

# First Aid Training Program for Children Caregivers in Nursery

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**Abstract:** In nurseries; children and their caregivers spend about 30 % of considerable time together. Children in these setting are at a greater risk of injury and accidents due to the higher level of involvement in sports and physical activities so, they need emergency first aid. **Aim:** Evaluate the effect of first aid training program for children caregivers in nurseries. **Design:** A quasi experimental design was used. **Setting:** This study was carried out in 19 privet nurseries at Ain Helwan area, Cairo Governorate, Egypt. **Sample:** A convenient sample was used. **Sample size:** 110 children caregivers (teachers, baby sitters, and workers). **Tools:** two tools were used (1) An interview questionnaire sheet included children caregivers' demographic characteristics, and their knowledge about first aid. (2) An observational checklist for assessing the children caregivers' practices. **Results:** The current study revealed that there was a statistically significant improvement in all items score as well as the total score of knowledge and practices after training program. There was a statistically significant positive association between knowledge and practice. **Conclusions:** The application of training program improved children caregivers' knowledge and practices related to first aid measures. **Recommendations:** Use of innovative methods of health education in teaching first aid for other sectors in whole society institution of community to promote children's health.

**Keywords:** Children Caregivers, First Aid, Preschool, Training Program.

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## 1. INTRODUCTION

First aid means the assessments and interventions that can be performed by a bystander to the victim immediately with minimal or no medical equipment (Dasgupta, Bandyopadhyay& Das, 2014). First aid generally consists of series of simple steps, sometimes life-saving, medical techniques, which a caregiver, either with or without formal medical background can be trained to perform with minimal equipment. First aid applies to a broad range of medical situations and consists both of specific knowledge and skills (e.g., what to do for each type of injury or illness) (Geetha, 2016).

Under-five years children constitutes more than a tenth of Egyptian population. According to United Nations International Children's Emergency Fund (UNICEF), they constituted about 11.5% of the total population in 2015. Fortunately, more than half of under-five years children are deaths due to accidents or diseases that can't be treated or prevented through immediately and affordable interventions ( UNICEF, 2016).

Providing first aid aims to safe life, reduce suffering, promote healing process and prevent damage. The most common cause of death among children is trauma and accidents. The prognosis of any injuries subsequent to accidents largely depends of the management provided to the children in the first minutes immediately following the incident. This reflects the major importance of the first-aid provided to the children, which may sometimes be life-saving (BHATIA et al., 2010&Khatatbeh, 2016).

A basic training for children caregiver is essential required to achieve correct first aid management. Otherwise; wrongly administered first aid can lead to dangerous complications (**Dasgupta, Bandyopadhyay & Das, 2014**). 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 (**Alexandropoulou, 2013**).

Accidents and injuries are part of daily events and many of these injuries are firstly treated by untrained personnel due to lack of health care providers on the accident site. First aid is usually performed by a non-expert or lay person to a sick or injured person until definitive medical treatment can be accessed. Certain self-limiting illnesses or decrease injuries require the appropriate first aid intervention and medical care (**Mobarak, Affi & Qulali, 2015**).

Although in general, there has been a decrease in child mortality due to injuries, childhood injuries remain leading cause of death among children over 1 year of age, while approximately 20 million others report having suffered due to them (**Davis, Godfrey & Rankin, 2013**). Both children and infants are a higher risk of experiencing injuries due to their age characteristics (**Banfai et al., 2015**). Injury is one of the leading causes of death and disability among children worldwide. Prevalence and mortality due to childhood injuries have also caused an increase in the economic burden. In many instances, the consequences of injury lead to severe and long term disability in young children (**Watson et al., 2014**).

Children are the wealth of tomorrow's nation. Every child is at risk of getting exposed to injuries and every children caregiver try to maximum safeguard children from injuries (**Renu & George, 2014**). Globalization, urbanization and motorization have also resulted in rise in child injuries burden. Globally, injury was the major killer of children, resulting for yearly 950000 deaths (2004). Among them 90% were unintentional injuries. Road traffic injuries (RTI) were the leading cause of death (**World report on child injury prevention, 2018**).

Caregivers are individuals who take on the responsibility of caring for children in the absence of their parents or guardians. Correct caregiver supervision has been identified as the most effective method of injury prevention. However, to appropriately supervise or caregivers in nurseries must be able, ready, and willing to perform first aid and able to prevent injuries and safe children. Therefore caregiver must provide by cognitions guide behaviors about an underlying framework for how caregivers view, perceive and practice caring for children (**Hassan, Shahar, & Abdul Rahman, 2017**).

First aid training for regulated daycare providers may contribute to children's health and safety in the daycare setting (**Li et al, 2012; Campbell, 2012**). A significant risk group are consisted of kindergarten children (3–5 years old), because they are often involved in accidents (**Páll, 2010**). Thus, it will be important to have a person close to the child who has appropriate knowledge about accidents because with proper attention they can be prevented. An adequate amount of first aid knowledge can increase the chances of survival of the injured child. Children spend most of their time at nursery, so most of the accidents occur at nursery (**Eldosoky, 2012**). The most common types of accidents are; falls, burns, choking, cuts, wounds and poisonings, but these could be prevented by following some precautionary measures (**Ocztos, Molnár, Csengődy & Gáspár, 2012**).

#### Significance of the study:

Nursery environmental is the highest setting for unintentional injury which is the leading cause of morbidity and mortality among children worldwide. So, emergency instances need first aid. Injuries are very common and can occur at any point of time in a day. Unintended injuries in kindergarten children are the most common and need immediate lifesaving care which is known as first aid (**Zaidi et al., 2013**).

First aid is the provision of limited care for an illness or injury, which could be provided, usually by a lay person, to a sick or injured patient until definitive medical treatment can be accessed, or until the illness or injury is dealt with (as not all illnesses or injuries will require a higher level of treatment (**Kindersley et al., 2015 & Khatatbeh, 2016**)).

Childhood injuries are from the most hazardous health problems especially among children worldwide, because it can cause significant lifelong infirmity or even death. So, first aid is very significant in such injuries (**Mirza, Bukhari & AIFalogy, 2017**). In Egypt, more than 746,000 injured cases were recorded in the year 2009, at the Ministry of Health hospitals. Around 38% of all injuries happen among children and young adults less than twenty years of age (**Fahmy, 2011**). Nurses should pay attention for training children caregiver on first aid by uses good personal health practices and life skills (**Hegazy, Shounoda & Ismail, 2014**).

**Aim of the study:**

This study aimed to evaluate effect of first aid training program for children caregivers in nursery. Through the following:

1. Assessing children caregivers 'knowledge regarding first aid.
2. Assessing children caregivers' practices regarding first aid.
3. Implementing first aid training program for children caregivers in private nurseries.
4. Evaluating the effect of first aid training program for children caregivers in private nurseries.

**Research Hypotheses:**

**H<sub>1</sub>:** First aid training program will be improved children caregivers' knowledge and practices regarding fist aid management for children.

**H<sub>2</sub>:** There will be a significant association between children caregivers' knowledge and practices regarding selected first aid measures.

**H<sub>3</sub>:** There will be a significant association between children caregivers' knowledge and practices of and their demographic characteristic.

## 2. SUBJECTS AND METHODS

**I. Research Design:** A Quasi-experimental design was used.

**A. Setting:**

This study was conducted on all children caregivers, working in private nurseries, at Ain Helwan area, Cairo governorate, Egypt. Numbers of all private nurseries at Ain Helwan area are 19 nurseries, approximately 3-6 children caregivers in each nursery.

**B. Sample:** A convenient sample composed of all children caregivers working in private nurseries, at Ain Helwan area recruited; they equal 110 children caregivers as teachers, babysitters, and workers.

**II. Technical Design:**

**Tools of data collection:** Two tools utilized in the current study.

**Tool 1: A questionnaire (pre- post format):**

A questionnaire sheet was designed for the purpose of assessing children caregivers' knowledge and practice about first aid. Development of the questionnaire was after reviewing the relevant articles in periodicals, scientific literature and internet to elicit information. It consisted of 2 parts; it was written in an Arabic language in form of open and closed ended questions which covered the following:

**A.** This part is concerned with demographic characteristics of children caregivers as age, sex, job, educational level, years of experience, and marital status.

**B.** This part deals with children caregivers' knowledge about first aid: It includes 17 close- ended questions related to; definition & impertinent of first aid, first aid for fainting, fracture, wound, nose bleeding and burn ...etc. The answers were scored based on the level of knowledge of the studied subjects. Each question had 3 possible responses: complete correct answer (2), incomplete correct answer (1), and incorrect answer (0). The total score is 34 grades. The higher score indicates a greater level of knowledge. Children caregivers' answers were compared with a model key answer and accordingly their knowledge were categorized into either:

- ❖ Poor knowledge: less than 50%.
- ❖ Fair knowledge: from 50- 75 %.
- ❖ Good knowledge: more 75%.

**Tool II: Observational checklist:**

This tool was developed to assess children caregivers' practices before and after implementation of the training program. This checklist consisted of ten points as first aids for fainting, wound, burn...etc. The scoring system for practices include a score of two was given to the children caregivers for the task done correctly, while a score of one was given to the children caregivers for the task done incorrectly or sometimes, and a score of zero was given to the children caregivers for the task not done. The total score is 20. The higher score indicates a greater level of practices. The children caregivers' practices were categorized into either:

- Incorrect practice: less than 60%.
- Correct practice: 60% and more.

**First aid training program:** Actual needs assessment was done and accordingly the training program was designed after reviewing the related literature and implemented. This program aimed to improve the children caregivers' knowledge and practices regarding first-aid. Varieties of teaching strategies were used in implementation of the program such as lectures, Videos, discussions, feedback, and demonstration of videos. In addition to the program intervention a first aid booklet was designed by the researcher; it was designed in an Arabic language. It serves as a referral guidelines for children caregivers. The guiding booklet was evaluated for its content validity and clarity by a panel of 5 experts' professions in field of pediatric nursing, Medical surgical nursing and community health nursing. In the light of their comments, the necessary modifications were carried out and the final form of the guiding booklet was administered.

**The booklet included:** meaning of first-aid, important, first aid bag, first aid for wound and burn, first aid for fainting and nose bleeding, definition, causes, signs and symptoms of fracture and application of first aid for fracture.

**III. Method included:****1. Preparatory phase:**

Construction of first aid training program: The first step in constructing this program was to determine the objectives. A review was done of the past, current related literature, covering various aspects of first-aid. In addition to the use of available books, articles, periodicals, magazines and internet search, to help the researchers to develop the study tools and content of the booklet.

- **Validity:**

The tool was distributed among group of experts (two in the field of community health nursing, one of pediatric nursing, two of medical surgical nursing). According to experts' opinions, the researchers made all modifications suggested.

- **Reliability:**

The reliability of the modified scale was done using the internal consistency method. All tools used in this study showed good to very good reliability as follows: knowledge tool (A cronbach's alpha coefficient equal 0.872) and practice tool children caregivers (cronbach's alpha coefficient equal 0.921).

- **Pilot study:**

A pilot study was conducted before starting of data collection on 10 % of studied sample, equal ten children caregiver to test the feasibility of the study in terms of its tools, to assure clarity of questions, to remove any ambiguity and to estimate the time required to fill in the questionnaire. The necessary modifications were done on the tools. Those who shared in the pilot study were excluded from the study sample.

**Field Work:**

Data were collected from beginning of August 2017 up to the end of January 2018. It was out by the researchers for children caregivers working at private nurseries at Ain Helwan area. A official approval was obtained from the study settings to carry out the study. A clear explanation was given about the nature, and the expected outcomes of the study. The researchers started to collect data and explain objectives of the study during the interview. The researcher started each phase with a summary for a previous one. The researcher used different teaching methods to evaluate children caregivers' knowledge and practices pre – post implementation of the program.

### 1. Assessment phase:

The researchers first introduced themselves and explained the purpose of the study briefly to the children caregivers. Every children caregiver was met individually and an oral consent for participation was obtained. The children caregivers were assured that the obtained information will be treated confidentially, and used only for the purpose of the study. The researchers read, and explained each item of the study scales in front of the children caregiver and recorded her responses to each item. The time consumed for answering the study questionnaire ranged from 25- 40 minutes. Data were collected over a period of six months from the beginning of August 2017 up to the end of January 2018.

### 2. Planning phase:

Based on the results obtained from the assessment phase, the researchers designed the first aid training program sessions contents according to various aspects of first aid. The first aid training program sessions were developed after reviewing of related literature, and needs, requirements detected were clarified and discussed in the form of a booklet. Contents of the booklet were selected on the base of identified needs. The booklet consisted of two main parts: the first a theoretical part, which included knowledge about various aspects of first aid. The second part is a practical one, which included applying various aspects of first aid. Methods of teaching used in the training sessions included lectures, discussions, booklet, giving life situation examples, brain storming, role-play and demonstration. **Media** used were pictures, videos and illustrated colored booklet prepared by researchers.

### 3. Training program implementation phase:

An interviewing questionnaire sheet was applied pre- and post- tests with each children caregiver, which took 20- 40 minutes. The application of first aid training program was divided into four sessions; one session for theory and 3 sessions for practice, each session takes 25-45 minutes and was applied three times week, over a period of 6 months. To ensure that the children caregiver understands the booklet content, each session started by a summary about what was given through the previous one and objectives of the new one were explained, taking into consideration the use of simple language to suite the educational level of children caregivers. Motivation and reinforcement techniques as praise, and recognition during the session were used to enhance motivation and learning. The study sample was divided into 10 groups in a variety of numbers ranged between 10 children caregivers in each group according to the numbers of sample size in every nursery.

**Teaching Time:** The time of the first aid training program decided according to the schedule of children caregivers in nursery and the coordination between the researchers and participants.

**Sessions:** The content of the first aid training program divided into four sessions which included: definition, impertinent of first aid, first aid for fainting, fracture, wound, nose bleeding and burn and immediate post test was done.

### 4- Training program evaluation phase:

Immediately after the implementation of the first aid training program each children caregiver was assessed using the study tools (children caregivers' knowledge about first aid and children caregivers' practices of applying the first aid training program), to determine the effect of the sessions on their knowledge and practices after applying the training sessions.

#### Ethical considerations:

- ❖ Confidentiality and anonymity was assured.
- ❖ Verbal consent was obtained from each participant before each questionnaire.
- ❖ The researchers informed the participants about their right to withdraw from the study at any time, without giving any reason.
- ❖ There was no risk for the study subjects during the application of the research.
- ❖ The study followed common ethical principles in the research.

**Statistical Design:**

Data entry and analysis were done using the Statistical Package for Social Sciences (SPSS) (version 20) and state graphics statistical software packages. Data were presented using descriptive statistical in the form of frequencies and percentages.

- Quantitative data were presented in the form of mean  $\pm$  SD. Qualitative variables were compared using chi-square test (X<sup>2</sup>) to compare between 2 qualitative variables.
- Person relation was used. Statistical significance was considered at P-value  $<0.05$ .

**Limitations of the study:**

- Some equipment used for the practical skills were not available in enough amounts to facilitate the training in the nurseries, therefore the researchers buy it by their own money which is considered a financial burden issue for them.
- The major limitation was the time constraint. The researchers experienced difficulties during allotting the hours for conducting the study in nurseries 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.

**3. RESULTS****Table (1): Distribution of Children Caregivers' Demographic Characteristics Data, (N = 100).**

Items	No.	%
<b>Age (years)</b>		
• <30	25	25
• 30- 40	55	55
• >40	20	20
<b>X <math>\pm</math>SD</b>	36.31 $\pm$ 6.245	
<b>Marital status</b>		
• Single	20	20
• Married	45	45
• Divorced	35	35
<b>Level of education</b>		
• Read & write	8	8
• Primary school	17	17
• Secondary education	25	25
• University education	50	50
<b>Occupation</b>		
• Teacher	50	50
• Worker	23	23
• Babysitters	27	27
<b>Income</b>		
• Sufficient	48	48
• Insufficient	52	52
<b>Years of experience</b>		
• <5 years	16	16
• 5-10 years	44	44
• >10 years	40	40
<b>Mean <math>\pm</math> SD</b>	11.07 $\pm$ 4.30	



<b>Attending training program</b>		
• Yes	10	10
• No	90	90
<b>Time of training program since</b>		
• < 1 year	4	40
• 1-5 years	6	60

**Table (1):** Reveals that, 55 % of children caregivers were aged 30 to 40 years and the half of them were had University education. In referral to job; it was observed that 50% of them were teachers and 45% of them were married. Also, 44% of children caregivers had 5-10 years of experience working in nursery. On the other hand 90% of them had not attended training programs about first aid.

**Table (2): Distribution of Children Caregivers' Knowledge pre and Post Test Regarding First Aid (N=100)**

Items	Pre-test		Post-test		$\chi^2$	P
	No	%	No	%		
<b>First aids for epistaxis</b>						
Complete correct answers	15	15	85	85	59.4	.001*
Incomplete answers	25	25	12	12		
Incorrect answer	60	60	3	3		
<b>First aids for wounds</b>						
Complete correct answers	16	16	83	83	62.3	.002*
Incomplete answers	35	35	17	17		
Incorrect answer	44	44	0	0.0		
<b>First aids for fracture</b>						
Complete correct answers	10	10	75	75	58.6	.002*
Incomplete answers	47	47	20	20		
Incorrect answer	43	43	5	5		
<b>First aids for fainting</b>						
Complete correct answers	8	8	78	78	68.1	.002*
Incomplete answers	36	36	15	15		
Incorrect answer	56	56	7	7		
<b>First aid for burn</b>						
Complete correct answers	9	9	84	84	57.4	.001*
Incomplete answers	33	33	14	14		
Incorrect answer	48	48	2	2		
<b>Suffocation</b>						
Complete correct answers	6	6	74	74	67.3	.001*
Incomplete answers	18	18	23	23		
Incorrect answer	76	76	3	3		

**Table (2):** Shows that 85.0%, 83.0%, 75.0% and 78.0% respectively of studied sample had complete correct answer regarding first aid for epistaxis, wound, fracture and fainting in **Post-test** compared with 15.0%, 16.0%, 10.0% and 14.0% in **Pre-test**. Also it was found that the first aid for fainting, burn and suffocation were 78% 84.0%, 74.0 of them had complete correct answer compared to 8%, 9%, 6% before the training program intervention.

**Table (3): Distribution of Children Caregivers' Total Knowledge Score Regarding First aid in Pre and Post-test (N = 100)**

Total Knowledge	Pre-test		Post-test		$\chi^2$ P
	No	%	No	%	
• Poor	74	74	3	3	49.243
• Fair	20	20	18	18	0.001*
• Good	6	6	79	79	

\*  $p < .05$

**Table (3):** Illustrates that there was statistical significant difference between children caregivers' total knowledge score about first aid in pre and post-test p-value was 0.001.

**Table (4): Distribution of Children Caregivers' Total Practices Score Regarding First Aid Pre/Post-Test (N=100)**

Practice level	Pre-test		Post-test		$\chi^2$	P
	No	%	No	%		
Incorrect practice (< 60%)	73	73	8	8	56.791	0.000*
Correct practice ( $\geq$ 60%)	27	27	92	92		

**Table (4):** Reveals that there was statistical significant difference between pre and post-test among children caregivers regarding the first aid total practices score (p-value = .000).

**Table (5): Correlation between Total Score of Knowledge and Total Score of Practices of the Children Caregivers Regarding First Aid (n =100)**

Variables	Total Scores of Knowledge			
	Pre -test		Post -test	
	Paired t-test	P	Paired t-test	P
Total score of practice	5.68938	0.001*	19.795	0.001*

\*Significant (P<0.05)

Table (5): Clears that highly statistically significant differences in the correlations between total knowledge score and total practices' score of the children caregivers regarding first aid post training program (P < 0.001).

**Table (6): Distribution of Children Caregivers' Levels of Knowledge and Practices after Application of Training Program (N=100)**

Level of Knowledge	Level of Practices				$\chi^2$	p-value
	Incorrect practice (< 60%) n=8		Correct practice ( $\geq$ 60%) n=92			
	No	%	No	%		
• Poor	3	37.5%	0	0.0%	49.248	.001*
• Fair	5	65.5%	13	14.2%		
• Good	0	0.0 %	79	85.8%		

\*: Significant at  $p \leq .05$

**Table (6)** shows there was a statistically significant association between knowledge and practice levels; good level of knowledge with correct practice level showed higher prevalence (85.8%) than good level of knowledge with incorrect practice level (0.0%). Fair level of knowledge with correct practice level showed higher prevalence (14.2%) than fair level of knowledge with incorrect practice level (65.5%).



Table (7): Correlation between Children Caregivers' Demographic Data with Their Post Total Knowledge Score and Total Practices Score Regarding First Aid (n =100)

Variables	Total Knowledge Score				Total Practice Score		
	Poor %	Fair %	Good %	$\chi^2$ P value	Incorrect %	Correct %	$\chi^2$ P value
<b>Age</b>							
• <30	1	2	31	42.221 0.005*	2	30	50.069 0.001*
• 30-40	1	11	30		5	42	
• >40	1	5	18		1	20	
<b>Educational level</b>							
• Read & write	2	7	15	55.94 0.001*	3	17	41.076 0.004*
• Primary education	1	4	18		3	20	
• Secondary education	0	5	20		2	27	
• University education	0	2	26		0	28	
<b>Marital status</b>							
• Single	1	6	28	4.905 0.086	1	31	1.174 0.353
• Married	2	7	37		2	45	
• Divorced	0	5	14		5	16	
<b>Occupation</b>							
• Teacher	0	4	55	52.513 0.005	1	61	54.18 0.003*
• Worker	2	7	10		3	17	
• Babysitters	1	7	14		4	14	
<b>Income</b>							
• Sufficient	1	8	45	53.24 0.004*	3	43	48.67 0.005*
• Insufficient	2	10	47		5	49	
<b>Years of experience</b>							
• < 10 years	1	5	20	3.905 0.095	3	19	2.374 0.102
• 10-20 years	2	4	26		3	32	
• >20 years	0	9	46		2	41	

\*Significant (P<0.05)

Table (7): Observes that there were statistically significant differences between children caregivers' demographic characteristics data and their post total Knowledge and total practices respectively in age, educational level, occupation and income and post implementation first aid

#### 4. DISCUSSION

Children under six years constitute a major category of the total population in Egypt and worldwide. Children spend their major part of day in nursery along with their peers and teachers. They are at larger risk of injuries and emergencies due to the higher level of involvement in sports and extracurricular activities. Nursery caregivers acting as the guardians of these children as long as they are in the nursery need to be having the adequate knowledge regarding first aid practices. Injury is a common cause of morbidity and mortality in children due to lack of experience to children caregivers. Rapid use of first aid immediately after injury may minimize the hazards that result from it.

The present study aimed to evaluate the effects of first aid training program for children caregivers in nursery. In referral to demographic characteristics data for children caregivers; the present study result shows that about more half of children caregivers were aged 30 to 40 years; this finding was in contradicted with Neama, Shimaa & Shaimaa, (2017) who studied "Impact of training program regarding first aid knowledge and practices among preparatory schools' teachers" in Assiut City, they said more half of the teachers were in the age group 35- 40 years. Regarding to marital status of the

children caregivers, nearly half of them were married. These results are in the same direction with those of **Ganfure et al. (2018)** who studied "First aid knowledge, attitude, practice, and associated factors among kindergarten teachers" in Addis Ababa, Ethiopia; they reported that more than half of the studied sample was married.

Regarding level of education, half of children caregiver' were teachers with higher level of education. These results were in disagreement with those of **Bánfai et al. (2015)** who studied "Accident prevention and first aid knowledge among preschool children's parents" carrying out a study in Hungary; they reported quarter of the studied sample were university education. This attribution is further strengthened by the observation that perception and practice scores being higher among teachers with experience more than ten years.

Regarding children caregivers' years of experience, the current study was recorded that more than two third of children caregivers had 5-10 years of experience working in nursery; this disagreed with **Sunil, Praveen & Srinivas (2013)** who studied " Perception and practices regarding first-aid among school Teachers in Mysore", they found that 24.4% of the teachers had teaching experience for 16-20 years.

The current study indicated that less than one third of children caregivers attended training program about first aid. This is consistent with **AL-Samghan, AL-Shahrani & AL-Shahrani (2015)**, who studied "Primary School Teachers' Knowledge about First-Aid" in Abha, KSA, they reported that less than one third of primary school teachers had previous training in first aid. On the other hand these findings were in contrast with **Yurumez, Yavuz & Saglam 2005**, who studied "Evaluation of the level of knowledge of first aid and basic life support of the educators working in preschools", they observed that 61.9% of the participants had previously taken the first aid education.

Concerning knowledge and practices of the studied children caregivers results about selected first aid measures: This study showed that, there was a statistically significant difference after training program implementation regarding knowledge of children caregivers about first aid; this is goes in the same lines with **Behairy & Al-Batanony, (2016)** who studied " Effectiveness of First-Aid and Basic Life Support Intervention Program on School Health Advisors", they observed that the study participants, generally, had poor knowledge and incorrect situational practices in the pretest. In addition in a study performed by **Abdella, Abu-Elenen & Elkazaz (2015)** who studied " Intervention program for the kindergarten teachers about pediatrics first aids", reported that there was poor knowledge about pediatric first aid among staff in the preschools before the program intervention while their results showed that the knowledge score to be significantly higher among them after the program implementation.

In this study, there was a statistical significance differences between children caregivers' knowledge pre/post the program implementation  $P < 0.000$  regarding first aid for epistaxis, wound, fracture, fainting, burn and suffocation. On the other hand these findings were in contrast with **Deekshitha et al. (2018)** who said that, five questions were needed to determine the student's level of first aid practice regarding practices for burns, open wound injury, fits, and nose bleeding, and using first aid kit. The concept of practice is highly significant especially in the field of life-supportive measures. Hence, it is mandatory for all trainers to impart sufficient practice to the trainees on those supportive skills.

This finding of the study answer the research hypothesis (H1) which stated that first aid training program will improve children caregivers' knowledge and practices about fist aid management for children.

Relation 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, (2014)** 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, Ibrahim & Hassan (2015)** who mentioned that there were statistically significant positive correlations between knowledge and practices throughout the study among the studied sample from pre, immediate and 1-month post training program regarding first aid. This may be due to that improvement of knowledge among children caregivers increases their understanding and motivation to carry out these procedures of first aid correctly.

In a present study results there was a statistically significant association between knowledge and practice levels between children caregivers. This is consistent with **Masih, Sharma & Kumar. (2014)**, who found that the knowledge and practices post-test score of primary school teachers were significantly higher compare to pretest knowledge and practice score about first aid management of selected minor injuries such as minor fracture, burn, scald, epistaxis, minor wounds.

This part of the study answer the research hypothesis (H2) which stated that there will be a significant association between knowledge and practices regarding selected first aid measures was justified.

Regarding to association between children caregivers' total knowledge scores and their demographic characteristic data: The current study revealed that, there were statistically significant correlations between level of education, marital status, occupation and years of experience of children caregivers and their total knowledge score i.e., an increase in all these variables is associated with an increase in knowledge scores. These results were agreed with those of **Azza & Amany, (2018)** who studied " Effect of child to child approach educational method on knowledge and practices of selected first aid measures among primary school children", in Helwan, Egypt they reported that there were statistically significant direct correlations between age, students grade, fathers 'education and knowledge score. The study results were proved by study of **Wafik and Tork, (2014)** who studied "Effectiveness of a First-aid Intervention Program Applied by Undergraduate Nursing Students to Preparatory School Children", in Zagazig City, Egypt, who stated that, a high study subjects educated, which might have grasp the knowledge more quickly.

This might be due to that the study being conducted among the children caregivers of higher education, they would be able to understand the knowledge more quickly and retain it in their memory.

Regarding to association between children caregiver total practices scores and their demographic characteristic data: The present study revealed that there was a statistically significant differences between children caregiver's age, level of education, marital status, occupation and income and post-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 (2016)** 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 children caregiver's level of education and experience leads to increase the children caregiver's awareness and ability to gain knowledge, which affect on his practices and the positive effect on care provided to children in nursery.

Also, these results are in contradicted with a study performed by **Devashish, Gaurav& Bharat (2010)** who studied " Assessment of knowledge and practices of first aid among the school teachers of Vadodara City" they reported that there wasn't any relationship between age, sex, years of experiences and school level and practice score regarding first aid ( $p > .05$ ).

The current study observed that Majority of children caregivers' were having poor practices regarding first aid per training program. This is in similar lines with the observations made by **Salwa et al. (2010)** who studied "Implementation of An Educational Training Program in First Aid for Newly Graduated Nursery School Teachers at Zagazig City", in Egypt. Also, the scores obtained by school teachers on knowledge of first aid was poor made by **Li et al., (2012)** who studied " Pediatric first aid knowledge and attitudes among staff in the preschools of Shanghai", in China noted that only 3.7% of school teachers achieved passing scores for first aid knowledge. **Wiśniewski & Majewski (2007)** which carrying out a study in Western Pomerania, who noted that only 50% of the school teachers were having knowledge of rules of first aid and only one third of them were able to put them into practice. The poor knowledge in the present study can attributed to the fact that very little importance given by school functionaries and administration towards training of school teachers on first aid.

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 first aid training program will improve children caregivers' knowledge and practices regarding to first aid measures. The study results so these hypotheses since children caregivers' knowledge improved significantly and their practice have also improved due to the improvement of their knowledge.

## 5. CONCLUSION

In the light of the study findings and research hypothesis, it can be concluded that utilization of children caregivers from education training program about fist aid succeeded in achieving significant improvements in children caregivers' knowledge and practices regarding first aid measures. Also, there were positive correlation between their total knowledge and total practices of children caregiver and their demographic characteristic data.

## 6. RECOMMENDATIONS

The study recommended that:

1. First aid guidelines are needed to decrease accidents and strengthening the knowledge and practices of children caregivers by regular quality training programmers on first aid in nurseries.
2. First aid and basic life support training should be compulsory for all children caregivers in Nursery. This training should be periodically continued re-assessment and updated at regular intervals.
3. Therefore, the need for more studies that address the promotion and protection of children health in nurseries environments are highlighted, thus enabling the transformation of children caregivers in relation to the knowledge of first aid actions. This way, such training will make the children caregivers skilled to face and know how to act when facing situations that generate a greater complexity in their daily lives.

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