



ISSN NO. 2320-5407

Journal homepage: <http://www.journalijar.com>

INTERNATIONAL JOURNAL  
OF ADVANCED RESEARCH

## RESEARCH ARTICLE

### Designing and implementing a first aid program for employees of female health Colleges at Najran University

\*Manal Hamed Mahmoud and Safaa Mohamed Elsayd

Lecturer of Medical Surgical Nursing Benha University- Egypt.

#### Manuscript Info

##### Manuscript History:

Received: 08 October 2013

Final Accepted: 19 October 2013

Published Online: November 2013

##### Key words:

First aid, employees, program, pre-posttest, knowledge & performance.

##### \*Corresponding Author

Manal Hamed Mahmoud

#### Abstract

**Background:** Employees may face with emergency cases that need first aid applications, either in the workplace or outside. It is apparent that training all the employees on first aid is very beneficial. **Aim:** This study aimed to investigate the effect of first aid program for employees of female health Colleges at Najran University on their knowledge and performance. **Methods:** Four tools used in this study; (1) Socio demographic data questionnaire. (2) Pre-posttest in first aid knowledge. (3) Pre-posttest in first aid performance (observational checklist). (4) First aid program. **Results:** Results revealed significant improvement in participants' total knowledge after the program ( $p = 0.000$ ) as well as after 6 months ( $p = 0.002$ ) and total performance after the program ( $p = 0.000$ ) regarding the seven areas of first aid program in comparison to preprogram. Results showed no significant correlation between socio demographic data of the participants and their first aid knowledge and performance ( $p > 0.05$ ), unless between their knowledge post program and education favoring bachelor degree ( $p = 0.015$ ). **Conclusion:** The first aid program designed and implemented by researchers succeeded to improve the knowledge and skills of female Health Colleges employees at Najran University in first aid related to measurements of vital signs, fainting & sunstroke, choking, dealing with wounds & bleeding, burns, fractures, poisoning and snakebite.

Copy Right, IJAR, 2013.. All rights reserved.

#### Introduction

Road traffic injuries are a major threat to individuals and national health system. Each year, road traffic injuries result in the death of more than five million people worldwide (Gururaj, 2008). In addition, over 90 percent of these deaths occur in low and middle income countries (Borse & Hyder, 2009). The world health statistics 2008 report predict that over the next 25 years, road traffic injuries will be one of the most rapidly growing public health concerns due to increased motor vehicle ownership in low- income countries (WHS, 2008).

In many developed countries, fast emergency help can provided on the spot within five minute in the urban areas and in 20 minutes in rural areas (Helen et al, 2002). Every day as many as 140 000 people are injured on the world's road. More than 3 000 die and some 15 000 are disabled for life. Each of those people has a network of family, friends, neighbors, colleagues or classmates who affected also, emotionally and otherwise. Families struggle with poverty when they lose a breadwinner, or have the added expense of caring for disabled family members (wook, 2004).

Work accidents consequence include human and social costs due to social inequalities in case of infirmity, difficulty of rehabilitation, unemployment, psychological effects and family economic problems. (Hatzakis, et al, 2005). First aid (FA) provision at the workplace during or after a workplace during or after a work accident can reverse unpleasant consequence on the worker's health and life. Advising and educating worker's in FA is an important norm of prevention for health and safety in workplace (Hatzakis et al, 2005).

Basic first aid training prepares bystanders to react and provide immediate and efficient treatment for a wide variety of incidents including alerting the emergency medical system (EMS), maintaining the airway, breathing and circulation, respiratory and cardiac arrest, and hemorrhage control. The response time in emergency situations is critical, but the first aid provided must be performed properly in order to prevent further complications and potentially save lives (Engeland et al., 2002).

First aid is the treatment for the purpose of preserving life and minimizing the consequences of injury and illness until help obtained, from a medical practitioner or nurse (Khan, et al, 2010). First aid includes actions that at the time of incidence are done to prevent death, damage, and complications and or to reduce pain before the arrival of health care personnel and/or to carry the injured to health center, in fact, first aid is to give emergency care to injure and patients. These aids can never replace medical care, but they help injured to recover faster and have the chance to reach a place where the necessary health care provided (Zarrinfar, et al, 2003).

Many times death results because of delay in reaching the casualty to appropriate medical care, and/or lack of knowledge regarding treatment. On the contrary, if help provided to casualty as soon as possible following the accident or injury, we will save life. This helps lower mortality and morbidity rates, complication due to injury or delay in treatment and lesser monetary burden on the causality. It is a common occurrence that, whenever an accident takes place or any person is injured, people around the casualty more panic than the casualty does. This should not be the case (park, 2009).

A first aid provider should be able to assess the situation quickly and calmly, deal with life threatening conditions meanwhile protecting him/her self from the danger, obtain medical aid and call an ambulance in case of serious injury or illness. (tan et al, 2006). The first aider should have apposite attitude and to be prepared to help the casualty. The first aider should also have adequate knowledge and skills about what he is doing, and be encouraging to the victims (park, 2009).

Unfortunately, first aid training does not increase the rate of helping. Therefore the motivation to help others is paramount and the helping rate can probably be increased by first aid courses that include strategies to overcome inhibitors of emergency helping behavior (Van de Velde, et al., 2009).

One important barrier and main concern of laypersons about giving first aid to acute ill or injured people is the fear to make mistakes. In Austria 68% of the participants of a study (n = 597) stated that they would not provide first aid because they feared to do something wrong. Several studies have shown a clear relationship between the level of first aid training and the quality of first aid measures provided. This underlines the importance of first aid training for the public (Volker, et al., 2010).

In Brazil, a study conducted to evaluate the first aid skills of adult population. It concluded that those who had a previous exposure to televised first aid training performed 9-96% of the skills correctly while in the control group 1-34% correctly performed the skills. (Capone, et al., 2000). A study conducted in Germany showed that vast majority of bystanders had little or no first aid training and that there was a direct relationship between the level of first aid training and quality of first aid measures taken by the bystanders (Mauritz, et al, 2003).

Everyone has the potential to save life. First aid education and practice are essential tools for saving the lives in the emergencies. First aid is an act of humanity showing willingness to save lives with full respect for diversity and without discrimination. Building skills in first aid with the vulnerable people can help to build safer, healthier communities. The studies related to the first aid showed that consciously, and timely first aid applications lowered mortality rate significantly. Fifteen to eighteen percent of deaths because of injuries can prevented by consciously applied first aid practice (Bayraktar, 2009).

Nurses as educator play a key role in improving the health of the nation. Educating people is an integral part of the nurse's role in every practice sitting- school, community, work sites, health care delivery sites, and home. Health education involves not only providing information, but also facilitating health related behavior change. The nurse, using health education principles, can assists people in achieving their health goals in a way that is consistent with their personal lifestyles, values, and beliefs (Edeman & Mandel, 2006).

#### **Aim of the study:**

This study aimed to investigate the effect of first aid program for employees of female health Colleges at Najran University on their knowledge and performance.

#### **Research hypothesis:**

- 1-Employees' knowledge related to first aid will improved after implementation of first aid program than prior its implementation.
- 2- Employees' performance related to first aid will enhanced after implementation of first aid program than prior its implementation.
- 3-There are differences in employees' knowledge and performance during the three phases of assessment; pre-program, immediately after implementation of the program and six months later.

## Material and methods:

### Material:

**Design:** Quasi-experimental design utilized in carrying out this study.

**Setting:** The study conducted in College of Nursing at Najran University.

**Subjects:** Subjects of the study were comprised of all employees (females) that working in Health Colleges; Female College of Nursing, Female College of Medicine and Female College of Applied Medical Sciences at Najran University as a convenience sample; their total number was 18 female employee.

### Tools:

#### Tools of this study consisted of four tools:

**Tool (1):** Socio demographic data questionnaire included information about participants' age, education, marital status and number of family members

**Tool (2):** Pre-posttest in knowledge, developed by the researchers based on literature review (Deepak & Nayak, 2012), (Yurumez et al., 2007) and (Hatzakis et al. 2005),

to assess participant's knowledge regarding first aid. It Contained 29 multiple-choice question about first aid knowledge regarding vital signs, sunstroke & fainting, choking, wounds & bleeding, fracture, burns, poisoning & snake bite.

**Tool (3):** First aid observation checklist, developed by the researchers based on literature review (Bayraktar et al., 2009), (Ali et al., 2010) and (Gholami et al., 2012)

to assess participant's performance regarding first aid. It included steps of performance related to first aid procedures regarding vital signs, sunstroke & fainting, choking, wounds & bleeding, fracture, burns, poisoning & snake bite. The observation checklist formed with a rating scale of three options; correct (2 marks), incomplete (1 mark) and incorrect (0 mark)

Knowledge pre-posttest and observation checklist tested for content validity by five (professors) experts in the field of medical surgical nursing. Accordingly, all necessary modifications done. Tools tested for its reliability using Cronbach\_Alpha Coefficient Statistical test, which revealed that the reliability of the tool (2) was 0.70 and reliability of the tool (3) was 0.80, which indicate high reliability.

#### Tool (4): First aid program:

**Aim of the program:** The first aid program aimed to improve first aid knowledge and performance of employees working in Female Health Colleges at Najrn University.

**Content of the program:** Knowledge and practical skills regarding vital signs, sunstroke & fainting, choking, wounds & bleeding, fracture, burns, poisoning & snake bite.

#### Teaching methods and media used in the program:

Various teaching methods used for implementation of the program in the form of group discussion, lectures, role-play, demonstration and re-demonstration. As well as, various media used colored posters, models, pictures, power point, and CD. A guide booklet prepared and distributed to all participants.

**Evaluation of the program:** evaluation of the program success based on improvement in employees' knowledge and performance regarding first aid post implementation of the program.

### Methods:

1- Official permission obtained from the dean of Female Health Science Colleges (Female College of Nursing, Female College of Medicine and Female College of Applied Medical Sciences) at Najran University.

2- A written consent obtained from each employee for her participation after explaining aim of the study.

3- Preprogram opinionnaire handed to the employees about the needed first aid topics that they interested in it. After that, first aid topics selected according to their opinions.

4- Pre-test conducted to assess employees' knowledge and performance prior implementation of the program.

5- First aid program developed where employees divided into small groups (6 in each). The program implemented in 20 session (for each group). Each session lasted between 60-120 minutes.

6- Employees' knowledge and performance regarding first aid were re- assessed, immediately after implementation of the program and six months later.

#### **Knowledge scores:**

Scores used to evaluate employees' knowledge about first aid; each correct answer of the knowledge pre-test given one mark

#### **Total knowledge scores were 29 marks distributed as the following:**

Vital signs (3) marks, sunstroke & fainting (3) marks, choking (3) marks, wounds & bleeding (7) marks, fracture (3) marks, burns (7) marks, poisoning & snakebite (3) marks.

#### **Practical scores:**

Scores used to evaluate employees' knowledge about first aid; each correct step of practice given (2) marks, each incomplete step given (1) mark and incorrect step given (0) mark.

#### **Total score was 510 marks distributed as the following:**

Vital signs (90) marks, sunstroke & fainting (40) marks, choking (96) marks, wounds & bleeding (126) marks, fracture (68) marks, burns (50) marks, poisoning & snakebite (40) marks.

#### **Statistical analysis:**

The collected data organized, tabulated and statistically analyzed using SPSS software statistical computer package version 15. Frequency, percentage, mean, and standard deviation calculated. For comparison between paired samples, the Wilcoxon Signed Ranks Test calculated. For comparison between independent samples the Mann-Whitney Test was calculated Significance was adopted at  $p < 0.05$  for interpretation of results of tests of significance.

#### **Results:**

Table (1) represented socio-demographic data of the participants, which revealed that, the majority (66.7%) of participants' age ranged from 20 to 30 years old. The majority of the study participants (61.1%) married and the number of their family members ranged from two to six. In addition, more than half of them (55.6%) qualified by a bachelor degree.

Table (2) Indicated that, there was a significant statistical difference in participants' knowledge regarding vital signs between before implementation of the first aid program and immediately after the program implementation ( $p = 0.000$ ), while there was no significant difference in their knowledge between immediately after the program and 6 months later ( $p = 0.317$ ). Mean score of the participants' knowledge regarding vital signs was ( $1.00000 \pm 0.68599$ ) prior the program, which improved to ( $2.7778 \pm 0.42779$  &  $2.8333 \pm 0.38348$ ) immediately after the program and 6 months later. The table showed that, there was a significant statistical difference in participants' performance regarding vital signs between before implementation of the first aid program and immediately after the program implementation ( $p = 0.000$ ), as well as between immediately after the program and 6 months later ( $p = 0.027$ ). In addition, mean score of the participants' performance regarding vital signs was ( $14.7778 \pm 7.40076$ ) prior the program, which improved to ( $82.6111 \pm 16.51787$  &  $86.4444 \pm 7.33422$ ) immediately after the program and 6 months later.

Table (3) demonstrated that, there was a significant statistical difference in participants' knowledge regarding sunstroke and fainting between before and immediately after the program implementation ( $p = 0.000$ ) as well as between immediately after and after 6 months following the program ( $p = 0.046$ ). Mean score of the participants' knowledge regarding sunstroke and fainting was ( $1.2222 \pm 0.80845$ ) prior the program, which improved to ( $2.5556 \pm 0.70479$  &  $2.7778 \pm 0.42779$ ) immediately after the program and 6 months later. It is obvious from the same table that, there was a significant statistical difference in participants' performance regarding sunstroke and fainting between before and immediately after the program implementation ( $p = 0.000$ ) as well as between immediately after and after 6 months following the program ( $p = 0.018$ ). Moreover, mean score of the participants' performance regarding sunstroke and fainting was ( $3.1111 \pm 2.42266$ ) prior the program, which enhanced to ( $33.9444 \pm 9.56385$  &  $36.6111 \pm 5.48944$ ) immediately post program and after 6 months.

Table (4) showed that, there was a significant statistical difference in participants' knowledge regarding choking between before and immediately after the program implementation ( $p = 0.001$ ) as well as between immediately after and after 6 months ( $p = 0.025$ ). Mean score of the participants' knowledge regarding choking was ( $0.8889 \pm 0.75840$ ) prior the program, which improved to ( $2.2778 \pm 0.57451$  &  $2.5556 \pm 0.51131$ ) immediately after the program and 6 months later. It is clear from the same table that, there was a significant statistical difference in participants' performance regarding choking between before and immediately after the program implementation ( $p = 0.000$ ) as well as between immediately after and after 6 months ( $p = 0.001$ ). Moreover, mean score of the

participants' performance regarding chocking was ( $2.8333 \pm 2.00734$ ) prior the program, which enhanced to ( $80.6667 \pm 15.45392$  &  $87.8333 \pm 9.51315$ ) immediately post program and after 6 months.

Table (5) illustrated that, there was a significant statistical difference in participants' knowledge regarding wounds and bleeding between before and immediately after the program implementation ( $p = 0.001$ ) as well as between immediately after and after 6 months ( $p = 0.019$ ). Mean score of the participants' knowledge regarding wounds and bleeding was ( $3.3889 \pm 1.03690$ ) prior the program, which advanced to ( $5.1111 \pm 1.02262$  &  $6.0556 \pm 0.72536$ ) immediately after the program and 6 months later. It is obvious from the same table that, there was a significant statistical difference in participants' performance regarding wounds and bleeding between before and immediately after the program implementation ( $p = 0.000$ ) as well as between immediately after and after 6 months ( $p = 0.024$ ). Moreover, mean score of the participants' performance regarding wounds and bleeding was ( $11.4444 \pm 7.26168$ ) prior the program, which enhanced to ( $111.2222 \pm 15.62636$  &  $114.8333 \pm 11.43395$ ) immediately post program and 6 months later.

Table (6) exhibited that, there was a significant statistical difference in participants' knowledge regarding fracture between before implementation of the first aid program and immediately after the program implementation ( $p = 0.000$ ), while there was no significant difference in their knowledge regarding fracture between immediately after the program and 6 months later ( $p = 0.157$ ). Mean score of the participants' knowledge regarding fracture was ( $1.3889 \pm 0.77754$ ) prior the program, which improved to ( $2.6667 \pm 0.59409$  &  $2.7778 \pm 0.42779$ ) immediately after the program and 6 months later. The table showed that, there was a significant statistical difference in participants' performance regarding fracture between before implementation of the first aid program and immediately after the program implementation ( $p = 0.000$ ), while there was insignificant difference in their performance between immediately after the program and 6 months later ( $p = 0.157$ ). In addition, mean score of the participants' performance regarding fracture was ( $4.7222 \pm 2.29592$ ) prior the program, which improved to ( $57.8889 \pm 14.60012$  &  $59.0556 \pm 10.32115$ ) immediately after the program and 6 months later.

Table (7) revealed that, there was a significant statistical difference in participants' knowledge regarding burns between before and immediately after the program implementation ( $p = 0.000$ ) as well as between immediately after and after 6 months ( $p = 0.027$ ). Mean score of the participants' knowledge regarding burns was ( $2.6667 \pm 1.32842$ ) prior the program, which upgraded to ( $5.3889 \pm 1.03690$  &  $6.1667 \pm 0.70711$ ) immediately after the program and 6 months later. It is clear from the same table that, there was a significant statistical difference in participants' performance regarding burns between before and immediately after the program implementation ( $p = 0.000$ ) as well as between immediately after and after 6 months ( $p = 0.035$ ). Moreover, mean score of the participants' performance regarding burns was ( $5.2778 \pm 2.32140$ ) prior the program, which enhanced to ( $40.6111 \pm 11.97123$  &  $43.6667 \pm 8.11679$ ) immediately post program and after 6 months.

Table (8) presented that, there was a significant statistical difference in participants' knowledge regarding poisoning and snakebite between before implementation of the first aid program and immediately after the program implementation ( $p = 0.001$ ), while there was no significant difference in their knowledge regarding poisoning and snakebite between immediately after the program and 6 months later ( $p = 0.166$ ). Mean score of the participants' knowledge regarding poisoning and snakebite was ( $0.6667 \pm 0.59409$ ) prior the program, which promoted to ( $1.6667 \pm 0.68599$  &  $1.9444 \pm 0.41618$ ) immediately after the program and 6 months later. The table demonstrated that, there was a significant statistical difference in participants' performance regarding poisoning and snakebite between before implementation of the first aid program and immediately after the program implementation ( $p = 0.000$ ), while there was insignificant difference in their performance between immediately after the program and 6 months later ( $p = 0.760$ ). In addition, mean score of the participants' performance regarding poisoning and snakebite was ( $2.9444 \pm 1.51356$ ) prior the program, which developed to ( $33.4444 \pm 9.21777$  &  $34.2778 \pm 5.51794$ ) immediately after the program and 6 months later.

Table (9) illustrated that, there was a significant statistical difference in participants' total first aid knowledge between before and immediately after the program implementation ( $p = 0.000$ ) as well as between immediately after and after 6 months ( $p = 0.002$ ). Mean score of the participants' total first aid knowledge was ( $11.0556 \pm 3.13373$ ) prior the program, which heightened to ( $22.3333 \pm 2.40098$  &  $25.1111 \pm 1.32349$ ) immediately after the program and 6 months later. It is observable from the same table that, there was a significant statistical difference in participants' total first aid performance between before and immediately after the program implementation ( $p = 0.000$ ), while there was no significant difference in their total performance between immediately after the program and 6 months later ( $p = 0.055$ ). In addition, mean score of the participants' total performance regarding first aid was ( $45.4444 \pm 17.83659$ ) prior the program, which increased to ( $442.6667 \pm 72.24468$  &  $462.0000 \pm 41.79643$ ) immediately after the program and 6 months later.

Correlation between participant's age and their mean score of first aid knowledge and performance, represented by table (10). It is obvious that, there was no significant statistical correlation between participants' age

and their first aid knowledge, as well as performance pre implementation of the first aid program, immediately after the program and after six months ( $p>0.05$ ).

Correlation between participant's education and their mean scores of first aid knowledge and performance demonstrated by table (11). It is clear that, there was no significant statistical correlation between participants' education and their first aid knowledge, as well as performance pre implementation of the first aid program, immediately after the program and after six months ( $p>0.05$ ), unless between their knowledge post program and education favoring bachelor degree ( $p = 0.015$ ).

Table (12) exhibited the correlation between participant's number of family members and their mean scores of first aid knowledge and performance. It is observable that, there was no significant statistical correlation between participants' number of family members and their first aid knowledge, as well as performance pre implementation of the first aid program, immediately after the program and after six months ( $p>0.05$ ).

Table (13) revealed correlation between participant's marital status and their mean scores of first aid knowledge and performance. It is obvious that, there was no significant statistical correlation between participants' marital status and their first aid knowledge, as well as performance pre implementation of the first aid program, immediately after the program and after six months ( $p>0.05$ ).

**Table (1) socio-demographic data of the study group**

Demographic data	Age		Education	Number of family members			Marital	
	20-30 year	more than 30 year	Secondary	bachelor	2-6	more than 6	married	Single
N	12	6	8	10	11	7	11	7
%	66.7	33.3	44.4	55.6	61.1	38.9	61.1	38.9

**Table (2) Differences in participants' knowledge and performance regarding vital signs**

	N	Mean	Std. Deviation	Z	Sig
Know-pre	18	1.0000	.68599	-3.674**	.000
Know-post	18	2.7778	.42779		
Know-post	18	2.7778	.42779	-1.000	.317
know after 6 months	18	2.8333	.38348		
Perf-pre	18	14.7778	7.40076	-3.726**	.000
Perf-post	18	82.6111	16.51787		
Perf-post	18	82.6111	16.51787	-2.207*	.027
Perf. after 6 months	18	86.4444	7.33422		

\*significant at 0.05 level

\*\*significant at 0.01 level

**Table (3) Differences in participants' knowledge and performance regarding sunstroke & fainting**

	N	Mean	Std. Deviation	Z	Sig
Know-pre	18	1.2222	.80845	-3.611**	.000
Know-post	18	2.5556	.70479		
Know-post	18	2.5556	.70479	-2.000*	.046
know after 6 months	18	2.7778	.42779		
Perf-pre	18	3.1111	2.42266	-3.731**	.000
Perf-post	18	33.9444	9.56385		
Perf-post	18	33.9444	9.56385	-2.371*	.018
Perf. after 6 months	18	36.6111	5.48944		

\*significant at 0.05 level

\*\*significant at 0.01 level

**Table (4) Differences in participants' knowledge and performance regarding chocking**

	N	Mean	Std. Deviation	Z	Sig
Know-pre	18	.8889	.75840		
Know-post	18	2.2778	.57451	-3.228**	.001
Know-post	18	2.2778	.57451		
know after 6 months	18	2.5556	.51131	-2.236*	.025
Perf-pre	18	2.8333	2.00734		
Perf-post	18	80.6667	15.45392	-3.724**	.000
Perf-post	18	80.6667	15.45392		
Perf. after 6 months	18	87.8333	9.51315	-3.204**	.001

\*significant at 0.05 level

\*\*significant at 0.01 level

**Table (5) Differences in participants' knowledge and performance regarding wounds & bleeding**

	N	Mean	Std. Deviation	Z	Sig
Know-pre	18	3.3889	1.03690		
Know-post	18	5.1111	1.02262	-3.443**	.001
Know-post	18	5.1111	1.02262		
know after 6 months	18	6.0556	.72536	-2.347*	.019
Perf-pre	18	11.4444	7.26168		
Perf-post	18	111.2222	15.62636	-3.724**	.000
Perf-post	18	111.2222	15.62636		
Perf. after 6 months	18	114.8333	11.43395	-2.251*	.024

\*significant at 0.05 level

\*\*significant at 0.01 level

**Table (6) Differences in participant's knowledge and performance regarding fracture**

	N	Mean	Std. Deviation	Z	Sig
Know-pre	18	1.3889	.77754		
Know-post	18	2.6667	.59409	-3.782**	.000
Know-post	18	2.6667	.59409		
know after 6 months	18	2.7778	.42779	-1.414	.157
Perf-pre	18	4.7222	2.29592		
Perf-post	18	57.8889	14.60012	-3.728**	.000
Perf-post	18	57.8889	14.60012		
Perf. after 6 months	18	59.0556	10.32115	-.334	.739

\*significant at 0.05 level

\*\*significant at 0.01 level

**Table (7) Differences in participants' knowledge and performance regarding burns**

	N	Mean	Std. Deviation	Z	Sig
Know-pre	18	2.6667	1.32842	-3.641**	.000
Know-post	18	5.3889	1.03690		
Know-post	18	5.3889	1.03690	-2.218*	.027
know after 6 months	18	6.1667	.70711		
Perf-pre	18	5.2778	2.32140	-3.725**	.000
Perf-post	18	40.6111	11.97123		
Perf-post	18	40.6111	11.97123	-2.113*	.035
Perf. after 6 months	18	43.6667	8.11679		

\*significant at 0.05 level

\*\*significant at 0.01 level

**Table (8) Differences in participants' knowledge and performance regarding poisoning & snakebite**

	N	Mean	Std. Deviation	Z	Sig
Know-pre	18	.6667	.59409	-3.307**	.001
Know-post	18	1.6667	.68599		
Know-post	18	1.6667	.68599	-1.387	.166
know after 6 months	18	1.9444	.41618		
Per-fpre	18	2.9444	1.51356	-3.735**	.000
Perf-post	18	33.4444	9.21777		
Perf-post	18	33.4444	9.21777	-.306	.760
Perf. after 6 months	18	34.2778	5.51794		

\*significant at 0.05 level

\*\*significant at 0.01 level

**Table (9) Differences in participants' total knowledge and performance regarding first aid**

	N	Mean	Std. Deviation	Z	Sig
Know-pre	18	11.0556	3.13373	-3.728**	.000
Know-post	18	22.3333	2.40098		
Know-post	18	22.3333	2.40098	-3.067**	.002
Know after 6 months	18	25.1111	1.32349		
Perf-pre	18	45.4444	17.83659	-3.724**	.000
Perf-post	18	442.6667	72.24468		
Perf-post	18	442.6667	72.24468	-1.917	.055
Perf. after 6 months	18	462.0000	41.79643		

\*significant at 0.05 level

\*\*significant at 0.01 level



**Table (10) Correlation between participants' age and their mean scores of first aid knowledge and performance**

	Age	N	Mean	Std. Deviation	U	Z	Sig.
Know-pre	20-30 year	12	11.5000	3.37100	27.500	-.803	.422
	more than30 year	6	10.1667	2.63944			
Know-post	20-30 year	12	21.8333	2.44330	22.000	-1.328	.184
	more than30 year	6	23.3333	2.16025			
Know after 6 months	20-30 year	12	25.2500	1.48477	30.500	-.541	.588
	more than30 year	6	24.8333	.98319			
Perf-pre	20-30 year	12	47.6667	20.09674	30.000	-.563	.574
	more than30 year	6	41.0000	12.55388			
Perf-post	20-30 year	12	442.4167	84.29651	32.000	-.375	.707
	more than30 year	6	443.1667	45.95831			
Perf. after 6 months	20-30 year	12	465.0000	47.07827	28.000	-.750	.453
	more than30 year	6	456.0000	31.60380			

\*significant at 0.05 level

\*\*significant at 0.01 level

**Table (11) Correlation between participant's education and their mean scores of first aid knowledge and performance**

	education	N	Mean	Std. Deviation	U	Z	Sig.
Know-pre	secondary	8	9.6250	3.50255	21.500	-1.658	.097
	bachelor	10	12.2000	2.39444			
Know-post	secondary	8	20.7500	1.28174	13.000	-2.431*	.015
	bachelor	10	23.6000	2.36643			
Know after 6 months	secondary	8	25.2500	1.58114	38.000	-.187	.852
	bachelor	10	25.0000	1.15470			
Perf-pre	secondary	8	41.7500	12.94770	33.500	-.578	.563
	bachelor	10	48.4000	21.18280			
Perf-post	secondary	8	439.6250	103.68901	27.000	-1.157	.247
	bachelor	10	445.1000	38.49228			
Perf. after 6 months	secondary	8	463.6250	57.94563	25.500	-1.289	.197
	bachelor	10	460.7000	26.15361			

\*significant at 0.05 level

\*\*significant at 0.01 level

**Table (12) Correlation between participants' number of family members and their mean scores of first aid knowledge and performance**

	family	N	Mean	Std. Deviation	U	Z	Sig
Know-pre	2-6	11	11.5455	2.06706	34.000	-.411	.681
	more than 6	7	10.2857	4.42396			
Know-post	2-6	11	23.0000	2.48998	21.500	-1.560	.119
	more than 6	7	21.2857	1.97605			
Know after 6 months	2-6	11	25.2727	1.27208	32.000	-.619	.536
	more than 6	7	24.8571	1.46385			
Perf-pre	2-6	11	45.6364	13.10933	30.500	-.726	.468
	more than 6	7	45.1429	24.79535			
Perf-post	2-6	11	430.4545	83.93374	30.000	-.771	.440
	more than 6	7	461.8571	48.40946			
Perf. after 6 months	2-6	11	457.5455	47.07731	34.000	-.408	.683
	more than 6	7	469.0000	34.09301			

\*significant at 0.05 level

\*\*significant at 0.01 level

**Table (13) Correlation between participants' marital status and their mean scores of first aid knowledge and performance**

	Marital	N	Mean	Std. Deviation	U	Z	Sig.
Know-pre	married	11	11.0000	2.64575	33.000	-.503	.615
	single	7	11.1429	4.01782			
Know-post	married	11	22.8182	2.40076	32.000	-.619	.536
	single	7	21.5714	2.37045			
Know after 6 months	married	11	25.2727	1.27208	25.000	-1.225	.221
	single	7	24.8571	1.46385			
Perf-pre	married	11	448.0909	56.40471	38.000	-.045	.964
	single	7	434.1429	96.67890			
Perf. after after 6 months	married	11	466.6364	31.82538	38.000	-.045	.964
	single	7	454.7143	56.21600			

\*significant at 0.05 level

\*\*significant at 0.01 level

**Discussion:****Total first aid knowledge of the participants:**

The way for improvement emergency response and outcome, first aid must taught correctly to a broad spectrum of individuals within the community, workplace, and health care environment. However, with the need for knowing effective initiation of intervention, healthcare professionals and laypersons often face criticism for inadequate basic life-saving skills (Das et al., 2001).

First aid knowledge that gained totally by the employees in this study post program was greater than preprogram, ( $p = 0.000$ ) which increased after 6 months ( $p = 0.002$ ). These results confirmed by results of several studies, in the study of Hatzakis et al. (2005) workers in trained group have significantly higher scores than those in untrained group ( $t=6.698$ ,  $p<0.001$ ). A study conducted in Australia concludes that even online training courses could also satisfactorily increase the first aid knowledge of high school students (Teague & Riley, 2006). A study conducted by Jiang et al. (2008) shows that the trained students had better theoretical knowledge than untrained. In the study of Bayraktar et al. (2009) the level of knowledge of service drivers on first aid increase in posttest after first aid education ( $p<0.05$ ). In the study of basic pre-Hospital trauma care program, done by Jayaraman et al. (2009), who recognizes that before training, participants answer 45% of knowledge test questions correctly and this increase to 86% after training ( $p < 0.0001$ ). In addition, at six months, trainees answer 92% of all fund of knowledge questions correctly compared to 86% immediately after the initial training ( $n = 146$  pairs,  $p = 0.0016$ ). Moreover, several studies demonstrate limited retention of first aid knowledge without training (Kano, et al., 2005 & Anderson et al., 2011). Khan et al. (2010) reports that, the mean number of correct answers of students with first aid training are  $10.3 \pm 3.5$  as opposed to  $8.58 \pm 4.0$  in those without first aid training ( $p < 0.001$ ). In addition, Gholami et al. (2012) mentioned that relief workers know how to use first aid kit or handle an emergency demonstrate moderate level of knowledge towards first aid. Another study conducted by Deepak and Nayak (2012) in selected community areas of Natekal PHC on first aid measures among self-help group members. The results show that majority (62%) of the samples have good knowledge, and (38%) average knowledge about the first aid. While Parnell et al. (2006) conducted a study in New Zealand on high school students, which shows the knowledge of trained students was better than knowledge of untrained students, but still unsatisfactory. Moreover, the study of Abbas et al. (2011) reveals that, although the knowledge of trained students (mean correct responses  $6.13 \pm 2.1$  fined to be better than those of untrained students (mean correct responses  $4.94 \pm 2.06$ ) the mean of trained students is less than 50%.

#### **Total first aid performance of the participants:**

Total scores of first aid performance among participants of this study showed advancement post program ( $p = 0.000$ ). Another study illustrates that when comparing those classes that really used the program with the control classes, significant differences reveal in many of the variables in situations requiring first -aid skills toward giving and learning first aid were of importance for intended behavior (Engeland et al., 2002). In the study of Dania et al. (2006) overall performance of first aid skills by the community are poor, but improve by first aid training courses. The study of Bayraktar et al. (2009) reports that the training course achieves desired outcomes since first aid practice mean points were very close to maximum points of each application and there is a significant statistical difference between pre and post program ( $p<0.05$ ). Sun and Wallis (2012) evaluates the performance of community trainers post first aid program and illustrates that on practical competency examinations, all emergency first aid responders (EFARs) test average 28.2% before training, 77.8% after training, 71.3% 4 months after training and 71.0% 6 months after training. In addition, Gholami et al. (2012) mentions that post training, relief workers demonstrate moderate level of practices towards first aid. On the other hand, another study reveals that the level of first aid among the Dutch junior doctors is low while the majority of them have training in first aid procedures in the Netherlands. It see that only 11% of junior doctors performs the correct first aid scenario (Severien et al., 2005). The results of a study conducted in India shows less than adequate first aid practices (54%) in all groups of participants (resident doctors, hospital consultants and private practitioners)(Kumar, 2008). In this regard, Anderson et al. (2011) notes that results of the study confirm that many first aid skills deteriorate to what may considered unacceptable levels prior to recertification, and as early as 30 days post training. It appears that the skill-based components may deteriorate in a more predictable fashion following training.

#### **Knowledge and performance of participants regarding vital signs:**

Respecting vital signs, results of the current study indicated that there was an advancement in participants' knowledge regarding vital signs immediately after the program implementation ( $p = 0.000$ ). These results are incompatible with the findings of the study done by Hatzakis et al. (2005) to evaluate first aid knowledge among industry workers in Greece, reveals that 5% from the trained group and 1% from untrained group answer correctly and simultaneously about estimation of vital signs.

Results of this study demonstrated improvement in participants' performance regarding vital signs immediately after the program implementation ( $p = 0.000$ ), as well as 6 months later ( $p = 0.027$ ). These results are inconsistent with the study of Hatzakis et al (2005) wherever the vast majority of workers are unable to provide efficient first aid as long as they cannot estimate vital signs.

**Knowledge and performance of participants about sunstroke and fainting:**

Results of this study found upgrading in participants' knowledge regarding sunstroke and fainting immediately after the program implementation ( $p = 0.000$ ) as well as after 6 months ( $p = 0.046$ ). These results supported by the results of Colquhoun et al. (2004) who find that teachers have in adequate knowledge of first aid related to heatstroke without training. Moreover, another study demonstrates that correct responses regarding first aid for heatstroke are 42.1% (Colquhoun et al., 2004). In this regard, other study find that 41.2% of teachers had a correct knowledge about fainting (Li et al., 2012). Moreover, Ali et al. (2010) notes significant advancement among the study group knowledge of fainting post program compared to preprogram. Pertaining to results of the current study, there was a progress in participants' performance regarding sunstroke and fainting immediately after the program implementation ( $p=0.000$ ) as well as after 6 months ( $p = 0.018$ ). These results agreed by the study of Ali et al. (2010) who shows high significant improvement of practice of the study group in the post-test in comparison to pre-test. Practice increase, on the average, from 0-10% to 80-95% in first aid of fainting.

**Knowledge and performance of participants related to choking:**

Depending on results of this study, there was an enhancement in participants' knowledge regarding choking immediately after the program implementation ( $p = 0.001$ ) as well as 6 months ( $p = 0.025$ ). In addition, there was a heightening in participants' performance regarding choking immediately after the program implementation ( $p = 0.000$ ) as well as after 6 months ( $p = 0.001$ ). These results are going in line with the findings of Rekleiti et al. (2013) who reports that a statistically significant difference is between before and after the educational intervention concerning choking. In addition, a study done by Deepak and Nayak (2012) find that participants' knowledge related to choking is (39.5%) without training. Moreover, in the results of Li et al. (2012) subjects especially lack knowledge regarding first aid for choking (only 30.1% aware) without training.

**Knowledge and performance of participants' for wounds and bleeding:**

Based on our study, there was an improvement in participants' knowledge regarding wounds and bleeding immediately after the program implementation ( $p = 0.001$ ) as well as after and after 6 months ( $p = 0.019$ ). Regarding knowledge of wounds, our results are consistent with results of other studies; the study of Ali et al. (2010) notes significant improvement of participants' knowledge related to wounds post program than preprogram. Hassanzadeh et al. (2010) demonstrates that, the score of knowledge in using proper way to bandage the injured area, and proper ways of carrying injured person significantly increases in the study groups after the education. Results of Castro (2010) indicates that without training, coaches of youth soccer lack the first aid and injury prevention knowledge needed to effectively prevent, evaluate, and care for sporting injuries. A study done by Deepak and Nayak (2012) find that participants' knowledge related to first aid of wounds is (49.2%) without training. Moreover, in the study of Rekleiti et al. (2013) the statistically significant difference is between before and after the educational intervention concerning trauma (77% vs. 89.7%).

Concerning knowledge related to bleeding, our results agreed by Hatzakis et al. (2005) who shows that there was a significant statistical difference between knowledge of the group trained in first aid and the other untrained one regarding stop of bleeding ( $p<0.005$ ). In the study of basic pre-Hospital trauma care program, done by (Jayaraman et al., 2009), 80% of trainees answer correctly for control of bleeding after the program. Another study done by Bayraktar et al. (2009) on drivers reveals that all drivers participating the training course get the maximum points related to knowledge of pressing on main vessels to stop bleeding. In the study of Abbas et al. (2011) which compares first aid knowledge of trained medical students to untrained, the correct responses by the trained student regarding bleeding are significantly better than untrained. In addition, Rekleiti et al. (2013) detects a statistically significant difference between before and after the educational intervention concerning nose bleeding (29.9% vs. 87.4%). These results are consistent with the findings of Başer et al. (2007) who notes that, 65.1% of teachers give incorrect answers regarding epistaxis without training. Moreover, Deepak and Nayak (2012) shows that the lowest score of first aid among the study participants is (28.8%) in the area of bleeding.

Results of this study exhibited a development in participants' performance regarding wounds and bleeding immediately after the program implementation ( $p = 0.000$ ) as well as after 6 months ( $p = 0.024$ ). Regarding performance of wounds care, our results supported by results of several researches; the study of Wisborg et al. (2008) that conducted on medical and paramedical personnel, notes that, during the study period, injury pattern changes markedly with penetrating injuries decreasing from 91% to 15%. Mortality in victims of mines and war injuries ( $n = 919$ ) decreased from 28.7% to 9.4% ( $p = 0.001$ ), as do the time interval from injury to first medical help, from 2.4 hours to 0.6 hours ( $p = 0.002$ ). The pre-hospital treatment effect improves significantly in the later part of the study period compared with the first years ( $p < 0.0005$ ). Jayaraman et al. (2009), reports that, confidence in providing first aid for trauma measured from zero to five, the mean before the training course was 3.1. At three

months, this increase to 4.2 ( $n = 124$ ,  $p < 0.0001$ ) and remains at that level at six months ( $n = 181$ ,  $p < 0.0001$ ). Hassanzadeh et al. (2010) illustrates that, the performance in proper way to bandage injured area and proper ways of carrying injured person after first aid course was significantly higher than before training. In addition, the study of Ali et al. (2010) shows high significant improvement of practice of the study group in the post-test in comparison to pre -test.

Pertaining to performance of care to stop bleeding results of this study were compatible with previous studies; In Urban Ghana, truck drivers who complete a similar context-appropriate first-aid course shows a significant increase in skill use at 10 months based on response rate of 28% (Mock et al., 2002). Husum et al. (2003) have demonstrates a 15% reduction in mortality of war and landmine victims in Iraq and Cambodia where paramedics and lay first-responders trained to provide pre-Hospital trauma care. Tiska et al. (2004) notes that after pre-Hospital trauma training program control of external hemorrhage quickly acquire and use appropriately by the drivers. In the study of basic pre-Hospital trauma care program, Jayaraman et al. (2009) demonstrates that, external compression for hemorrhage control significantly more frequently at six months than they do at before the course. Moreover, the study of Ali et al. (2010) shows high significant improvement of practice of the study group in the post-test in comparison to pre -test.

#### **Knowledge and performance of participants' regarding fracture:**

Among study group of this study there was an increase in participants' knowledge regarding fracture immediately after the program implementation ( $p = 0.000$ ). Our results are going in line with Colquhoun et al. (2004) who find that incorrect rate of questions related to splinters was (61.4%) without training. The study of Hatzakis et al. (2005) notes that there is a significant statistical difference between knowledge of the group trained in first aid and the other untrained one concerning fracture (95.0% versus 68.4%) ( $p < 0.001$ ). In addition, the study of Bayraktar et al. (2009) which conducted on drivers, notes that all drivers participating the training course got the maximum points related to knowledge of applying knee and foot bandage.

Respecting practices owing to fracture, results of this study reported a promotion in participants' performance regarding fracture immediately after the program implementation ( $p = 0.000$ ). This result confirmed by Mock et al., (2002) who points out that there is considerable improvement in the provision of the components of first aid in comparison to what reports before the course; splinting of fractured extremities (1 vs. 16%). Another study done by (Tiska et al, 2004) that evaluates performance of the drivers after pre-Hospital trauma training, reports that drivers practice the application of soft and rigid splints on upper and lower extremities to immobilize fractures. In addition, Dania et al. (2006) concludes that many volunteers, both trained and untrained, demonstrate poor skills in applying pressure immobilization bandaging and splinting the limb adequately preprogram and improve post program. Moreover, the study of Ali et al. (2010) shows high significant improvement of practice of the study group in the post-test in comparison to pre -test.

#### **Knowledge and performance of participants' related to burns:**

Results of the current study demonstrated an elevation in participants' knowledge regarding burns immediately after the program implementation ( $p = 0.000$ ) as well as after 6 months ( $p = 0.027$ ). Our results agreed by different studies; Hatzakis et al. (2005) reveals that there is a significant statistical difference between knowledge of the group trained in first aid and the other untrained one concerning care of burns (82.5% versus 60.7%) ( $p < 0.001$ ). The study of Emergency Management of Severe Burns (EMSB) course that conducted by Rogers et al. (2013) find that, statistically significant differences are between knowledge of those who have complete the course and those who have not. On the other hand, in the study of Rekleiti et al. (2013) there was no significant statistical difference between before and after the educational intervention questions concerning burns (92% vs. 94.3%).

Pertaining to results of this study, there was a raise in participants' performance regarding burns immediately after the program implementation ( $p = 0.000$ ) as well as after 6 months ( $p = 0.035$ ). These results approved by the study of Ali et al. (2010) who shows high significant improvement of practice of the study group in the post-test in comparison to pre -test. Moreover, Rogers et al. (2013) observes a statistically significant difference between performance of those who have complete the course and those who have not regarding burns.

#### **Knowledge and performance of participants' for poisoning and snakebite:**

Based on results of the current study, there was an advancement in participants' knowledge regarding poisoning and snakebite immediately after the program implementation ( $p = 0.001$ ). Results of this study were congruent with the study of (2004) who reveals that teachers have in adequate knowledge of first aid regarding inhaled poison (27.6%) without training. De Silva et al. (2009) reports that health care workers attain higher

knowledge score (70%) compared to the scores of those who have no previous training (50%). In addition, the study of Colquhoun et al. Moreover, the study of Li et al. (2012) notes that subjects especially lack knowledge regarding first aid for convulsive inhaled poison (only 27.6% aware) without training. On the other hand, Hatzakis et al. (2005) reports that there is no significant statistical difference between knowledge of trained group (42.5%) and untrained group (42.9%) regarding first aid of poisoning. In addition, study done by Deepak and Nayak (2012) reveals that without training among the seven areas of knowledge assessment on first aid measures the mean percentage score of the samples are highest (70%) in the area of poisoning.

Concerning snakebite knowledge, results of this study approved by Dania et al. (2006) who find that trained individuals perform consistently better in theoretical tests ( $p=0.0001$ ) than untrained. Pandey (2007) reports that, of the total ( $n=165$ ), 88% of participants reply for program about snakebite for the best, 7% for better and 5% for good. On evaluation after 1 year, 74% participants ( $n = (165 - 7 \text{ absentees}) = 158$ ) transfer their knowledge to a total of 2097 locals including students.

First aid practices related to poisoning and snakebite that performed by study participants showed an improvement in participants' performance regarding poisoning and snakebite immediately after the program implementation ( $p = 0.000$ ). Our results were going in line with the study of De Silva et al. (2009) who concludes that the health care workers attain higher knowledge score (70%) compared to the scores of those who have no previous training (50%). While study done by Deepak and Nayak (2012) reveals that among the seven areas of the knowledge assessment on first aid measures the mean percentage score of the samples are highest (70%) in the area of poisoning without training. Concerning first aid practices of snakebite, results of this study confirmed by Pandey (2007) who notes that, of the total ( $n=165$ ), 89% develop the ability to apply recommended first aid regarding snakebite. While a study done by Simpson et al. (2008) in applying pressure immobilization for snakebite reveals that, 60% of volunteers achieve target pressures 1 h after training. However, there was rapid loss of ability to apply it correctly, falling to just 25% success at 3 days, with little further deterioration at 3 months.

It is obvious from the results of this study that, there was no significant statistical correlation between participants' age and their first aid knowledge, as well as performance at the three phases of the program ( $p>0.05$ ). This result approved by Bayraktar et al. (2009) who find no significant statistical correlation between drivers age and knowledge and practice of first aid ( $p>0.05$ ). Hassanzadeh et al. (2010) notes that it is no significant relationship between the frequency distribution of students' age and knowledge and performance before the first aid course in the study groups. Moreover another study performed by Deepak and Nayak (2012) concludes that there is no significant statistical correlation between participants' age and first aid knowledge ( $p>0.05$ ). While these results were incongruent with the study of Başer et al. (2007) who find that as the age of the teachers increases, appropriate first-aid practice becomes more and more unlikely. In addition Li et al. (2012) find that results of the multiple linear regression analysis show the knowledge score to be significantly higher among younger personnel ( $t=-4.185$ ,  $P<0.001$ ).

It is clear from results of the current study that, there was no significant statistical correlation between participants' education and their first aid knowledge, as well as performance at the three phases of the program ( $p>0.05$ ) unless between their knowledge post program and education favoring bachelor degree ( $p = 0.015$ ). Another study performed by Bayraktar et al. (2009) find no significant statistical correlation between drivers education and knowledge as well as practice of first aid ( $p>0.05$ ). In addition, Deepak and Nayak (2012) concludes that there is no significant statistical correlation between participants' education and first aid knowledge ( $p>0.05$ ). While a study done by Thein et al. (2005) for investigation of knowledge, attitude and practices of childhood injuries and their prevention by primary caregivers reveals that, the higher the education of the mother, the more likely that she would possess the correct knowledge and practice on childhood injuries. In this regard, Castro (2010) reports that coaches with a higher education do score higher on the first aid assessment test. In addition, Gholami et al. (2012) reports that, there is significant difference between first aid knowledge and education level ( $p<0.0001$ ) among relief workers posted in rescue and relief bases of the Red Crescent Society of Mazandaran province of Iran during Nouroz holidays. Moreover Li et al. (2012) mentioned that results of the multiple linear regression analysis show the knowledge score to be significantly higher among staff who have higher education levels ( $t = 2.069$ ,  $P = 0.039$ ). Concerning correlation between participant's number of family members and their mean scores of first aid knowledge and performance. It is observable that, there was no significant statistical correlation between participants' number of family members and their first aid knowledge, as well as performance at the three phases of the program ( $p>0.05$ ). These results confirmed by the findings of Gholami et al. (2012) who find no significant statistical correlation between first aid knowledge and number of family members ( $p>0.05$ ) among relief workers.

Regarding correlation between participant's marital status and their mean scores of first aid knowledge and performance. It is observable that, there was no significant statistical correlation between participants' marital status and their first aid knowledge, as well as performance at the three phases of the program ( $p>0.05$ ). These results

approved by the findings of Gholami et al. (2012) who points out that there is no significant statistical correlation between first aid knowledge and marital status ( $p>0.05$ ) among relief workers.

### **The high rate of success:**

In our training program can be attributable to using manikin and other real first aid materials and equipment (first aid bag, bandage material, slides, etc.). The use of suitable educational methods and instructional media. The program content items were relevant to the practice, the great effort spent by investigators to modify teacher's performance. Another factor increasing the success of our program might be the fact that all employees participating in the course practiced all first aid applications taught during the course. Because lecturing is not sufficient alone to improve psychomotor skills. Lecturing or reading may distract and result in information overload. Acquisition of psychomotor skills depends mainly on practice and repetition (Mahony et al., 2008). The majority of either knowledge forgotten because people never need these or people need these rarely. If the knowledge gained and practiced or repeated systematically, it will effectively learned and remembered (Bayraktar et al., 2009). In related literature there are studies showing that first aid training programs giving special importance to the practice were more effective (Capone et al., 2000). More over the high interest of employees shared in study and their commitment constitute major factor in success of that work.

### **Conclusion:**

The findings of this study indicated the need for educating employees about first aid practices. The first aid program designed and implemented by researchers succeeded to improve the knowledge and skills of female Health Colleges employees at Najran University in first aid related to measurements of vital signs, fainting & sunstroke, choking, dealing with wounds & bleeding, burns, fractures, poisoning and snakebite. This improvement proved statistically. Besides the significant advantages for the employees' health, teaching first aid will allow them to master the scientific way of thinking and making decisions, and to form newfound attitudes favoring humanistic values and ability to offer help.

### **Recommendations:**

There is a need of proper and regular educational programs to make awareness in the community about the importance of first aid practices. There is a need for Faculty of Nursing Staff to carry out an active part in education of the people regarding first aid. In addition, periodic refreshing courses and training needed for all employees. Moreover, designing and implementing other training courses that could be necessary for improving employees' health and promote their ability to care for themselves and others as pain management, physical fitness and other interested topics.

### **References:**

- 1- Abbas, A., Bukhari, S.I. and Ahmad, F. (2011). Knowledge of first aid and basic life support amongst medical students: a comparison between trained and un-trained students. *J Pak. Med. Assoc.*, 61(6):613-6.
- 2- Ali., S.A. Abu-Elseoud, A.R. Soheir M.Heybah, S.M. and Mohamed, A.A. (2010). Implementation of an educational training program in first aid for newly graduated nursery school teachers at Zagazig City. *Zag. J. of Occup. Heal. & Saf.*, 3 (1 ):20-30.
- 3-Anderson, G.S., Gaetz, M. and Masse, J. (2011). First aid skill retention of first responders within the workplace. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine.*, 19:11.
- 4-Başer, M., Coban, S., Taşci, S., Sungur, G., and Bayat, M. (2007). Evaluating first-aid knowledge and attitudes of a sample of Turkish primary school teachers. *J. Emerg. Nurs.*, 33(5):428-32.
- 5- Bayraktar, N., Elik, S.S., Hayriye, N.L. and Bulut, H. (2009). Evaluating the effectiveness of a first aid training course on drivers. *Hacettepe University Faculty of Health Sciences Nursing Journal.*, 47-58.
- 6- Borse, N.N., and Hyder, A.A. (2009). Call for more research on injury from the developing world: resuly of bibliometric analysis. *Indian J Med Res.*, 129-321-6.
- 7-Capone, P.I., Cane, J.C., Kerr, C.S. and Safar, P. (2000). Life supporting first aid (lsfa) teachings to Brazilians by television spots. *Resuscitation.*, 47 (3): 259-265.
- 8 -Castro, L. 2010. Assessment of first aid knowledge and decision making of coaches of youth soccer. Master thesis. San Jose State University.p.31.
- 9- Colquhoun, M., Handley, A.J., Evans, T.R. (2004). *ABC of Resuscitation*. 5th edition. BMJ Publishing Group, London.

- 10- Dania, L.M., Hanni, G.C., Tony, C. Ian J.G. ; Debra, O. and George J.A. (2006). Community senior First Aid training in Western Australia : its extent and effect on knowledge and skills. *Australian and New Zealand journal of public health.*, 30(2):147-150.
- 11 -Das M., Elzubeir M. (2001). First aid and basic life support skills training early in the medical curriculum: curriculum issues, outcomes, and confidence of students. *Teach. Learn. Med.*, 13:240-246.
- 12- Deepak, M. and Nayak, S. (2012). A study on assessment of knowledge on practice regarding first aid measure among the self help group in selected area of Mangalore with a view to develop information module. *N.U.J.H.S.*, 2(3): 67-71.
- 13- De Silva, W.D., Fernando, R. and Samarage, S.M. (2009). Knowledge, attitudes and skills among primary health care workers in Sri Lanka on first aid and safety for poisoning. *Faculty of Medicine, University of Colombo, Sri Lanka.*
- 14- Edelman, C.L. and Mandle, C.L. (2006). *Health promotion throughout lifespan.* Mosby Elsevier, C., St. Louis.
- 15- Engeland A, Røysamb E, Smedslund G, Sjøgaard A.J. (2002). Effects of first-aid training in junior high schools. *Inj Control Saf Promot.*, 9:99–106.
- 16- Gholami, G., Ahmadi, L., Moshtaghian, R. 2012. Knowledge, attitude and practices of relief workers regarding first aid measures. *J.P.M.A.*, 62: 218-222.
- 17- Hassanzadeh, A., Vasili, A., and Zare, Z. (2010). Effects of two educational method of lecturing and role playing on knowledge and performance of high school students in first aid at emergency scene. *Iran J. Nurs. Midwifery Res.*, 15(1):8-13.
- 18- Gururaj, G. (2008). Road traffic deaths, injuries and disability in India: current scenario. *Nat. Med. J. India.*, 21: 14-20.
- 19- Hatzakis, K.D., Kritsotakis, E.I., Angelaki, H.P., Tzanoudaki, I.K., and Androulaki, Z.D. (2005). First aid knowledge among industry workers in Greece. *Ind. Health.*, 43:327-32.
- 20- Helen, S., Susan W., Robert, C. et al. (2002). NHS emergency response to 999 calls. *British medical journal.*, 325: 330-333.
- 21- Husum, H., Gilbert, M., Wisborg, G., Pilgram-Larsen J. (2003). Landmine injuries: a study of 708 victims in North Iraq and Cambodia. *Military Medicine.*, 168:934–940.
- 22- Jiang, Y.B., Wang, Z.G., Huang, X.Z., Yu, R.M. and Zhu, N. (2008). [The influence of elective course of emergency treatment for medical students on the cultivation of first aid knowledge and skill of cardio-pulmonary resuscitation]. *Zhongguo Wei Zhong Bing Ji Jiu Yi Xue.*, 20: 571-3.
- 23- Jayaraman, S., Mabweijano, J.R., Lipnick, M.S., Caldwell, N., Miyamoto, J., Wangoda, R., Mijumbi, C., Hsia, R., Dicker, R. and Ozgediz, D. (2009). Current patterns of prehospital trauma care in Kampala, Uganda and the feasibility of a lay-first-responder training program. *World J Surg.*, 33(12):2512-21.
- 24- Kano, M., Seige, J.M., Hyg, M.S. and Bourque, L.B. (2005). First-aid training and capabilities of the lay public: a potential alternative source of emergency medical assistance following a natural disaster. *Disasters.*, 29:58-74.
- 25- Kashiwayama T. (2012). First aid of heat-related illness. *Nihon Rinsho.*, 70(6):957-60.
- 26- Khan, A., Shaikh, S., Shuaib, F., Sattar, A., Samani, S.A., Shabbir, Q. and Rasheed, A.Z. (2010). Knowledge attitude and practices of undergraduate students regarding first aid measures. *J Pak. Med. Assoc. Jan.*, 60 (1):68-72.
- 27- Kumar, S., Agarwal, A., Kumar, A., Agrawal, G., Chaudhary, S. and Dwivedi, V.A. (2008). Study of knowledge, attitude and practice of hospital consultants, resident doctors and private practitioners with regard to pre-hospital and emergency care in Lucknow. *Indian J. Surg.*, 70: 14-8.
- 28- Li, F., Jiang, F., Jin, X., Qiu, Y. and Shen, X. (2012). Pediatric first aid knowledge and attitudes among staff in the preschools of Shanghai, China. *BMC Pediatrics.*, 12:121-137.
- 29- Mahony, P., Griffiths, R., Larsen, P., and Powell, D. (2008). Retention of knowledge and skills in first aid and resuscitation by airline cabin crew. *Resuscitation.*, 76: 413-418.
- 30- Mauritz, W., Pelinka, L.E., Kaff, A., Segall, B. and Fridrich, P. (2003). First aid measures by bystanders at the place of accident. A prospective, epidemiological study in the Vienna area. *Wien Klin Wochenschr.*, 115: 698-704.
- 31- Mock, C.N., Tiska, M., Adu-Ampofo, M., and Boakye, G. (2002). Improvements in prehospital trauma care in an African country with no formal emergency medical services. *The Journal of Trauma.* 53(1):90-7.
- 32- Pandey, D.P. (2007). Snakebite first aid education and its impact in Rural Madi Vally Central-South lowland. *Journal of Medical Toxicology.*, 3 (4):164- 168.
- 33- Park, K. (2009). *Park,s textbook of preventive and social medicine.* 20 edition: Banaras and Bhanot publication.



- 34- Parnell, M.M., Pearson, J., Galletly, D.C. and Larsen, P.D. 2006. Knowledge of and attitudes towards resuscitation in New Zealand high-school students. *Emerg. Med J.*, 23: 899-902.
- 35- Rekleiti, M., Saridi, M., Toska, A., Kyriazis, I., Kyloudis, P., Souliotis, K. and Wozniak, G. (2013). The effects of a first-aid education program for middle school students in a Greek urban area. *Arch Med. Sci.*, 9(4): 758-760.
- 36- Rogers, A.D., Allorto, N.L., Wallis, L.A and Rode, H. (2013). The Emergency Management of Severe Burns course in South Africa. *S. Afr. J. Surg.*, 51(1):38-39.
- 37- Severien, I., Tan, E.C., Metz, J.C., Biert, J. and Berden HJ. (2005). The level of first aid and basic life support for the next generation of physicians. *Ned. Tijdschr Geneeskd.*, 149: 1756-7.
- 38- Simpson, I.D., Tanwar, P.D., Andrade, C., Kochar, D.K. and Norris, R.L. (2008). The Ebbinghaus retention curve: training does not increase the ability to apply pressure immobilization in simulated snakebite. *Trans. R.Soc.Trop.Med.Hyg.*, 102 (5): 451-459.
- 39- Sun J.H. and Wallis LA. (2012). The emergency first aid responder system model: using community members to assist life-threatening emergencies in violent, developing areas of need. *Emerg. Med. J.*, 29(8):673-8.
- 40- Tan, E.C., Severienm, I., Metz, J.C., Berden, H.J. and Biert, J. (2006). First aid and basic life support of junior doctors: A prospective study in Nijmegen, the Netherlands. *Med.Teach.*, 28: 189-92.
- 41- Teague, G. and Riley, R.H. (2006). Online resuscitation training. Does it improve high school students ability to perform cardiopulmonary resuscitation in a simulated environment? *Resuscitation.*, 71: 352-7.
- 42- Thein, M.M., Lee, B.W. and Bun, P.Y. (2005). Knowledge, attitude and practices of childhood injuries and their prevention by primary caregivers in Singapore. *Singapore Med. J.*, 46(3):122-6.
- 43- Tiska, M., Adu-Ampofo, M., and Boakye, G. Tuuli, L. and Mock, C.N. (2004). Persons devised in Africa. A model of prehospital trauma training for lay. *Emerg. Med. J.*, 21: 237-239.
- 44- Van de Velde, S., Heselmans, A., Roex, A., Vandekerckhove, P., Ramaeker, D., And Aertgeerts, B. (2009).: Effectiveness of non-resuscitative first aid training laypersons: A systematic review. *Ann. Emerg. Med.*, 54(3): 447-457.
- 45- Volker, T.M, Stefan, C.DI, Hauer, H. and Schreiber, W. (2010). Project "spotlight first aid". A positional paper on first aid knowledge of Austrian care drivers. *Notfall Rettungsmed.*, 13: 125-130.
- 46- Wisborg, T. Murad, M.K Edvardsen, O. and Husum, H. (2008). Prehospital trauma system in a low-income country: system maturation and adaptation during 8 years. *The Journal of trauma.*, 64(5):1342-8.
- 47- Wook, L.J. (2004). World health day theme 2004: road safety is no accident. N.J.I.
- 48- World Health Statistics. (2008). Future trend in global mortality: major shifts in cause of death patterns. (Online) [http://www.who.int/whosis/whostat/EN\\_WHS08\\_Full.pdf](http://www.who.int/whosis/whostat/EN_WHS08_Full.pdf).
- 49- Yurumez, Y., Yavuz, Y., Saglam, H., Koken, R. and Tunay, K. (2007). Evaluation of the level of knowledge of first aid and basic life support of the educators working in preschools. *JCLT.*, 5(3):17-20.
- 50- Zarrinfar, N., Mohajerani, S.A., Azadpour, M. and Rezaei, S. (2003). Competence Textbook of educational aid under supervision of teacher of Tehran University of Medical science. Publication of Tehran University of medical science; Tehran.): 138.