

Are Our Children in Safe Hands? Evaluating the preparedness of primary school staff in Jeddah, Saudi Arabia in responding to health related emergencies.

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Abstract: Background: In emergency situations, fast and skilled intervention is crucial for a patient's outcome and saving life; which necessitate availability of persons who are capable to endorse such intervention. One of the places which are considered to carry potential risk for such emergencies are schools. **Objectives:** to evaluate the preparedness of female primary school staff in Jeddah, KSA when faced with emergency cases. **Methods:** A cross sectional study design, which enrolled 118 female staff from different schools of both governmental and private sectors in Jeddah City, KSA. They were selected by a multistage random sampling technique. The data were collected using a structured self-administered questionnaire. **Results:** The average test scores reflecting the knowledge were 57.8 % for governmental and 57.7% for private schools. For the practice in first aid the test score was 56.7% for governmental and 56.6% for private sectors. More than half of the staff (58.8%) had previous training in first aid and BLS and their average score in practice was significantly better (61.1%) than those who were not trained (50.4%). The lowest score in knowledge was for a question about cardiopulmonary resuscitation (11.9%) and in practice was for a case about seizure (31.4%). The attitude score was positive concerning first aid training at school setting. **Conclusion:** female primary school staff were found to have insufficient level of knowledge and practice of first aid. However, the attitude towards first aid training was positive and desired among them. [Shifaa M. Bashir, Marwan A. Bakarman. **Are Our Children in Safe Hands? Evaluating the preparedness of primary school staff in Jeddah, Saudi Arabia in responding to health related emergencies.** *Life Sci J* 2014;11(11):986-989]. (ISSN:1097-8135). <http://www.lifesciencesite.com>. 173

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1. Introduction:

Children are vulnerable to health related emergencies such as physical injuries or worsening of chronic conditions. The World Health Organization (WHO) has stated a fact that injuries are the leading cause of death and disability among school-age youth.¹ About 10 – 25% of injuries occur to children while they are in school, and around 25% of emergency department visitors are of children with special health care needs.²

School-age children spend a significant time in schools, parents rely on the staff to maintain their safety during the day.^{2,3} This stresses on the importance that all staff members should be educated to handle emergencies.⁴ School teachers, nurses and coaches should know general principles of first aid and cardiopulmonary resuscitation (CPR).²

First Aid is defined by The National First Aid Science Advisory Board as assessments and interventions that can be performed by a bystander (or by the victim) with minimal or no medical equipment.⁵ The main principle of first aid is to minimize the mortality and morbidity of any illness or injury until expert help is present.⁶

The Ministry of Education in Saudi Arabia established a program designed to train school teachers on first aid and Basic Life Support (BLS) skills.⁷ Based on this program, a manual was

published to provide comprehensive guidelines on how to respond to potential hazards and common emergencies at school such as musculoskeletal injuries, bleeding, choking, loss of consciousness, heat related illnesses and seizures. Since the establishment of the program and the reprinting of the manual in 2001, up until the study period, data on evaluating our educator's preparedness for emergency situations are not available.

The aim of this study was to explore the extent of preparedness of the staff in female primary schools in Jeddah in responding to health related emergencies.

Subjects and methods: A cross sectional analytic study was conducted by evaluating all female staff that were given the responsibility for emergency care and first aid in their schools in Jeddah City, Saudi Arabia. Epi Info™ version 6 software was used to calculate the sample size, taking into account that the total number of female staff who were held responsible for emergency situations was 365, and based on the following criteria: expected frequency of 50% to ensure maximum sample size with acceptable interval of $\pm 5\%$ and confidence interval of 95% and power of 80%, and correction for the size of population; the sample size was 187 female staff who were randomly selected from both governmental and private sectors schools equally.

A self-administered questionnaire formulated by the researchers, using adapted information from previous similar studies and international guidelines.⁷⁻¹² The questionnaire included the demographic data of the staff and their work experience, information about their previous training in first aid, followed by questions to assess the knowledge about common medical emergencies and basic principles in first aid and BLS. Lastly, questions concerning case scenarios of common emergencies at school that assessed the practical skills of the staff in managing those cases.

The questionnaire was validated by two qualified consultants in emergency care and one pediatric emergency consultant from different hospitals in Jeddah City.

Results:

118 female staff responded and participated in our study, that makes the response rate 63%. The majority of the staff (89.9%) were graduates from universities. Out of them, 114 who mentioned their occupation, approximately half (51.7%) of them were active teachers, while a minority were committed school physicians (3.4%) and nurses (1.7%) with variable work experiences that ranged from one month to 31 years. Only 100 of the participants had disclosed their age, which revealed that almost one-third of them (32.2%) were between ages 31 to 40 years.

The staff were asked to state their experience with first aid training including the duration since their last training if they had any, types and location of training and the presence of clear first aid guidelines at work. More than half of the respondents from both sectors (58.5%) had previous training in first aid and BLS.

When the training in both sectors were compared, as demonstrated in Table 1, it was found that the percentage of the trained staff was significantly higher among those working in governmental schools (70.5%) than those in the private sector (45.6%), $p = 0.006$. Of those who had the training ($n=69$), two-thirds (66%) of them took practical type of training (64.3% were from the governmental and 69.2% from the private sectors). However, this difference between both sectors was not statistically significant, $p > 0.05$. The presence of clear first aid guidelines was denied by 74 participants, particularly, by those who were working in the governmental sector (71.7%).

The mean score reflecting the participants' knowledge was 57.8% for governmental schools and 57.7% for private schools, while the mean practice score was 56.7% for the governmental and 56.6% for the private sectors. These scores were measured against the personnel's characteristics and it was found that the difference in age, work experience and level

of education had no significant change in the score. Although the scores were slightly higher among non-teachers and non-administrative staff (61.6% for the knowledge, and 65.9% for the practice), this difference was not statistically significant, $p = 0.07$.

Table 1 – Previous Training According to School Sectors

Training Characteristics	School Sectors				P
	Governmental		Private		
	No.	%	No.	%	
Previous Training in First Aid:					
Yes	43	70.5	26	45.6	0.006*
No	18	29.5	31	54.4	
Duration Since Last Training:					
> 2 years	19	45.2	13	52	0.59*
< 2 years	23	54.8	12	48	
Type of Training:					
Theoretical	15	35.7	8	30.8	0.67*
Practical	27	64.3	18	69.2	
Training Location:					
Work	35	81.4	15	62.5	0.088*
Other places	8	18.6	9	37.5	
Presence First Aid Guidelines at School:					
Yes	17	28.3	26	45.6	0.053*
No	43	71.7	31	54.4	

* Chi square test

On comparing the mean scores between the trained and untrained personnel as demonstrated in Table 2, the untrained staff had rather lower score for both the knowledge and practice of first aid. However, although the difference in knowledge was not found to be statistically significant, the practice of first aid was significantly better among those with previous training ($P = 0.002$). Among those who were trained, the practice and overall test score seemed to decrease with the increase in duration since last time they had the training, $p = 0.003$. The type and location of training had no significant impact on the score.

In Table 3, we analyzed each item of the test that reflected the knowledge of the participants in first aid for all sectors together. Almost three-quarters of the staff in both sectors (74.6%) had correct knowledge in identifying early signs of asthma attack, 69.5% gave correct answers for the proper content of first aid kits and 66.1% of them knew the correct number of the Red Crescent. Only half of the participants answered correctly to questions testing their knowledge in wound care (51.7%), 44.1% in identifying signs of anaphylaxis and only a minority who knew the correct ratio of chest compression to ventilation in CPR (11.9%).

Correspondingly, as displayed in Table 4, most of the staff (89%) expressed their use of first aid guidelines in their practice, 73.7% gave accurate initial response when faced with cases of acute asthma

attack, 68.6% were accurate for cases of suspected diabetic emergency, and only 31.4% for seizure cases.

Table 2 – Mean Score of Knowledge and Practice in First Aid according to Training Characteristics

	Mean Score of Knowledge in First Aid		Mean Score of Practice in First Aid	
	%	P	%	P
<i>Training in First Aid and BLS:</i>				
Yes	58.9	0.33	61.1	0.002*
No	56.1		50.4	
<i>Duration Since Last Training:</i>				
> 2 years	55.6	0.08	54.2	0.003*
< 2 years	61.7		66.4	
<i>Type of Training:</i>				
Theoretical	56	0.61	56.1	0.07*
Practical	61.1		64	
<i>Training Location:</i>				
Work	59.6	0.44	61.2	0.96*
Other places	56.4		61.2	
<i>Presence First Aid Guidelines at School:</i>				
Yes	56.5	0.48	53.9	0.17*
No	58.6		58.7	

* Independent t-test

Table 3- Frequency of Correct Answers Reflecting the Knowledge in First Aid and BLS

Items	No.	%
1. Early Signs of Asthma Attack	88	74.6
2. First Aid Kit Content	82	69.5
3. Control of bleeding	80	67.8
4. Principles of First Aid management of seizures	79	66.9
5. Number of Red Crescent	78	66.1
6. Definition of First Aid	77	65.3
7. Chest Compression site in CPR	71	60.2
8. Wound Care	61	51.7
9. Signs of Anaphylaxis	52	44.1
10. Ratio of Compressions to Ventilations in CPR	14	11.9

Table 4- Frequency of correct answers reflecting the practice of First Aid and BLS

Items	No.	%
1. Use of First Aid Guidelines in management of emergencies	105	89
2. Initial management of Asthma Attack	87	73.7
3. Initial management of suspected Diabetic Emergency	81	68.6
4. Initial management of Epistaxis	73	61.9
5. Management of Chocking	70	59.3
6. Initial management of Collapsed Victim	66	55.9
7. Recognition of Diabetic Emergency	64	54.2
8. Initial management of suspected Musculoskeletal Injury	55	46.6
9. Initial management of Ankle Sprain	50	42.4
10. Recognition and initial management of Heat Exhaustion	48	40.7
11. Initial management of Seizure	37	31.4

The attitude of the participants was scored out of 5, where 5 reflected their strongly positive attitude and 1 reflected their strongly negative attitude towards first aid training. Table 5 displays the mean score of overall attitude among the staff in each sector. Personnel working in private schools had rather more positive attitude towards training than those working in governmental schools. However, this discrepancy was not statistically significant, $p = 0.08$. The trained staff demonstrated more positive attitude significantly in comparison to the untrained ($p = 0.01$). School counselors, physicians and nurses were more likely to show positive attitude than teachers and administrators ($p = 0.01$), but their age difference, work experience and level of education made no difference in the score.

Table 5- Overall Attitude Score According to School Sector, Previous Training and Occupation of the Staff

	Overall Attitude		P
	Mean Score	Std. Deviation	
<i>School Sector:</i>			
Governmental	3.9	0.6	0.08*
Private	4.08	0.49	
<i>Previous Training:</i>			
Yes	4.09	0.5	0.01*
No	3.8	0.56	
<i>Occupation:</i>			
Teacher	3.9	0.5	0.01**
Administrator	3.99	0.59	
Others	4.4	0.3	

* Independent T- test ** One Way Anova

Discussion:

The school environment should be safe and well prepared to manage any potential health hazards that may occur to children and staff during opening hours. Part of this attentive preparation is to have personnel who know what and how to respond with basic first aid and life support.

In Turkey, Yurumez et al.¹³ surveyed educators in preschools to evaluate their level of knowledge about first aid and basic life support; they found that the knowledge mean score was only 48.9% for all participants and 54.5% for teachers in particular. Similar findings were reported among American public school teachers in Gagliardi et al.¹⁴ where the average score of the respondents was 58%. Our findings were parallel to the Turkish and American studies which revealed that the average test scores for first aid knowledge among our female primary school staff were less than 60% (57.8 % for governmental schools and 57.7% for private schools).

In contrast to the American study where the knowledge was found to be better with trained teachers compared to those with no training,¹⁴ our study showed no significant difference in the knowledge of first aid between the two groups. The

practice in first aid was also assessed in our study by asking the participants to choose the correct response to different case scenarios of health problems occurring at school. The assessment showed that the overall practice of our participants was not satisfactory as well (56.7% for governmental and 56.6% for private sectors).

First aid providers at any workplace may rarely use their skills for serious health emergencies, therefore affecting their ability to retrieve their knowledge and skills when unexpectedly encountered with such cases.⁶ This was apparent in our study when we found that the practice of first aid among our staff was less satisfactory with the increase in duration (> 2 years) since their last time they had completed any training. In another American survey conducted by Olympia et al.¹⁵ on school nurses, it was reported that despite the presence of emergency response plan in the majority of the participating schools, only 33% of the schools were practicing the plan in a periodic interval and 35% of the schools had never practiced the plan.¹⁵ These information highlight that not only training is important, practical training should be repeated in regular intervals to improve the skills and update the knowledge of the first aid provider.

Conclusion:

Our data indicate that female primary school personnel have insufficient knowledge and defective practice in first aid administration. These findings were linked to the training in first aid and BLS and continued re-assessment of the skills in periodic intervals. Nonetheless, the overall attitude towards first aid training was positive with the emphasis on training related to school environment and pediatric age group emergency care.

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