

## Effect of First Aid Health Educational Intervention for Special Education School Teachers at Zagazig City

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### Abstract:

**Background:** Injuries rank among the leading causes of morbidity and mortality worldwide. First aid does not substitute for medical care; they just are a temporary support until specialized care could be provided. **Aim of the study:** was to evaluate the effectiveness of first aid health educational intervention for special education school teachers at zagazig city. **Subjects and methods: Research Design:** A quasi-experimental design was used. **Setting:** El-Amal School for Deaf and Hard for Hearing, Intellectual School, and El-Nour School for Blind. **Subjects:** 60 teachers were recruited from the three schools. **Tools of data collection** for data collection: **tool I.** A questionnaire sheet consisted of two parts: **Part A:** Socio-demographic characteristics of the teachers under study, **Part B:** Teacher's knowledge about first aid. **Tool II.** An observational checklist used to assess the teacher's practice to first aid. The fieldwork lasted from October 2015 to March 2016. **Results:** Showed that there were highly statistically significant differences in teachers' knowledge and practices regarding to first aid throughout intervention phases ( $P < 0.001$ ). The total mean score of knowledge among the study group increased from  $28.58 \pm 19.15$  in preprogram, to  $82.83 \pm 14.67$  immediately post program and  $79.87 \pm 21.43$ , at 3 month of post program. The total mean scores of their practice increased from  $24.58 \pm 33.19$  preprogram to  $150.37 \pm 30.60$  immediately post program and  $145.52 \pm 37.09$ , at 3 month of post program. **Conclusion:** This study results provided evidence that after implementation of educational program teachers' knowledge and practices regarding first aid improved. **Recommendations:** Health educational training to be performed at least annually for all special education school teachers.

**Key words:** First aid, Teachers, Special education schools, Health, Nurse

### Introduction:

First aid is considered as the first step of pre-hospital services.<sup>(1)</sup> Additionally, first aid is the first assistance given to any person suffering a sudden illness or injury.<sup>(2)</sup> In the USA, it was found that only 5.4% of the schools had their teachers having first-aid training.<sup>(3)</sup> Injury, an increasingly significant public health issue worldwide, accounts for up to 16% of the global burden of disease. Approximately 50% of injury deaths occur in the pre-hospital setting. Additionally, trauma is the fourth leading cause of death in Iran, and nearly 15.2% of all deaths seem to be due to trauma. Thus, first aid is important and first care responders and non-medical bystanders with medical skills are essential for safe management in the front line of the pre-hospital trauma care.<sup>(4)</sup>

In a special education school, teachers deal with more frequent and complex health emergencies than those in regular schools and the

teacher is the closest to the students. Therefore, it is vital that teacher should be provided with first-aid knowledge and practical training, and teaching basic first aid should be compulsory.<sup>(5)</sup> The response time in emergency situations is critical, but the first aid provided must be performed properly to prevent further complications and to potentially save lives.<sup>(6)</sup> The correct first aid approach in student's emergencies can be life-saving.<sup>(7)</sup>

### Significance of the study:

First aid is an effective life-preservation tool at work, school, home, and in public locations. Accordingly, the first aid training program for first care responders will help provide initial care and improve outcomes.

**The present study aimed** to evaluate the effectiveness of first aid health educational intervention for special education school teachers at Zagazig City.

**This was accomplished through the specific objectives:**

- Assess the teacher's knowledge and practices prior and after the educational program intervention.
- Plan, implement, and evaluate the effectiveness of first aid health educational intervention for special education school teachers at Zagazig City.

**Research Hypotheses:**

1.-After implementation of educational program teacher's knowledge regarding first-aid will be improved.

2.-After implementation of educational program teacher's practices regarding first-aid will be improved.

**Subjects and methods:**

**Research design:**

A quasi-experimental research design with pre–post assessment was used to conduct this study.

**Study setting:**

This study was conducted at three special education schools at Zagazig City.

1. El-Amal School for Deaf and Hard for Hearing.
  2. Intellectual School
  3. El-Nour School for Blind at Zagazig City.
- There are nine schools children with problems of hearing. The main school is the one located in Zagazig City while the other eight schools are small ones with limited number of students and teachers staff. Moreover, there are 14 schools for children with Intellectual School. Only the intellectual school at Zagazig City including the primary, vocational preparatory and secondary stages of education. Other schools are small ones with few numbers of students and teachers, and only one El-Nour School for Blind at Zagazig City.

**Study subjects:**

For each category of special education schools the main school at Zagazig City was chosen for having enough target population for sample

size selection. The sample size was performed using the Epi-Info software created by WHO and Center for Disease Control, Atlanta, USA version 2002. The sample was found to be at  $N > 50$  based on the following:

- 95% confidence limit
- 80% power of the study
- The estimated outcome of 65% before intervention to be increased to 90 after intervention

The sample size was 60 teacher and recruited from the three schools from the teacher staff using systematic sampling technique from official school files. 20 teachers were taken from 95 teacher at El-Amal School for Deaf and Hard for Hearing, 20 teachers were taken from 40 teacher at Intellectual School, and, 20 teachers were taken from 45 teacher at El-Nour School for Blind

**Tools of data collection:**

Two tools developed by the researcher, based on current related literature were used to collect the necessary data for achieving the study objectives:

**Tool (I):** An interview questionnaire; It was consisted of two parts;

- **Part (1):** For collecting data pertaining to demographic characteristics of the teachers such as; code number, age, sex, marital status, residence (rural/urban), qualification, years of experience, etc.
- **Part (2):** This involved questions regarding teacher's knowledge about first aid as basic knowledge about first aid (6 Questions), wounds (9 Questions), bleeding (9 Questions), epistaxis (3 Questions), burn (6 Questions), electric shock (5 Questions), fall, fracture, and dislocation (13 Questions), bronchial asthma emergency (6 Questions), fainting (4 Questions), choking (7 Questions), suffocation (2 Questions), diabetic coma emergency (9 Questions), poisoning (7 Questions), heat

stroke and cardiac arrest (7 Questions)

**Scoring system:**

- A complete correct answer was scored 2, an incomplete correct answer was scored 1, and an incorrect answer was scored zero. For each area of knowledge, the scored of items were summed up and the total of knowledge was (87) points.

**Tool (II):** This tool was intended to assess practices regarding first aid. It consisted of: Minor and major wounds (15 steps), epistaxis (10 steps), burn (12 steps), electric shock (12 steps), fall, fracture, and dislocation (32 steps), bronchial asthma emergency (6 steps), fainting (9 steps), choking (15 steps), suffocation (9 steps), diabetic coma emergency (4 steps), poisoning (6 steps) heat stroke (7 steps) and cardiac arrest (22 steps).

**Scoring system:**

For each practice item, each correct sub item was given one point and each wrong sub item was given zero. Total score of practice was (159) points.

**Content validity and Reliability:**

The validity of data collection tools was tested by five experts from the Community Health Nursing and Medical Surgical Nursing, Faculty of Nursing, Zagazig University and experts from Faculty of Medicine, to assess clarity, relevance, application, comprehension, and understanding of the tools, all recommended modifications on the tools were done. Reliability of the proposed tools was done by Cronbach's Alpha test, it was 0.979 for tool (I) and 0.980 for tool (II)

**Field work:**

The execution of the study was through four phases: assessment, planning, implementation, and evaluation. This lasted for 6 months from the first of October 2015 to the end of March, 2016.

**Assessment phase:**

This phase involved the pre-intervention data collection for baseline assessment. The researcher first introduced herself and explained

the purpose of the research briefly to the head master and the staff working in the school. Every teacher was met individually and oral consent for participation was obtained. The researcher read each item of the study questionnaire to the teacher, and recorded his/her response to each item. The time consumed for answering the study questionnaire ranged from 45-55 minutes. The data were preliminarily analyzed to provide the basis for designing of the intervention program.

**Planning phase:**

Based on the results obtained from the assessment phase, the researcher designed the intervention program and sessions' content according to the identified teacher's needs. The sessions were developed based on these needs and in view of the related literature. The program consists of three main components. The first component was for giving a theoretical background of basic knowledge about first aid such as; definition, aim, contents of essential school pharmacy, the Egyptian ambulance number, civil defense, number of Egyptian police and how to deal with medical crises.

**The second** component focused on a theoretical background of common first aid. It included; definition of each first aid, causes, signs and symptoms, prevention, and treatment of each first aid such as; wounds, epistaxis, burn, electric shock, fall, fracture, dislocation, bronchial asthma emergency, fainting, choking, suffocation, diabetic coma emergency, poisoning, heat stroke and cardiac arrest. The third component included practical of all the sessions of the previous first aid mentioned. The researcher developed an intervention module in the form of an educational booklet responding to the teachers' needs, to help them follow the educational sessions and to serve as a reference at home.

**Implementation phase:**

The intervention was implemented in the form of sessions, the program was implemented in the restaurant and library of the school. To ensure exposure of all teachers to the same learning experience, all of them received the same content using same training methods. The training methods included demonstration-, re-demonstration, individual discussion, role play, and reinforcement. The sessions were aided by using video, pictures and posters through laptop. To ensure that the teachers understand the content, each session was started by a summary about what was given through the previous session, followed by the objectives of the new one. Motivation and reinforcement techniques were used as praising and giving them appreciation certificates for what they acted and showed with excellence of practice to enhance interest and learning. The intervention was implemented in 12 theoretical sessions and 12 practical sessions (24 theoretical and practical sessions). The objectives of the sessions were as follows:

**Session 1:** An introduction session, to explain the aim of the program, procedures, and pre-test. Lecture was used as a teaching method.

Objectives: To introduce the intervention, and to explain its purpose.

**Session 2:** Focused on imparting knowledge of the first aid definition, aim, contents of essential school pharmacy, the Egyptian ambulance number, civil defense, number of Egyptian police and procedures to deal with medical crises. The main objectives were to help teachers to acquire knowledge and skills of first aid. PowerPoint, handout and role play were used as teaching methods.

**Sessions (3 & 4):** The main objectives were to help teachers gain knowledge about the anatomy of the skin, definition, types of wounds, symptoms

of closed and open wounds, complications of wounds and bleeding, differentiate between arterial and venous bleeding. Group discussion and lecture were used as teaching methods, followed by a practical session of minor and major wounds. Group discussion, role play, demonstration, re-demonstration were used as teaching methods.

**Sessions (5 & 6):** The main objectives were to help teachers provide knowledge and practices about definition, causes, types, prevention, treatment, and first aid of epistaxis and burn. Group discussion, role play, demonstration, re-demonstration were used as teaching methods.

**Sessions (7 & 8):** The main objectives were to help teachers identify knowledge about definition, causes, symptoms, complications and first aid of electric shock, followed by a practical session of first aid of electric shock. Demonstration, re-demonstration were used as teaching methods.

**Sessions (9 & 10):** The main objectives were to help teachers acquire learn definition, causes, types, symptoms, complications, of fall, fracture, and dislocation followed by a practical session to demonstrate the first aid about previously mentioned items. Demonstration, re-demonstration and role play were used as teaching methods.

**Sessions (11 & 12):** The main objectives were to help teachers know definition, causes, symptoms, diagnoses, treatment of bronchial asthma, followed by a practical session to demonstrate the first aid of bronchial asthma emergency and how to use bronchial asthma spacer. Group discussion, role play, demonstration- re-demonstration were used as teaching methods.

**Sessions (13 & 14):** The main objectives were to help teachers gain knowledge about definition, causes, symptoms, treatment and first aid of choking and fainting, followed by a

practical session about first aid of fainting and choking.

**Sessions (15, 16 & 17):** The main objectives were to help teachers know definition, causes, types, symptoms, hypoglycemia, hyperglycemia, and treatment of suffocation and diabetes mellitus emergency, followed by a practical session about the previously mentioned items. Group discussion, role play, demonstration, re-demonstration were used as teaching methods.

**Sessions (18 & 19):** The main objectives were to help teachers know definition, causes, symptoms, treatment of poisoning and heat stroke, followed by a practical session about previous mentioned items. Group discussion, role play, demonstration, re-demonstration were used as teaching methods.

**Sessions (20 & 21):** The main objectives were to provide skills of the teachers regarding cardio-pulmonary resuscitation. Demonstration, re-demonstration were used as teaching methods.

**Sessions (22-24):** These sessions involved global summarization and revision of the aim of the program and termination module sessions. For follow-up of health education training it should be performed at least annually.

#### **Evaluation phase:**

Evaluation of the health educational intervention was done immediately after its implantation, and a follow-up evaluation after three months through applying the same tools of the pretest.

#### **Pilot study:**

Before performing the main study, a pilot study was carried out on 10% of the study sample (6 teachers). The purpose of pilot study was to test the questions for any ambiguity, practicability, applicability, and feasibility of the tool. The necessary modifications were done. It also helped the researcher to determine the

time needed for filling in the forms. Those who shared in the pilot study were excluded from the main study sample.

#### **Administrative and ethical considerations:**

An official permission was obtained using the proper channel of communication. As well, an oral consent was obtained from each teacher who agree to participate in the study. They were informed that participation is voluntary and that they have the right to withdraw from the study at any time without giving any reason

#### **Statistical analysis:**

The collected data were organized, tabulated and statistically analyzed using Statistical Package for Social Studies (SPSS) version 19 created by IBM, Illinois, Chicago, USA. For numerical values the range, mean and standard deviations, were calculated. For categorical variables the number and percentage were calculated. Comparison of categorical observations before, after and at follow up periods was done using Friedman's Chi square test. Comparison of mean values before, after and at follow up periods was done using repeated measurement analysis of variance. When analysis of variance was found significant, least significant test was used to compare between each two means. When studying variables affecting total score of knowledge and practice, Mann-Whitney Z test was used for variables presented in two subcategories and Chi square of Kruskal-Wallis test for variables presented in more than two subcategories. The level of significance was adopted  $p \leq 0.05$ .

#### **Results:**

**Table (1):** Indicates the mean age of the teachers was 45.52+7.21 years, 71.7% of teachers were female. Meanwhile 40% of teachers had post graduate education and 88.3% were married. Furthermore, the mean of the years of experience for the study teachers was 21.30+7.82 years.

**Table (2):** shows that 53.3% of the study teachers reported previous experience in first aid. As for fainting first aid (38.3%), epistaxis (31.7%) , and head injury (25%).

**Table (3):** Clarifies that, there were highly statistically significant differences regarding basic knowledge of first aid definition, aim, pharmacy contents, ambulance phone, civil defense phone, and police phone among teachers throughout intervention phases ( $P < 0.001$ ).

**Table (4):** Demonstrates that the total mean score of first aid knowledge among study teachers increased from  $28.58 \pm 19.15$  in preprogram, to  $82.83 \pm 14.67$  immediately post program, and slightly decreased to  $79.87 \pm 21.43$  at follow up 3 months ( $P < 0.001$ ).

**Table (5):** Shows that the total mean score of their practices of first aid teachers' increased from  $24.58 \pm 33.19$  in preprogram, to  $150.37 \pm 30.60$  immediately post program and slightly decreased to  $145.52 \pm 37.09$  at follow up 3 months later post program ( $P < 0.001$ ).

**Table (6):** Clarifies that there were highly statistically significant differences regarding knowledge first aid scores throughout intervention program phases among the three special education school teachers ( $P < 0.001$ ).

**Table (7):** Demonstrates that there was highly statistically significant difference regarding practical evaluation throughout intervention phases among the three special education school teachers ( $P < 0.001$ ).

**Table (8):** Reveals that there were highly statistically significant differences regarding practical evaluation and knowledge scores throughout intervention phases ( $P < 0.001$ ).

**Table (9):** Indicates that there was a statistically significant relationship between the total knowledge score intervention with gender of the teachers ( $P: 0.028$ ).

**Table (10):** Displays that, no statistically significant relationships

were detected between total practice intervention and teachers' age, gender, residence, marital status, educational level, and duration of experience in years.

**Figure (1):** Illustrates that the total mean value of total knowledge and practice scores among the study teachers' improved from  $28.58 \pm 19.15$  and  $24.58 \pm 33.19$  respectively, in preprogram, to  $82.83 \pm 14.67$  and  $150.37 \pm 30.60$  respectively immediately after program and slightly decreased to  $79.87 \pm 21.43$  and  $145.52 \pm 37.09$  respectively at follow up 3 months after program.

#### **Discussion:**

Teachers are the main caregivers and the first line of protection for school children. Their role complements that of parents. During school hours, school teachers are actually the first-respondent in cases of disasters or emergencies. The results demonstrated improvement in teachers' knowledge and practices towards first aid.

The current study revealed most of teachers were female and this result was consistent with the known women nature which makes them take the major responsibility of caring students in the school. This is in line with the study of Sosada et al.<sup>(8)</sup> on first aid in among a Polish sample, and found that the majority of teachers were female. As well, in the present study, less than half of the teachers were not exposed to any first aid program, this reflects the results of preprogram knowledge test among the special education school teachers that was very low. This finding is in agreement with Fahmy et al.<sup>(9)</sup> who mentioned that in Tanta, teachers had no specific training in first-aid. This result was incongruent with Joseph et al.<sup>(10)</sup>, in Mangalore who found that 47% of teachers had received first aid training previously. This might be the difference of location, and lack of training is due to economic cause, facilities, not obligatory in recruitment

Concerning the most common injuries that teachers were exposed to fainting, followed by epistaxis, and head injuries accounting for nearly two fifth, followed by approximately one third and one quarter respectively. This finding is to some extent consistent with Fahmy et al.<sup>(9)</sup> in Tanta who reported that the common injuries were epistaxis, and head injuries. This might be explained as the students with disabilities have more aggressive behavior that pushing each other causing injuries, in addition the unhealthy environment, and the weather can cause dryness of the mucous membranes at the nose. As well, it was reported that epilepsy and seizures are more common in the Intellectual School. This finding was in accordance with Corbett<sup>(10)</sup>, who found that epilepsy is one of the most common secondary disabilities in students with mental retardation, and the prevalence increasing with the severity of the intellectual disability. On the same line, Ramirez et al.<sup>(11)</sup> in USA, highlighted that those with sensory disabilities have an increased potential for injury. They added that the blinded students are at high risk of pedestrian injuries and a total of 697 injuries were reported for a rate of 4.7/100 students per year. Children with disabilities had a 70% increased of injury compared with normal student.

Considering, a report from the national databases and research literature by Shelton<sup>(12)</sup>, it stated a lack of education for teachers in basic emergency police and to deal with crises in the classroom. On the same line, Barrett<sup>(13)</sup> clarified that teachers need to understand basic first aid for purpose of handling emergencies when they occur. These result agree with the present study finding which showed lack of education of teachers about basic emergency of civil defense phone. As well, in the present study after implementation of intervention there were highly statistically significant improvement regarding

basic knowledge of first aid with regard to ambulance phone, civil defense phone, and police phone among teachers throughout the intervention phases ( $P < 0.001$ ).

One of the main objectives of the current study was the assessment of teachers' knowledge and practices about first aid. The study result revealed an association between the teachers' scores of first aid knowledge and those of first aid practice. As well, Regarding the means and standard deviation of total knowledge scores throughout intervention phases in relation to type of special education school all the teachers in three schools (El-Amal School for Deaf and Hard for Hearing, Intellectual School, and El-Nour School for Blind) were highly significant  $p = 0.001$

Furthermore, the overall mean knowledge score in preprogram among teachers was very low. This study finding highlighted the urgent need for implementing first aid intervention, and this is the first study done in this school, knowledge often comes from experience and educational programs, therefore, teachers were unable to demonstrate first aid procedures due to their lack of knowledge about them which may have resulted in lowered self-esteem. This finding was supported by Başer et al.<sup>(14)</sup> who conducted a study among Turkish, and determined that most of the teachers do not have correct knowledge about first aid. For example, 65.1% of teachers gave incorrect answers regarding epistaxis, and 88.5% for wounds. In addition, Pallavisarji et al.<sup>(15)</sup>, in Southern India carried out a study and found that significant percentage (81.4%) of respondents reported that they did not have adequate skills to manage an emergency. Furthermore, the current study result was in accordance with the finding of a recent study of Joseph et al.<sup>(16)</sup>, in Mangalore, South India which reported poor knowledge and practices of first aid among school teachers. These findings might be explained by the fact the teachers

were not exposed to any first aid program and their previous educational background was not concerned with teaching first aid, which should be a cornerstone in the formation of teachers' curriculum to ensure the safety of students. This finding was approved by Zideman et al.<sup>(17)</sup> who in a very recent study done in Belgium, reported that educational pathway can be used for the integration of first aid training in school curricula.

After implementation of the health educational intervention the intellectual school scored the best knowledge and practice because the director of that school very support followed by blind, and deaf school. As well, the main objectives of the present study were highly achieved since the results point to generally high level scores of knowledge and practices. This finding was in agreement with Alexandropoulou<sup>(18)</sup>, in Greece, who showed significant difference in knowledge ( $P < 0.001$ ) and they would eventually deal with a threatening situation with right handlings. As well, De<sup>(19)</sup>, in Bangalore showed that improvement of knowledge occurred after administering a structured teaching program on first aid management. The findings are in agreement with many previous studies reported better levels of knowledge and performance among teachers regarding first aid as that carried out in Tanta by Fahmy et al.<sup>(9)</sup>, whose rate improved from  $33.67 \pm 18.90$  in preprogram, to  $89.74 \pm 5.64$  immediately post program, and in China by Li et al.<sup>(20)</sup>, improvement reached 86.5%. From the researcher point of view, these improvements were due to the effect of the training program which was given to these teachers. In addition, they were enthusiast to participate in the program and willing to attend future educational programs. Therefore, these programs have been successful in the teachers' improvement of knowledge and practices of first aid.

As regards follow up knowledge after 3 months, the present study finding revealed a slight decrease in teachers' knowledge and practices. This result was in agreement with Li et al.<sup>(20)</sup>, in China, who found that despite appreciable decreases in knowledge long term, knowledge retention was modest but stable. This stresses that the program should be repeated after a certain interval to upgrade their knowledge and maintain their achievement. From this point of view, follow-up education is most essential to continuously upgrade the knowledge, this could be in the form of equipping them with booklet, and workshops and boosting their knowledge and practices regularly.

According to the present study result there was a statistically significant relationship between the total knowledge score finding and female teachers. This might be due to that the females are usually close to students and they are mothers before being teachers. This finding is in accordance with Sanavane<sup>(21)</sup>, in India who found that females are the most accessible individuals to first aid for domestic and school injury. On the other hand, the present study finding showed no statistically significant relationship between practice intervention and their socio-demographic characteristics. These results are in agreement with Al-Jundi et al.<sup>(22)</sup>, who reported that the difference in teachers' responses to the knowledge was not statistically significant with regard to age, gender and years of teaching experience. Similar results were found by Sönmezet al.<sup>(23)</sup>, in Isparta, From this point of view, this could be due to that teachers previous educational background was not concerned with teaching first aid.

#### **Conclusion:**

In light of the results of the current study, it can be concluded that the study revealed that the training program was effective in increasing



the level of teachers' knowledge and practices of first aid.

**Recommendations:**

On the basis of the current study findings, the following recommendations are suggested:

It is recommended health education and training program about first aid should be provided to all teachers in the special schools, illustrated booklets for maintaining knowledge

and practices of the most important care need for first aid should be available in all schools, continuing training programs should be provided to all teachers to update their knowledge and practices. Finally knowledge and good practicing of first aid is compulsory for recruiting teachers dealing with children

**Table (1): Demographic characteristic of the study teachers (No=60)**

Variables	Number (n=60)	%
<b>Age in years:</b>		
30-	14	23.4
40-	23	38.3
50-60	23	38.3
Range	30-57	
Mean±SD	45.52±7.21	
<b>Gender:</b>		
Males	17	28.3
Females	43	71.7
<b>Residence:</b>		
Urban	44	73.3
Rural	16	26.7
<b>Marital status:</b>		
Single	2	3.3
Married	53	88.3
Widow	1	1.7
Divorced	4	6.7
<b>Educational level:</b>		
3 years' diploma	4	6.7
5 years' diploma	9	15.0
University	23	38.3
Post graduate studies	24	40.0
<b>Duration of work experience:</b>		
10-15	10	36.7
20-25	13	46.7
30+	10	16.7
Range	4-36	
Mean±SD	21.30±7.82	
<b>Monthly income:</b>		
Not enough	17	28.3
Enough	25	41.7
Enough and saving	18	30.0
Previous training in first aid	0	0

**Table (2): Distribution of studied participants according to their previous practicing of first aid (No=60)**

Practice of first aid	Number (n=60)	%
Previous practice of any type of first aid		
Yes	32	53.3
No	28	46.7
Fainting	23	38.3
Epistaxis	19	31.7
Head injury	15	25.0
External bleeding	11	18.3
Wound	10	16.7
Epilepsy	9	15.0
Seizures	8	13.3
Fractures	6	10.0
Suffocation	5	8.3
Poisoning	5	8.3
Bronchial asthma	3	5.0
Cardiac arrest	1	1.7

**N.B.:** Answers are not mutually exclusive

**Table (3): Basic knowledge of first aid among special education school teachers throughout intervention phases**

Items of knowledge about first aid	Before		After		At follow up		X <sup>2</sup>	P
	N	%	N	%	N	%		
Definition	31	51.7	58	96.7	58	96.7	47.032	0.001*
Aim	21	35.0	59	98.3	59	98.3	76.000	0.001*
Pharmacy contents	45	75.0	58	96.7	58	96.7	19.882	0.001*
Ambulance phone	37	61.7	59	98.3	58	96.7	42.091	0.001*
Civil defense phone	10	16.7	56	93.3	55	91.7	88.128	0.001*
Police phone	32	53.3	60	100	58	96.7	50.483	0.001*

**Table (4): The total mean score knowledge of first aid among special education school teachers throughout intervention phases**

Items of knowledge about first aid	Total score	Before	After	At follow up	F	P
Wounds	9	3.95+2.33	8.68+1.48	8.40+2.04	107.2	0.001*
Bleeding	9	3.40+2.32	8.60+1.51	8.32+2.17	146.8	0.001*
Epistaxis	3	0.98+0.91	2.88+0.52	2.78+0.74	122.9	0.001*
Burn	6	1.38+1.37	5.78+0.99	5.53+1.58	255.5	0.001*
Electric shock	5	2.03+1.57	4.87+0.70	4.58+1.39	86.7	0.001**
Fractures	13	5.90+3.66	12.33+2.46	11.92+3.32	94.1	0.001*
Bronchial asthma emergencies	6	1.95+1.88	5.68+1.32	5.50+1.67	531.5	0.001*
Fainting	4	1.53+1.47	3.82+0.77	3.67+1.11	53.9	0.001*
Chocking	7	1.18+1.40	6.32+1.53	6.13+1.81	208.1	0.001*
Suffocation	2	0.58+0.74	1.90+0.44	1.85+0.52	81.6	0.001*
Diabetic emergencies	9	2.53+2.74	8.62+1.42	8.35+2.11	131.4	0.001*
Poisoning	7	1.98+1.82	6.70+1.36	6.53+1.76	141.2	0.001*
Heat stroke	5	1.00+1.22	4.77+0.72	4.47+1.31	191.6	0.001**
Cardio-pulmonary resuscitation	2	0.17+0.42	1.88+0.37	1.83+0.49	335.4	0.001*
Total knowledge	87	28.58+19.15	82.83+14.67	79.87+21.43	198.7	0.001*

**Table (5): Practices of first aid among special education school teachers throughout intervention phases**

Items of knowledge about first aid	Total score	Before	After	At follow up	F	P
Minor wounds	4	2.38 $\pm$ 1.03	3.93 $\pm$ 0.52	3.82 $\pm$ 0.81	62.7	0.001*
Major wounds	11	2.13 $\pm$ 3.38	10.47 $\pm$ 2.09	10.47 $\pm$ 2.09	300.8	0.001*
Epistaxis	10	2.22 $\pm$ 3.66	9.57 $\pm$ 1.78	9.30 $\pm$ 2.29	106.7	0.001*
Burn	12	3.17 $\pm$ 4.48	11.42 $\pm$ 2.20	11.03 $\pm$ 2.99	89.3	0.001*
Electric shock	12	2.33 $\pm$ 2.89	11.43 $\pm$ 2.21	11.08 $\pm$ 2.88	212.5	0.001*
Falls	8	1.38 $\pm$ 1.96	7.65 $\pm$ 1.44	7.33 $\pm$ 1.92	244.1	0.001**
Fractures	17	1.80 $\pm$ 4.02	15.90 $\pm$ 4.09	15.25 $\pm$ 5.06	213.7	0.001*
Joint dislocation	7	1.28 $\pm$ 1.58	6.70 $\pm$ 1.27	6.45 $\pm$ 1.70	229.7	0.001*
Bronchial asthma emergencies	6	0.90 $\pm$ 1.48	5.70 $\pm$ 1.15	5.53 $\pm$ 1.46	230.0	0.001*
Fainting	9	1.10 $\pm$ 1.95	8.45 $\pm$ 1.93	8.32 $\pm$ 2.09	249.8	0.001**
Chocking	15	1.35 $\pm$ 3.60	13.95 $\pm$ 3.57	13.42 $\pm$ 4.14	200.4	0.001*
Suffocation	9	1.75 $\pm$ 2.45	8.55 $\pm$ 1.65	8.28 $\pm$ 2.21	186.7	0.001**
Diabetic coma emergencies	4	0.38 $\pm$ 0.99	3.83 $\pm$ 0.67	3.65 $\pm$ 1.00	278.6	0.001**
Poisoning	6	0.52 $\pm$ 1.52	5.67 $\pm$ 1.16	5.45 $\pm$ 1.55	238.0	0.001*
Heat stroke	7	1.40 $\pm$ 1.54	6.63 $\pm$ 1.38	6.30 $\pm$ 1.76	228.3	0.001**
Cardio-pulmonary resuscitation	22	0.48 $\pm$ 1.73	20.52 $\pm$ 5.01	19.83 $\pm$ 6.09	456.0	0.001*
Total practice	159	24.58 $\pm$ 33.19	150.37 $\pm$ 30.60	145.52 $\pm$ 37.09	309.1	0.001**

**Table (6): Comparison of means and standard deviation of total knowledge scores throughout intervention phases in relation to type of special education school**

Type of schools	Before	After	At follow up	F	P
Blind	30.50 $\pm$ 13.77	81.80 $\pm$ 19.15	81.50 $\pm$ 19.11	59.790	0.001*
Deaf	32.00 $\pm$ 21.36	83.45 $\pm$ 11.15	79.20 $\pm$ 23.41	70.446	0.001*
Intellectual	23.25 $\pm$ 21.15	83.25 $\pm$ 13.26	78.90 $\pm$ 22.57	72.525	0.001*
F	1.202	0.073	0.085		
P	0.308	0.930	0.918		

**Table (7): Comparison of total practices' scores throughout intervention phases in relation to type of special education school**

Type of schools	Before	After	At follow up	X <sup>2</sup>	P
Blind	35.30±38.34	150.95±35.53	150.05±35.45	30.889	0.001*
Deaf	20.50±30.61	148.50±32.79	138.90±41.36	32.141	0.001*
Intellectual	17.95±28.79	151.65±23.77	147.60±35.09	38.839	0.001*
X <sup>2</sup>	2.123	0.001	10.019		
P	0.346	0.999	0.007*		

**Table (8): Correlation between total knowledge and practice scores**

Variables	Practice before		Practice after		Practice at follow up	
	R	P	r	p	R	p
Knowledge before	0.455	0.001*				
Knowledge after			0.926	0.001*		
Knowledge at follow up					0.966	0.001*

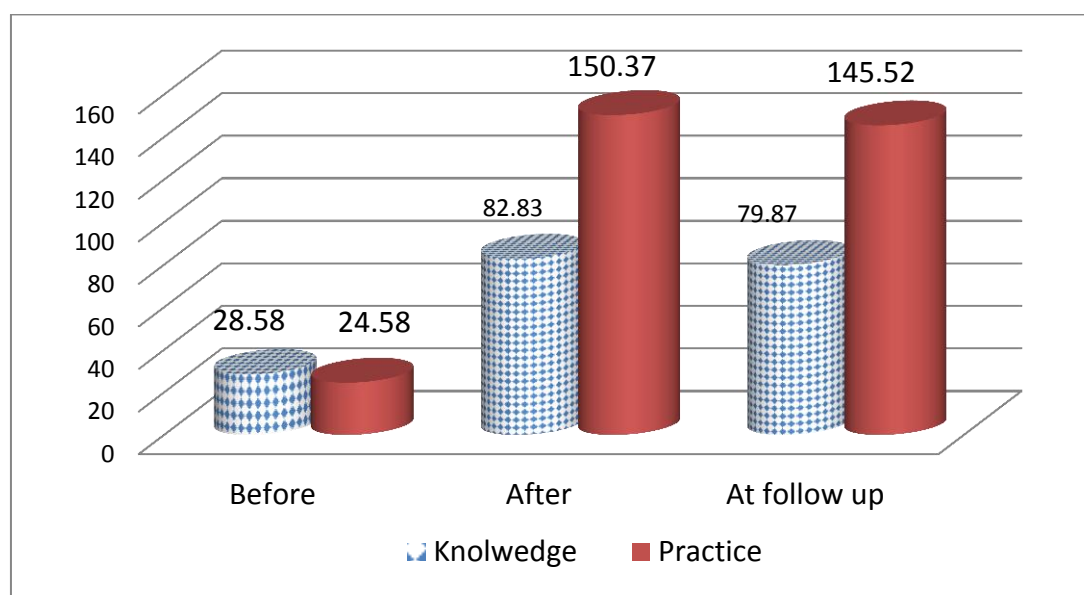
**Table (9): Factors affecting total mean score of knowledge about first aid among studied teachers**

Variables	Total knowledge score (mean±SD)	Z /X <sup>2</sup>	P
<b>Age in years</b>		1.661	0.097
<45	32.55±19.20		
45±	23.34±18.49		
<b>Gender:</b>		2.196	0.028*
Males	19.82±14.88		
Females	32.05±19.69		
<b>Residence:</b>		0.696	0.487
Urban	30.00±20.33		
Rural	24.69±15.36		
<b>Marital status:</b>		0.785	0.442
Currently married	29.49±19.72		
Currently not married	21.71±13.12		
<b>Educational level:</b>		0.022	0.882
Diploma	27.85±15.78		
University	29.30±35.40		
Post graduate	28.29±17.53		
<b>Duration of experience in years:</b>		0.085	0.933
<10	29.32±21.22		
10±	28.16±18.14		

\*Significant

**Table (10): Factors affecting total practice score of first aid among studied teachers**

Variables	Total practice score (mean $\pm$ SD)	Z /X <sup>2</sup>	P
<b>Age in years</b>			
<45	27.84 $\pm$ 38.58		
45 $\pm$	21.10 $\pm$ 26.50	0.653	0.514
<b>Gender:</b>			
Male	12.76 $\pm$ 5.86		
Female	29.26 $\pm$ 38.15	1.809	0.070
<b>Residence:</b>			
Urban	26.50 $\pm$ 36.36		
Rural	19.13 $\pm$ 22.41	1.391	0.164
<b>Marital status:</b>			
Currently married	25.96 $\pm$ 34.94		
Currently not married	14.14 $\pm$ 10.43	0.554	0.580
<b>Educational level:</b>			
Diploma	19.08 $\pm$ 24.75		
University	25.96 $\pm$ 35.40		
Post graduate	25.26 $\pm$ 35.85		
<b>Duration of experience in years:</b>			
<10	25.50 $\pm$ 37.20	0.469	0.639
10 $\pm$	24.05 $\pm$ 31.16		

**Figure (1): Comparison of mean values of total knowledge and practice scores**

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