deviation (SD), and independent sample t-test was used for comparison between groups. P value ≤0.05 was considered to be statistically significant.

RESULTS

Personal and teaching characteristics of studied subjects are summarized in table 1.

Table 1: Personal and teaching characteristics of studied subjects (n = 100).

Characteristic		Frequency	%
Gender	Male	16	16
	Female	84	84
Professional grade	Head teacher	12	12
	Grade teacher	88	88
Subject taught	Science and math	84	84
	Sports	12	12
	Music and art	4	4
Teaching grades	Pre-school (< 5 years old)	32	32
	School child (5 – 8 years old)	60	60
	School child (8 – 12 years old)	8	8
Teaching hours/day	<4 hours	8	8
	≥4 hours	92	92

Baseline background about choking was assessed in all teachers (Table 2).

Table 2: Teachers' knowledge regarding BLS in children.

Frequency		Percent
Do you have any previous emergency medicine course?		
Yes	36	36%
No	64	64%
Do you know the current medical status of your students?		
Yes	68	68%
No	32	32%
Do you have an diabetic, allergic, epileptic child in our school?		
No	32	32%
Diabetic	16	16%
Allergic	48	48%
Epileptic	4	4%
Did you watch any student taking his chronic medication in your classroom?		
Yes	24	24%
No	76	76%
Did you watch any case of choking at school before?		
Yes	16	16%
No	84	84%
If yes; is it choking by (n = 16)		
Food	8	50%
Peanut	4	25%
Toy parts	4	25%
Do you think it is important to have a simple filing system about students in each classroom?		
Yes	100	100
Do you think that insufficient chewing or hard food particles can cause choking		
Yes	92	92
No	8	8
What were the signs of choking?		
Right answer	84	84
Wrong answer	16	16
Did you watch a collapsed child?		
Yes	32	32
No	68	68
Do you think that your help, even before the school physician or an ambulance arrival can save the victim's life?		
Right answer	92	92
Wrong answer	8	8
Do you think the best person that can help in emergency?		
Right answer	70	70
Wrong answer	30	30
Do you know where are the emergency box and first aid measures in every school location?		
Yes	72	72
No	28	28
Do you have an emergency calling system in your school?		
Right answer	40	40
Wrong answer	60	60

Total score for answers of questions in each part were added and participant was considered having good knowledge or practice when having more than or equal 50 % right answers otherwise he will be considered having poor knowledge, attitude or practice. Up to 84% of participants had good knowledge and 16% had poor knowledge. In addition, the overall frequency of good practice (as assessed by total score) was 68% and 32% had poor practice (Figure 1).



Figure 1: Knowledge assessment among studied teachers

In **Table 3**, female gender, grade, science and math teacher of school children (5-12 years old) and working for >4 hours daily had significantly good knowledge than others ($P<0.05$).

Table 3: Factors associated with score of knowledge (N = 100).

Characteristic		Good Knowledge	Poor Knowledge	P-value
Gender	Male	11 (68.75%)	5 (31.25%)	0.039*
	Female	73 (86.9%)	11 (13.1%)	
Professional grade	Head teacher	4 (33.3%)	8 (66.7%)	<0.001*
	Grade teacher	80 (90.9%)	8 (9.1%)	
Subject taught	Science and math	75 (89.3%)	9 (10.7%)	0.162
	Sports	8 (66.7%)	4 (33.3%)	
	Music and art	1 (25%)	3 (75%)	
Teaching grades	Pre-school (< 5 years old)	24 (75%)	8 (25%)	0.017*
	School child (5-8 years old)	54 (90%)	6 (10%)	
	School child (8-12 years old)	6 (75%)	2 (25%)	
Teaching hours/day	<4 hours	2 (25%)	6 (75%)	0.003*
	≥4 hours	82 (89.1%)	10 (10.9%)	

Table 4 summarizes the attitude of the participants towards BLS.

Table 4: Assessment of attitude of school roles about pediatric basic life support skills (n=100).

	No	%
Do you think that every school teacher must learn basic life support?		
• Yes	16	16
• Don't know	84	84
Do you think that we must teach B.L.S skills to students at preparatory and high school?		
• Yes	16	16
• Don't know	84	84
Do you think you can help in teaching healthy behavior to students by?		
• Right answer	20	20
• Wrong answer	4	4
• Don't know	76	76
Do you think that choking can cause suffocation and death in minutes?		
• Yes	16	16
• Don't know	84	84
Do you think that you can help a child with choking by simple skills?		
• Yes	16	16
• Don't know	84	84
Do you think that you can save your students' life if you have been just close to them?		
• Yes	16	16
• No	84	84

Table 5 describes distribution of right and wrong answers regarding assessment of practice of about pediatric BLS skills.

Table 5: assessment of practice of school roles about pediatric BLS skills.

	No	(%)
What are the medical consequences of choking?		
Right answer	64	64
Wrong answer	36	36
Is it mandatory to help the victim before the school physician or ambulance delivery?		
Yes	88	88
No	12	12
How many times we use back blows and abdominal thrusts in a case of choking if victim is below 1 year?		
Right answer	32	32
Wrong answer	68	68
What is the best action to help a choking child > 1 years old?		
Right answer	52	52
Wrong answer	48	48
Where is the place of abdominal thrust in a choking child > 1 years old?		
Right answer	44	44
Wrong answer	56	56
What is the best action to help child after choking when he start to lose consciousness		
Right answer	60	60
Wrong answer	40	40
What is the first to do when you see collapsed child?		
Right answer	24	24
Wrong answer	76	76
What is the perfect time to start CPR in collapsed child?		
Right answer	72	72
Wrong answer	28	28
What is the best order to help a collapsed child?		
Right answer	32	32
Wrong answer	68	68
How many chest compressions needed in CPR?		
Right answer	8	8
Wrong answer	92	92
What is the depth of chest compressions in child > 1 year old?		
Right answer	56	56
Wrong answer	44	44
How do we do chest compression in baby < 1 year?		
Right answer	68	68
Wrong answer	32	32
How do we do chest compression in child > 1 year old?		
Right answer	60	60
Wrong answer	40	40
What is the ratio of chest compression to breathe in 1 rescue?		
Right answer	52	52
Wrong answer	48	48
How you make sure of depth of breathing given to the victim?		
Right answer	68	68
Wrong answer	32	32
What is the best way to open the airway and give breathing?		
Right answer	76	76
Wrong answer	24	24

In **Table 6**, grade, science and math teacher of school children (5-12 years old) and working for ≥ 4 hours per day had significantly good practice than others ($P < 0.05$).

Table 6: Factors associated with score of Practice (n = 100).

Characteristics		Good Practice	Poor Practice	P-value
Gender	Male	9 (56.25%)	7 (43.75%)	0.063
	Female	59 (70.2%)	25 (29.8%)	
Professional grade	Head teacher	3 (25%)	9 (75%)	0.026*
	Grade teacher	65 (73.9%)	23 (26.1%)	
Subject taught	Science and math	58 (69%)	26 (31%)	0.344
	Sports	10 (83.3%)	2 (16.7%)	
	Music and art	0 (0%)	4 (100%)	
Teaching grades	Pre-school (< 5 years old)	8 (25%)	24 (75%)	0.030*
	School child (5 – 8 years old)	54 (90%)	6 (10%)	
	School child (8 – 12 years old)	6 (75%)	2 (25%)	
Teaching hours/day	<4 hours	2 (25%)	6 (75%)	0.011*
	≥ 4 hours	66 (71.7%)	26 (28.3%)	

DISCUSSION

Children are more likely to suffer injuries while participating in activities. In addition, the overall frequency of good practice (as assessed by total score) was 68% and 32% had poor practice ⁽²⁾.

In the present study, it was observed that more than half of participants (64%) didn't have any previous emergency medicine course. However, when an inquiry was made in depth regarding first aid knowledge, about sixty percent of participants were found to be knowledgeable. Prevalence of good knowledge increased from 84% and 16% had poor knowledge ⁽¹⁰⁾.

Consistent with the Egyptian study, we observed that 90.9% of the participating educators had some familiarity with basic life support procedures ⁽¹⁾. In order to evaluate the levels of knowledge of teachers in the city of Riyadh on fundamental first aid procedures and its variables, **AlYahya et al.** ⁽⁵⁾ conducted a study. They discovered that fewer teachers than our findings (60.1%) knew how to administer first aid (90.9 %).

Despite the fact that more than half of teachers (62.88 %) lacked first aid training and had insufficient knowledge, a different survey from Saudi Arabia revealed that 95% of teachers had a positive attitude (51.26 %) ⁽⁵⁾.

Another study demonstrated that there was an unsatisfactory level of first aid knowledge among primary school teachers ⁽¹⁰⁾. According to a study by Al-Robaiay, first aid expertise was lacking among sports teachers. The percentage of teachers who had good first aid knowledge overall in Madinah was 44.76%. Additionally, they determined that 60.55% of teachers have a favorable attitude toward first aid instruction ⁽¹¹⁾.

According to a study from Egypt, primary school instructors don't have enough first aid training ⁽⁴⁾. According to a research from Iraq, 95% of teachers had overall fair knowledge, compared to 5% who had bad knowledge, and 93.4% had a positive attitude ⁽¹²⁾.

According to a Chinese study, the majority of people had a favorable attitude about teaching and receiving first aid ⁽⁸⁾.

According to a survey conducted in India, 12.5% and 10% of government school instructors had strong first aid knowledge, while 77.5% had average understanding ⁽²⁾.

Another Indian survey found that 87% and 13% of Mangalore's school teachers, respectively, had moderate to poor understanding ⁽¹³⁾. According to another study, 72.5% had good knowledge ⁽³⁾.

This study also showed that female, grade, science and math teacher of school children (5-12 years old) and working for ≥ 4 hours daily had significantly good knowledge than others ($P < 0.05$).

A similar recent study discovered that participants' first aid expertise was substantially correlated with older ages and extended experience. First aid knowledge was four times greater among kindergarten teachers over 35 than among those under 25 years old. Teachers with less than five years of work experience were three times as likely to be uninformed as those with service years between five and 10. Similar to this, teachers with more than 10 years of professional experience knew almost four times as much as those with fewer than 5 years of expertise. As people remain in the service longer, they have better access to first aid training and are exposed to more situations, which increases their motivation to learn first aid ⁽⁶⁾.

The majority of participants in this survey have favorable attitudes on first assistance. The majority of respondents thought that providing first aid was beneficial, and a sizable majority thought that studying first aid was important and helpful. This outcome is consistent with a study conducted in Shanghai, China, where the majority of participants felt that knowing first aid and giving it to others was important ⁽³⁾. About three-fourths of the responders to the questions about overall

attitudes had a favorable opinion of first aid. The majority of respondents had negative sentiments prior to training, however, according to a study on attitudes toward first aid for epilepsy⁽¹⁴⁾.

There are several limitations on this study. As a result of the study's cross-sectional design, one of its disadvantages is that cause and effect associations cannot be investigated because information is collected at predetermined time points. The lack of consistency and heterogeneity in the types of first aid situations necessitated scenarios made it difficult to assess the aspects connected to participant practice.

CONCLUSION

For teachers to provide remedies in the event of accidents, first aid knowledge is essential. Our research sought to evaluate the school teachers in Ismailia City's first aid knowledge, attitude, and practice, as well as its contributing variables. The majority of the teachers were familiar with first aid. Knowledge of first aid was highly correlated with sex, type of teachers and work hours.

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