

## ORIGINAL RESEARCH

# Effect of child to child approach educational method on knowledge and practices of selected first aid measures among primary school children

Azza Abd-Alsemia Elewa \*, Amany Mohamed Saad

Faculty of Nursing, Helwan University, Cairo, Egypt

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## ABSTRACT

**Background and objective:** Environmental school is the best setting for unintentional injury which is the leading cause of morbidity and mortality among children worldwide. So, emergency instances need first aid. The aim of this study was to evaluate the effect of child to child approach educational method on knowledge and practices of selected first aid measures among primary school children.

**Methods:** Research design: A quasi-experimental research design was applied for this study. Setting: This study was carried out in two governmental primary schools in El-Massara Administration, Cairo Governorate, Egypt (Abobakr Elsedek and Anas Ben Malek). Sample: A multi-stage random sample was used. The total number of children was 460 (both male and female). Tools: Two tools were used in this study: (1) An interview questionnaire to collect data about the studied children's socio-demographic characteristics, and their knowledge about first aid. (2) An observational checklist for assessing the studied children practices regarding first aid.

**Results:** The current study revealed that, there were statistically significant increases in mean scores of all items as well as the total score of knowledge and practices after application of the child to child approach. There was a statistically significant positive association between knowledge and practice levels; good level of knowledge with adequate practice level showed higher prevalence (75.6%) than good level of knowledge with inadequate practice level (24.4%). Fair level of knowledge with adequate practice level showed higher prevalence (66.9%) than fair level of knowledge with inadequate practice level (33.1%).

**Conclusions:** The application of the child to child approach increased children's good level of knowledge and adequate practices related to first aid measures. The study recommended that the use of innovative methods of health education in teaching first aid for other sectors as in preparatory school students, as well as child-to-mothers and child-to-community, to promote children's health.

**Key Words:** Child to child approach, Educational method, First aid, Primary school children

## 1. INTRODUCTION

Childhood injuries are from the most hazardous health problems especially among school students worldwide, because it can cause significant lifelong infirmity or even death. So, first aid is very significant in such injuries.<sup>[1]</sup> In Egypt, more

than 746,000 injured cases were recorded in the year 2009, to the Ministry of Health hospitals. Around 38% of all injuries happen among children and young adults less than twenty years of age.<sup>[2]</sup>

First aid is vital in daily life at any condition. First aid is

\*Correspondence: Azza Abd-Alsemia Elewa; Email: [dr.azzaelewa@yahoo.com](mailto:dr.azzaelewa@yahoo.com); Address: Faculty of Nursing, Helwan University, Cairo, Egypt.

the first care given to a victim of an accident, injury or unexpected illness, before the providing of progressive medical care. The primary objective of first aid is to relieve suffering, facilitate healing and reduce damage. To achieve correct first aid management a basic training is required. Otherwise, wrongly administered first aid can lead to dangerous complications.<sup>[3]</sup> So, the first hour after the accident is very crucial and if the accurate first aid measures are taken lives could be saved and disabilities limited. The immediate response in a health emergency can limit unwanted consequences.<sup>[4]</sup> First aid applies to a broad range of medical circumstances and consists both of specific knowledge and skills e.g., what to do for each type of injury or illness and the ability to assess a situation and make appropriate decisions.<sup>[5]</sup>

School children are highly exposed to emergency situations because mental and physical abilities of children are not developed enough to allow them to protect themselves; they sustain accidents and injuries frequently, in addition of increasing activity, tendency of children to involve into dangerous physical behavior and persistent violent act.<sup>[6]</sup> The students, acquisition and reinforcement of basic emergency life saving skills training during the school ages may enhance students confidence to respond to an emergency condition and may provide updating for these skills after high school graduation.<sup>[4, 7]</sup>

Health education to school children is the most effective way for protection and promotion of their health. School children are more open minded and are likely to accept of changes in ideas and agreeable to modifications of their lifestyles.<sup>[8]</sup> Schools are the most suitable places where proper education on first aid to be carried out. Thus, many studies have emphasized that teaching basic first aid should be obligatory in all schools.<sup>[9]</sup>

Innovative methods to education for health are essential to gain the benefits.<sup>[8]</sup> Child to child approach education method is a new way of providing health education to school children and the use of this method maximizes the spread of health messages. It is an active method that encourages learning by easy manner. The child has the power to spread the health messages therefore this method links what is educated in school room with what to do out of the class and at home. A child passing health messages to younger brothers and sisters, friends and so jointly collaborating to become a positive power for health.<sup>[10]</sup>

### 1.1 Significance of the problem

The school students are exposed to numerous accidents and frequently suffer from injuries. First aid training has better effect to decrease illness and death from these common in-

juries, which represent a significant public health problem. Worldwide, at least 875,000 school students aged below 18 years die due to accidental injuries each year and more than ninety five percent of these deaths happen in countries with low and moderate income levels, more serious injuries have been reported at schools. According to the World Health Report, the liability of the disease due to injuries has increased from about 12% in 1990 to 15% in 2000 and expected to increase to about 20% by 2020.<sup>[2]</sup> So, nurses should pay attention for training children on first aid by using the child to child approach because it enables older children to teach younger ones about good personal health practices and life skills.<sup>[11]</sup> Therefore, the aim of this study was to evaluate the effect of child to child approach education method on knowledge and practices of selected first aid measures among primary school children.

### 1.2 Aim of the study

The aim of this study was to evaluate the effect of child to child approach educational method on knowledge and practices of selected first aid measures among primary school children.

### 1.3 Hypotheses

- H1: The child to child approach educational method will be effective in enhancing the primary school children's knowledge and practices of selected first aid measures.
- H2: There will be a significant association between knowledge and practices regarding selected first aid measures.
- H3: There will be a significant association between child's knowledge and practices regarding selected first aid measures with their selected demographic variables.

## 2. SUBJECTS AND METHODS

### 2.1 Technical design

#### 2.1.1 Research design

A quasi experimental research design was used in this study.

#### 2.1.2 Setting

The study was carried out in two governmental primary schools namely Abobakr Elsedek and Anas Ben Malek affiliated to El-Massara Administration, Cairo Governorate, Egypt.

#### 2.1.3 Sample

A multi-stage random sample was used in this study, according to the following stages:

**First stage:** The total number of governmental primary schools in El-Massara is five, two schools were chosen randomly for the conduction of the study, Abobakr Elsedek and Anas Ben Malek primary schools.

**Second stage:** Two classes from fifth grade and two from sixth grade were selected randomly from each school.

**Third stage:** All school children in the selected classrooms were taken, total classes included in the study were 8 classes. Each class contains 55 to 60 children. The total number of children was 460 (both male & female), with the following inclusion criteria: Both gender, their aged ranged between 11-13 years, the verbal consent was taken from children and their parents to participate in the study. Children with serious medical conditions or experiencing cognitive impairment and absent children on the first day of data collection were excluded from the study.

**Fourth stage:** The children who impart knowledge and practices to other children are selected by purposive sampling technique those who were excellent in academic performance were chosen with the help of class teachers.

#### 2.1.4 Study tools and technique of data collection

An interview questionnaire was designed by the researchers to collect the required data after reviewing related literature. It was written in simple Arabic language and it consisted of two parts. The first part: Covered the studied children's socio-demographic characteristics, such as: Age, gender, parent's education, parent's occupation and school grade. The second part: Entails questions about children's knowledge about selected first aid measures. It consisted of 37 questions such as: Definition of first aid and aim, first aid of wounds, bleeding, minor burns, fractures, fainting, asphyxia, and epistaxis.<sup>[12, 13]</sup>

#### 2.1.5 Scoring system for knowledge

Knowledge obtained from the children was checked with a model key answer. The open question scored as the following: Complete correct answer takes "two", while the incomplete answer takes "one" and a wrong answer or don't know takes "zero". For each closed question a score of "one" was given for every correct answer and score of "zero" was given for every wrong answer. The total score was converted into percentage and interpreted as follows: < 50% is considered poor, 50 -< 75% is considered fair and  $\geq 75\%$  is considered good.

An observation checklist, filled in by the researchers, it was used to assess children practices regarding first aid about: Wound, bleeding, minor burns, fractures and fainting.<sup>[14, 15]</sup>

#### 2.1.6 Scoring system for practice

The correct complete practice was scored "two", while the incomplete correct was scored "one" and incorrect or not done scored "zero". The total practice was considered adequate if the total score was 60% or more and inadequate if the total score was less than 60%.

### 2.2 Operational design

Preparatory phase: This phase included reviewing the available literature and the different studies related to first aid, using books, articles, magazines and internet search to develop the study tools for data collection.

#### 2.2.1 Validity of tools

The study tools were tested for validity through the opinions of 5 experts in nursing (Pediatric & Community), medicine (Medical emergencies & Primary care), and statistics.

#### 2.2.2 Reliability of the tools

All tools used in the present study showed good to very good reliability as follows: Knowledge tool (Cronbach's alpha = 0.662) and practice tool (Cronbach's alpha = 0.922).

#### 2.2.3 Ethical considerations

The agreement of the children and their parents to participate in the study was taken verbally. Participants were assured that, the information taken from them would be treated confidentially and used for the research purpose only. Participants' anonymity, confidentiality, privacy, safety and protection were secured. The intervention did not have any harmful effect on the participants. The studied children were informed about their rights to refuse or withdraw at any time without giving any reasons and with no consequences.

**Pilot study:** A pilot study was carried out on 10% of the study sample to test tools for clarity, applicability, and to estimate the time required for filling in the tools. Data obtained from the pilot study were analyzed and the necessary modifications on the study tools were done to simplify some terms, so that they were understandable for children. Those who participated in the pilot study were excluded from the main study sample.

**Field work:** The study was conducted over a period of 6 months started from 15<sup>th</sup> of October 2015 to 15<sup>th</sup> of April 2016, where the researchers were available in the study setting three times/week from 9.00 a.m. to 12.00 mid-day. The researchers started by introducing themselves to the studied children and a verbal consent was obtained from each studied children and their parents. The studied children were fully informed about the aim of the study prior to the completion of questionnaire in convenient time, which was not interfering with their class schedule. The studied children were

interviewed separately and the answers were marked by the researchers, about 20 minutes was needed to complete the questionnaire. After the pretest the trained children were imparted or transferred the teaching on selected first aid measures to other groups in the studied children by using lectures, videos and laptop under the supervision of the researchers.

The application of child to child approach educational method was carried out in four phases:

- (1) Assessment phase: It consisted of the pretest for identification of children needs. An analysis of the obtained pretest data was then done to help with the design of the educational intervention.
- (2) Planning phase: It involved designing the topics, which were organized according to priority of children needs among the study participants. The content included first aid topics about the definition of first aid, aim of first aid, first aid for wounds, bleeding, burns, fractures, fainting, asphyxia and epistaxis. Intervention was given regarding correct first aid knowledge and practices.
- (3) Implementation phase: The studied children in this study were 460 children, 40 of children recruited, trained and motivated to receive education and taught about selected first aid measures by the researchers, the second group 420 children were divided into 21 groups and each group consisted of 20 children. The trained children were imparted knowledge and practices on selected first aid measures from the researchers to their own peer groups. The education intervention was applied through 10 sessions: three sessions cover the theoretical part, which included: Definition of first aid and aim, first aid for wounds, bleeding, minor burns, fractures, fainting, asphyxia and epistaxis. Seven for practical sessions to cover practice regarding selected first aid measures. Every session took about 30-45 minutes; studied children were interviewed in a private room.

The trained children's knowledge and practices were assessed by making them to do rehearsal to the researchers and the same questionnaire was given to determine their adequate level of knowledge and practices on the next day. If the knowledge was average or poor and the practice score inadequate, then the trained children were encouraged to do the rehearsal again, under the supervision of the researchers, until the knowledge and practice scores were good and adequate.

An illustrated pamphlet with instructions about first aid was given to each child. This pamphlet containing systematically organized information about selected

first aid measures to cover the child's deficit in knowledge and practices about first aid. It was discussed with them in details, in the form of sessions, according to their needs and questions. It had been designed by the researchers in simple Arabic language and the contents were consistent with related literature.<sup>[13-15]</sup>

- (4) Evaluation phase: It involved a post-test done, using the same formats of the pre-test.

### 2.3 Administrative design

The present study was carried out after taking an official permission from the directors of the selected schools to collect the data, and the aim and expected outcomes of the study were explained clearly.

### 2.4 Statistical design

Numerical data were presented as mean and standard deviation values. Qualitative data were presented as frequencies (No) and percentages (%).

Wilcoxon signed-rank test was used to compare between knowledge and practice scores before and after approach application. Friedman's test was used to compare between knowledge levels (poor, fair & good) before and after approach application. Cochran's Q test was used to compare between practice levels (inadequate & adequate) before and after approach application. Spearman's correlation coefficient was used to determine correlations between total knowledge and total practice scores. Chi-square test was used to find the association between knowledge and practice levels. Linear regression analysis was performed to detect significant predictors of knowledge and practice scores. The dependent variable was total knowledge or total practice score after approach application, while the independent variables were: age, gender, educational grade, fathers' education, fathers' job, mothers' education and mothers' job. ANOVA (f-test) was used to test model fit, coefficient of determination ( $r^2$ ) was used to find the correlation between dependent and independent variables in the model. Regression coefficients with their 95% confidence intervals (95% CI) were calculated.

The significance level was set at  $p \leq .05$ . Statistical analyses were performed with IBM, PC and Statistical Package for Social Sciences (SPSS) Statistics version 20 for Windows.

## 3. RESULTS

Table 1 presents demographic characteristics of the studied children. It reveals that the present study was conducted on 460 children; 222 boys (48.3%) and 238 girls (51.7%). Age categories were 11 -< 12 years (30.7%), 12 -< 13 years (50.2%) and 13 years or more (19.1%). Two-hundred and twenty-two children were at 5th grade while, 238 children

(51.7%) were at 6th grade. Only 34 children (7.4%) had previous training on first aid measures. As regards fathers 68 (14.7%) were illiterate, 38 (8.3%) can read and write, 56 (12.2%) had elementary education, while 241 (52.4%) had secondary education, and 57 (12.4%) were university graduates. Two-hundred and six fathers (44.8%) were employees, while 224 (48.7%) were workers and 30 (6.5%) were professionals.

**Table 1.** Socio-demographic characteristics of the studied children (n = 460)

Items	No	%
<b>Gender</b>		
Boy	222	48.3
Girl	238	51.7
<b>Age (in years)</b>		
11-< 12	141	30.7
12-< 13	231	50.2
13 +	88	19.1
<b>Educational grade level</b>		
5 <sup>th</sup>	222	48.3
6 <sup>th</sup>	238	51.7
<b>Previous first aid training program</b>		
Yes	34	7.4
No	426	92.6
<b>Fathers' educational level</b>		
Illiterate	68	14.7
Can read and write	38	8.3
Elementary	56	12.2
Secondary	241	52.4
University graduate	57	12.4
<b>Fathers' job</b>		
Employee	206	44.8
Worker	224	48.7
Professional	30	6.5
<b>Mothers' educational level</b>		
Illiterate	95	20.7
Can read and write	80	17.4
Elementary	45	9.8
Secondary	226	49.1
University graduate	14	3.0
<b>Mothers' job</b>		
Housewife	367	79.8
Working	93	20.2

Regarding mothers, 95 (20.7%) were illiterate, 80 (17.4%) can read and write, 45 (9.8%) had elementary education, while 226 (49.1%) had secondary education and 14 (3.0%) were university graduates. Three-hundred and sixty-seven mothers (79.8%) were housewives, while 93 (20.2%) were working mothers.

Table 2 reveals the results of comparison between knowledge scores before and after application of the child to child approach. The results showed that there were highly statistically significant increases in mean scores of all items as well as the total score.

Figure 1 represents results of Friedman's test for the compari-

son between levels of knowledge before and after application of child to child approach. The results showed that there was a statistically significant decrease in poor level of knowledge and highly statistical significant increases in fair and good knowledge levels ( $\chi^2 = 460.000$  at  $p$ -value  $< .001$ ).

Table 3 reveals the results of comparison between practice scores before and after application of the child to child approach. The results showed that there were statistically significant increases in mean scores of all items as well as the total score.

Figure 2 illustrates the result of Cochran's Q test for the comparison between levels of practices before and after application of child to child approach. The results showed that there was a statistically significant decrease in inadequate level of practices and a statistically significant increase in adequate practices ( $\chi^2 = 315.000$  at  $p$ -value  $< .001$ ).

Table 4 shows results of association between knowledge and practice levels. There was a statistically significant association between knowledge and practice levels; good level of knowledge with adequate practice level showed higher prevalence (75.6%) than good level of knowledge with inadequate practice level (24.4%). Fair level of knowledge with adequate practice level showed higher prevalence (66.9%) than fair level of knowledge with inadequate practice level (33.1%).

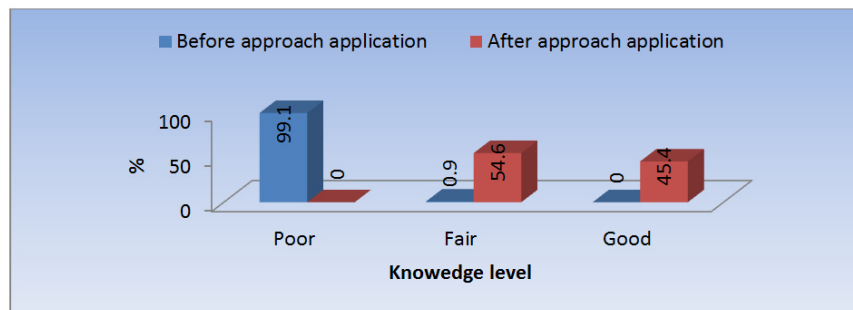
Table 5 identifies that linear regression analysis was performed to detect significant predictors of knowledge scores. The dependent variable was total knowledge score after approach application, while the independent variables were: age, gender, educational grade, fathers' education, fathers' job, mothers' education and mothers' job. Regression model results revealed that: age, grade level and fathers' education were significant predictors for knowledge. There were highly statistically significant direct correlations between age, grade, fathers' education and knowledge score i.e., an increase in all these variables is associated with an increase in knowledge scores.

Table 6 shows that linear regression analysis was performed to detect significant predictors of practice scores. The dependent variable was total practice score after child to child approach application, while the independent variables were: age, gender, grade level, fathers' education, fathers' job, mothers' education and mothers' job. Regression model results revealed that: age and fathers' education were significant predictors for practices. There were statistically significant direct correlations between age, fathers' education and practice score i.e., an increase in both variables is associated with an increase in practice scores.

**Table 2.** Descriptive statistics and results of Wilcoxon signed-rank test for the comparison between knowledge scores before and after application of child to child approach

Items	Before Approach Application		After Approach Application		z-value	p-value
	Mean	± SD	Mean	± SD		
Knowledge about meaning, aim, bag & precautions of first aid (Out of 6)	1.51	0.84	4.32	0.96	18.750	< .001**
Wound (Out of 6)	1.52	1.05	4.65	1.03	18.874	< .001**
Bleeding (Out of 10)	2.13	1.44	6.75	1.83	18.711	< .001**
Minor burn (Out of 6)	1.12	0.73	4.60	0.95	18.904	< .001**
Fracture (Out of 6)	1.34	0.89	4.63	0.92	18.944	< .001**
Fainting (Out of 4)	1.28	0.80	3.30	0.71	18.935	< .001**
Asphyxia (Out of 4)	0.99	0.71	3.05	0.79	19.155	< .001**
Epistaxis (Out of 5)	0.92	0.75	3.70	0.91	18.911	< .001**
Total score (Out of 47)	10.80	4.42	35.02	4.84	18.597	< .001**

\*\* Highly significant at  $p \leq .001$

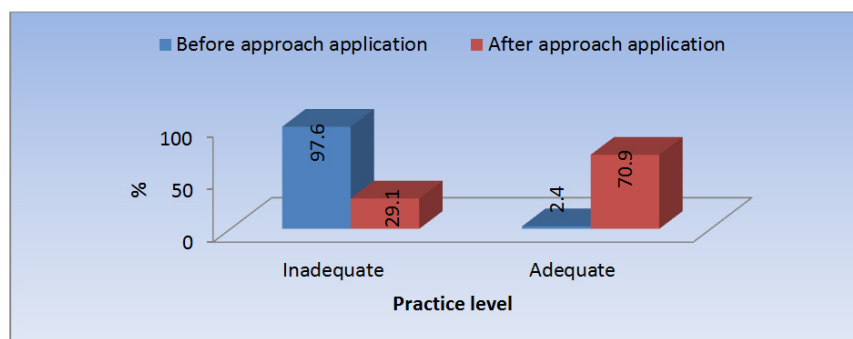


**Figure 1.** Bar chart representing knowledge levels before and after application of child to child approach education method

**Table 3.** Descriptive statistics and results of Wilcoxon signed-rank test for the comparison between practice scores before and after application of child to child approach

Items	Before Approach Application		After Approach Application		z-value	p-value
	Mean	± SD	Mean	± SD		
Wound (Out of 10)	3.57	1.61	6.80	1.47	18.683	< .001**
Bleeding & epistaxis (Out of 10)	3.24	1.57	6.55	1.44	18.443	< .001**
Minor burn (Out of 10)	2.95	1.60	6.05	1.53	18.452	< .001**
Fracture (Out of 10)	3.41	1.50	6.62	1.37	18.653	< .001**
Fainting (Out of 10)	1.85	1.80	5.94	1.43	18.498	< .001**
Total score (Out of 50)	15.03	6.60	31.96	6.33	18.596	< .001**

\*\* Highly significant at  $p < .001$



**Figure 2.** Bar chart representing practice levels before and after application of child to child approach

**Table 4.** Descriptive statistics and results of Chi-square test for the association between levels of knowledge and practices after application of child to child approach

Level of Knowledge	Level of Practices		Inadequate		Adequate		$\chi^2$	p-value
	No	%	No	%	No	%		
Fair	83	33.1	168	66.9			4.148	.042*
Good	51	24.4	158	75.6				

\*: Significant at  $p \leq .05$ **Table 5.** Results of regression model for significant predictors of knowledge scores after child to child approach application

Variables	Knowledge Scores	Unstandardized Coefficient ( $\beta$ )	95% CI for $\beta$		t-value	p-value
			Lower Bound	Upper Bound		
Age (in years)		1.515	0.714	2.315	3.719	< .001**
Educational grade level		1.268	0.710	1.826	4.464	< .001**
Fathers' education		0.632	0.303	0.960	3.779	< .001**

\*\*: Highly significant at  $p \leq .001$ **Table 6.** Results of regression model for significant predictors of practice scores after child to child approach application

Variables	Practice Scores	Unstandardized Coefficient ( $\beta$ )	95% CI for $\beta$		t-value	p-value
			Lower Bound	Upper Bound		
Age		1.842	1.028	2.656	4.446	< .001**
Fathers' education		1.001	0.540	1.463	4.266	< .001**

\*\*: Highly significant at  $p \leq .001$ 

#### 4. DISCUSSION

Primary school children constitute a major category of the total population in Egypt and worldwide. Injury is a common cause of morbidity and mortality in children due to lack of experience. Rapid use of first aid immediately after injury may minimize the hazards that result from it. Child to child approach has the potential effect to bring visible improvement in health and education among the children and it helps in enhancing children participation. Therefore, the aim of the current study was to evaluate the effect of child to child approach educational method on knowledge and practices of selected first aid measures among primary school children.

Discussion of the study findings are categorized under the following parts:

**First part:** Socio-demographic characteristics of primary school children

The study results revealed that slightly more than half of the children were in the age group of 12-< 13 years. This result disagreed with Dasgupta et al.,<sup>[3]</sup> who in rural area of West Bengal, said that most of the students under study were 14 years of age. This may be due to that the study children were between fifth and sixth grade level.

Regarding to gender, the present study result shows that more than half of studied children were girls and most of the stud-

ied children did not attend any previous training program on first aid. These results were in disagreement with those of Abd el Ghany et al.,<sup>[16]</sup> who carrying out a study in Suez Canal, Governorate, Egypt; they reported that more than three quarter of the studied students had information and training about first aid. These results are in the same direction with those of Dasgupta et al.,<sup>[3]</sup> who stated that most of study sample were females and most of students had never been exposed to any first aid training before the study was undertaken. As well as, this result is in the opposite direction with that of Alhejaili and Alsubhi<sup>[17]</sup> in Taibah, they showed that most of the female students (98.2%) showed that they had previous knowledge about first aid.

On the other side, the current study result was supported by those of Mathew et al.,<sup>[18]</sup> conducted in Ajman University, they demonstrated that significant difference was seen amongst students who had taken first aid course previously when compared to those who had not. This may be due to that the school didn't carry out any training programs or workshops about first aid.

**Second part:** Concerning knowledge and practices of the studied children about selected first aid measures

Regarding to knowledge about meaning, aim, bag and precautions of first aid, the present study result showed that there

were statistically significant improvements among studied children after application of child to child approach educational method. This result was in the same line with that of Dasgupta et al.,<sup>[3]</sup> who reported that only 15.2% of the school students know about the correct definition of the term first-aid while the remaining subject doesn't know this. This may be attributed to that most of children believed that first aid could only be provided by doctors and health workers and not by common people. In addition, there was no any educational program or any intervention about first aid performed in the school or included in the study curriculum.

As regards to knowledge of the studied children about the selected first aid measures, the present study finding showed that there was a statistically significant decrease in poor level of knowledge after the application of child to child approach educational method and statistically significant increases in fair and good knowledge levels. In addition, there were statistically significant improvements in children's knowledge about wound, bleeding, minor burn, fracture, fainting, asphyxia, epistaxis and in total knowledge. This result is congruent with that of a study carried out by Muneeswari,<sup>[19]</sup> at Tamil Nadu, in India, who pointed out that the knowledge score regarding first aid measures was highly significant after administration of a planned health teaching program. The current study result was also supported by Shinde et al.,<sup>[20]</sup> on Indians, who found that there was a significant improvement in knowledge about various emergency conditions as wound, bleeding, burn and epistaxis. This may be related to the effect of child to child approach as a dynamic method that encourages learning by using activity and entertainment between children. In addition, the children are equipped with new knowledge, and skills that increase health and prevent many health problems.

Regarding to the practice of studied children about wound, bleeding and epistaxis, minor burn, fracture and fainting, there were statistically significant improvements in the mean scores of all the previous items. In addition the present study result revealed that there was a significant improvement in the total practice among the studied children after application of child to child approach educational method. This result was consistent with that of Khan et al.,<sup>[21]</sup> who carried out a study in Karachi and found that students having received first aid training scored better than those who had no first aid training. In addition, Abd El-Hay et al.,<sup>[7]</sup> in Tanta City (East & West), Elgharbia Governorate, reported that there was a highly statistically significant improvement in the mean score of total practice throughout his study. This may be attributed to an increase in knowledge among the studied children after training which led to improve their practices. In addition to that primary school students are more likely to accept first aid

training than older students, and they are motivated to learn and do so quickly and easily. Also, children during early stages of development and initial stage of learning process will take up all the new things in the way of fast track.

Hence the research hypothesis (H1) which stated that child to child approach educational method will be effective in enhancing the primary school children's knowledge and practices of selected first aid measures was justified.

**Third part:** Association between knowledge and practices of first aid measures

The present study revealed that there were statistically significant positive correlations between knowledge and practices. This result was consistent with that of Muneeswari,<sup>[19]</sup> who found that there was a statistically significant correlation between post-test knowledge of first aid with performance of the students. In addition, the importance of knowledge in the health education must not be ignored because improvement in their knowledge is the first step toward proper practice. In addition, Abd El-Hay et al.<sup>[7]</sup> mentioned that there were statistically significant positive correlations between knowledge and practices throughout the study among the studied students from pre, immediate and 1-month post training program regarding first aid. This may be due to that improvement of knowledge among children increases their understanding and motivation to carry out these procedures of first aid correctly.

Hence research hypothesis (H2) which stated that there will be a significant association between knowledge and practices regarding selected first aid measures was justified.

**Fourth part:** Association between knowledge scores and demographic data

The current study revealed that, there were statistically significant direct correlations between age, students grade, fathers' education and knowledge score i.e., an increase in all these variables is associated with an increase in knowledge scores. These results were in contrast with those of Lavanya,<sup>[22]</sup> in Bangalore, who reported that no association between knowledge about CPR among adolescents in selected schools and selected demographic variables like age, gender, grade, education and occupational level of parents. The study result was proved by two study results, the first one by Wafik and Tork,<sup>[6]</sup> in Zagazig City, Egypt, who stated that, a high number of parents of the study subjects are educated, which might have a positive impact on their children's knowledge. Thus, the correlation analysis showed a positive influence of parents' education on students' pre-intervention knowledge. The second study was done in Mangalore, India by Leena and D'Souza,<sup>[10]</sup> who declared that there is a significant asso-



ciation between knowledge scores and education of parents. This might be due to that the study being conducted among the students of higher grades (fifth & six), these students have reached a certain level of maturity of their age that they would be able to grasp the knowledge more quickly and retain it in their memory, thereby perform them to younger students and the parents' education reflects positively on their children.

**Fifth part:** Association between practice scores and demographic data

The present study revealed that there was a statistically significant direct correlation between child's age, fathers' education and practice scores i.e., an increase in both variables is associated with an increase in practice scores. This result in agreement with those of Behairy and Al-Batanony,<sup>[23]</sup> in Kingdom of Saudi Arabia, who showed that with increasing age, education level and years of experience, both good knowledge and correct practice performance were increased significantly in the post intervention and follow up of intervention phases. This might be due to that an increase in child's age leads to increase the child's awareness and ability to gain knowledge, which affect on his practices and the positive effect of educated parents on their children.

The above mentioned results proved research hypothesis (H3) which revealed that there were significant association between knowledge, practice and demographic variables was accepted.

This study was carried out to test the research hypotheses that the application of child to child approach educational method will improve children's knowledge and practices regarding to first aid measures. The study results so these hypotheses since children knowledge improved significantly and their practice has also improved due to the improvement of their knowledge.

#### Limitation of the study

The major limitation was the time constraint. The researchers experienced difficulties during allotting the hours for con-

ducting the study in schools because of class schedules. Moreover, the time factor also allowed the researchers to demonstrate only a few selected first aid skills involving the commonly met injuries. Thus, many other important and pertinent items of this training could not be included in this educational method.

## 5. CONCLUSION

In the light of the study findings, it can be concluded that utilization of child to child approach education method succeeded in achieving significant improvements in the primary school children's knowledge and practices regarding first aid measures. Also, there were positive correlation between their total knowledge and total practices.

#### Recommendations

The study recommended that:

- (1) Importantly utilizing child to child approach education method in teaching first aid to promote children's health and improve knowledge and skills of student children.
- (2) Using the innovative methods of health education in teaching first aid for other sectors as in preparatory school students, as well as child-to-mothers and child-to-community, to promote children's health.
- (3) Training courses on first aid should be compulsory to school nurses and teachers and should be added in the curriculum of the students and updated regularly to improve their knowledge and skills.
- (4) First aid guidelines are needed to decrease morbidity and mortality of accidents and strengthening the knowledge among students by regular quality training programmers on first aid in schools.

## CONFLICTS OF INTEREST DISCLOSURE

The authors declares that there is no conflict of interest.

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