

Effect of structured instructional program on Compliance of Nursery School Teachers with First Aid guidelines for preschoolers

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Abstract: First aid is any procedure aiming for protecting life and reducing the adverse outcomes of injuries or acute illness till a professional assistance is available from medical practitioners and nurses.

Purpose: to Assess the effect of structured instructional program on compliance of nursery school teachers with First Aid guidelines for preschoolers.

Design: A Quasi-experimental design was used. Setting: this study was conducted at five Nursery Schools at Al-Shohdaa City in Menoufia Governorate.

Sample: purposive sample, composed of all teachers who were attended the full course of instructional program with the total number of (50).

Tools; Two tools were used. (1)- Structured interview questionnaire was used to collect data, which include (socio-characteristics of the nursery school teachers and the level of their knowledge regarding to first aid guidelines). (2)- Observational Checklist was used to assess nursery school's teacher's practices before and immediately after implementing the program.

Results: Nursery school teachers showed higher scores regarding their knowledge and practice of first aid guidelines after implementing a structured instructional program (27.9 ± 3.4 and 494.5 ± 47.4) compared to (23.7 ± 5.8 and 447.5 ± 92.0) before implementing a structured instructional program.

Conclusion: Nursery school teachers who received structured instructional program were more compliant with First Aid guidelines for preschoolers after implementing a structured instructional program than before.

Recommendation: periodically training program must be planned for nursery school's teachers about first aid guidelines and must be done

Key Words: structured instructional program, Nursery School Teachers, First Aid guidelines, preschoolers

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I. Introduction

Kids and teachers spending most of their time within the nursery school setting. So, it requires more preparation for any accidental situation that may need immediate management and first aid services (Bildik et al., 2011). First aid is including first care and any management given for critical illness or injuries (Singletary et al., 2015). First aid supports life in cases with body injuries and provides basic psychosocial care for children experiencing emotional affliction or noticing a traumatic accident or injury. First aid can be offered by any person in any place. However, it should be applied according to the situation, demand, and with regular implementation. First aid training should be global. Everyone can and should learn first aid guidelines. (Markenson et al., 2012).

First aider is described as a person trained in first aid management. He is the first person to provide first aid measures. He needs continuous training and update of his knowledges to provide the correct measures. He should consider that his first aid information and skills can reduce harms and disabilities (Cave et al., 2011). The use of the first aider is to implement urgent, lifesaving, before the arrival of medical staff. He should identify, evaluate, prioritize the demands for first aid, and determine the restriction and asks extra care when required (Devashish, Gaurav & Bharat, 2013).

Teachers should know first aid to protect the school children in emergency situations. Consequently, school teachers should acquire enough information concerning first aid knowledge and management. However, there are many teachers do not care to acquire first aid knowledge and practice and are not aware of its importance. (Baser et al., 2007).

Preschool age is a famous stage of life. This group accounts for 11.5% of the Egyptian population. Nursery school is the safest place to providing care to these kids in absence of mothers. On the other hand, preschoolers are at risk of infection, injury and other health risks in nursery schools because of their high mobility, interest, lacking of knowledge and adverse environmental situations (Ali et al., 2010). Injuries and accidents are the main reasons for mortality in children globally. Children are prone for greater hazards from injuries because they are young and not aware of several environmental risks. According to the National Safe Kids Campaign in the United States, 40% of deaths and 50% of non-fatal accidental injuries occurred within and a nearby playgrounds. (National Safe Kids Campaign, 2012).

First aid instructions provide information and skill to give secure awareness and practices to improve children safety in nursery schools (Semwal et al., 2014). To improve safety awareness, it is important to correlate causes, effects, and prevention. The role of nurse educator is to train the nursery school teachers of different methods of preventing accidents, safety requirements and first aid.

The significance of the study:

Injuries at childhood period are producing various general health problems particularly among nursery school children. It can produce significant lifelong health problem or may lead to death (Muneeswari, 2014). Preschool children are exposed to traumas and accidents due to lack of concern or experience of knowledge. Furthermore, daycare for preschoolers is another service offering support for working mothers. The nursery school teachers have a vital role in taking care of children, guidance, protection, and prevention of health risks (Ali et al., 2010). Therefore, the role of nurses personally or through their professional associations is to give their attention for providing supportive requirements and preventive measures for nursery school children.

Purpose of the study

Assess the effect of structured instructional program on compliance of nursery school teachers with First Aid guidelines for preschoolers.

Research Hypothesis

- 1- Nursery school's teachers who will including in the intervention will likely to improve their knowledge on first aid.
- 2- Nursery school's teachers who will including in the intervention will likely to improve their practice on first aid.

II. Subject And Meathods

Design:

A quasi-experimental design was used

Setting:

- The study was conducted at Al-Shohdaa City in Menoufia Governorate. Al-Shohdaa City is serving several rural areas doesn't have similar nursery schools.
- Samples were collected randomly from 5 different nurseries to ensure a sizable study group and from one City to make the study group homogenous.

Sample

Purposive sample included all teachers in the targeted nursery schools. From a total 70 teachers in the nursery schools, only 50 (studied sample) have attended the full course of the first aid educational program.

Inclusion criteria:

- All teachers working in the selected nursery schools

Exclusive criteria:

- Teachers who did not attend the full course of the structured instructional program

Tools of the study

Two tools were utilized to collect data pertinent to the study:

- Structured **interview questionnaire** for nursery school teachers to cover the following parts:
 - **Part (I): Socio-Demographic:** Socio-demographic data questionnaire included information about the teachers (age, sex, residence, level of education, marital status, years of experience and economic status).
 - **Part (II): Teachers knowledge sheet** regarding first aid guidelines, pre and immediately post implementing the program developed by (Deepak & Nayak, 2012) and adopted by the researchers. It was used to assess knowledge of nursery school's teachers regarding of first aid guidelines before and immediately after the implementing the program. It Contained 32 multiple-choice questions about first aid

knowledge including vital signs, sunstroke & fainting, choking, wounds & bleeding fracture, burns, epistaxis, poisoning & snake bite.

Scoring system

Scores used to evaluate teachers' knowledge about first aid guidelines. Each correct answer of the knowledge pre and post-test was given one mark. Total knowledge score was 32 marks distributed as follows: Vital signs (3) marks, sunstroke & fainting (3) marks, choking (3) marks, wounds & bleeding (7) marks, fracture (3) marks, burns (7) marks, epistaxis (3), poisoning & snakebite (3) marks. The correct answer was given score one and the incorrect answer score zero. The total knowledge score was interpreted as follows:

- Adequate knowledge was considered from 50 to 100%
- Inadequate knowledge was considered for scores less than 50%

1- Observational Checklist: it was used to assess teachers' practices before and immediately after implementing the program. It was developed by (Gholami et al., 2012) and adopted by the researchers based on literature review. It included steps of practices related to first aid procedures regarding vital signs, sunstroke and fainting, choking, wounds and bleeding, fractures, burns, asphyxia, poisoning and snake bite. It was assessed and recorded by the researcher. This checklist consisted of 41 points.

Scoring system

Scores used to evaluate teachers' practices about first aid. Each correct step of practice was given (2) marks, each incomplete step was given (1) mark and incorrect step was given (0) mark. The total score was 540 marks distributed as the follows: Vital signs (90) marks, sunstroke and fainting (40) marks, choking (96) marks, wounds and bleeding (126) marks, fracture (68) marks, burns (50) marks, epistaxis (30), poisoning and snakebite (40) marks. The total practices score interpreted as follows:

- Satisfactory practice was considered for scores from 50 to 100%
- Unsatisfactory practice was considered for score less than 50%

4- Procedure for Data Collection:

An official letter was sent from the dean of the faculty of Nursing, Fayoum University to the directors of the related places explaining the purpose and methods of data collection.

- **Study period:** The study was conducted from June 2017 till April 2017.

- **Reliability** of the developed instruments was done by alpha Cronbach test. Reliability was applied by the researcher for testing the internal consistency of the tool, by administration of the same tools to the same subjects under similar conditions on one or more occasions, Answers from repeated testing were compared (reliability for tool 1. was reliable at 0.76 and reliability for tool 2 Cronbach's Alpha reliability= 0.85.

- **Validity of the tools:** the tools tested by five professors in community health nursing and some modifications were performed according to their opinions. The content and face validity of the study tools were measured to evaluate the individual items as well as the entire tools used for the study as being relevant and appropriate to test what they wanted to measure.

- **Pilot study** was carried out on 10 nursery school's teachers in June 2017. They were excluded from the study sample, to test the clarity of data collection tools. Also, to detect any obstacle or problem that might arise in data collection, and estimate the time needed to fill the tools.

- **Ethical consideration** A written approval was obtained from the teachers and directors of the selected nursery schools before inclusion in the stud. A clear and simple explanation was given according to their level of understanding, physical and mental readiness. They were assured that all the collected data will be treated confidentially and used for research purpose only. The teachers were informed that participation in the study is voluntary and they have the right to withdraw from the study at any stage without giving any reason.

The Study Intervention

The study intervention consisted of a structured instructional program for nursery school teachers. This was developed by the researcher to help the nursery school teachers to improve their knowledge and practices regarding first aid guidelines for preschoolers. The structured instructional program was designed based of reviewing past and current related literature and in the light of the nursery school teacher's needs as identified in the pre-intervention assessment phase as the following:

- **Pre-program assessment Phase:** The researcher focused on determining the nursery school teachers' knowledge level and practices related to the first aid guidelines by a pretest.
- **Planning Phase:** This phase was initiated by preparing the outline of the training program. The recruited teachers divided into 5 groups according to their nursery school. The program was established in the nursery schools.

- **Implementation Phase:** The researcher used various teaching methods for implementing the program in the form of group discussion, lectures, role-play, demonstration and re-demonstration. As well as, various media used colored posters, pictures, power point, and CD. A guide booklet prepared and distributed to all teachers. The program had 5 sessions for 5 days for each group, each session took 2 hours. Training program was conducted in three months. First session was about acquaintance, identifying the program objectives content, and procedures. Second session discussed background related to the first aid, definition and aims. Furthermore, it included definition, causes, signs and symptoms of bleeding and the first aid for bleeding and epistaxis. Third session consisted of definitions, signs and symptoms, causes, and implementation of first aid guidelines for simple burn and wound. Fourth session included definition, causes, signs and symptoms and implementation of first aid for fainting and asphyxia. Fifth session was the last one, it included definition, signs and symptoms, causes, and implementation of first aid for simple fractures.
- **Post-program assessment Phase:** The researcher focused on determining the nursery school teachers' knowledge level and practices related to the first aid guidelines by a post-test.
- **Evaluation Phase:** evaluation of the program was performed by comparing the pre and post-test results for each nursery school teachers' knowledge and practices. Evaluation of the program success was based on the improvement in teachers' knowledge and practices regarding first aid post implementation of the program.

Statistical Analysis:

The collected data organized, tabulated and statistically analyzed using SPSS software statistical computer package version 20. Frequency, percentage, mean, and standard deviation calculated. For comparison between teachers' pre and immediately post implementing the program the paired T-test was calculated. Significance was adopted at $p < 0.05$ for interpretation of results of tests of significance.

III. Results

Table (1) reveals that 76.0% of the studied teachers were male, 48.0% of them were in the age group ranged between 25 < 30 years old with a mean 27.2 ± 3.1 , and 72.0% of them were diploma educational. In relation to years of experience, this table shows that 54.0% studied teachers have studied teacher's years of experience ranged between 7 < 10 years.

Table (1): Distribution of the studied teachers according to their personal characteristics (n=50)

Items	No.	%
Gender		
Male	12	24.0
Female	38	76.0
Age Groups		
20 – 30	24	48.0
31 – 45	12	25.0
46 – 50	8	16.0
51 or older	6	12.0
Mean ± SD	27.2±3.1	
Education Level		
Diploma	36	72.0
Bachelor	14	28.0
Years of experience		
3– 6	13	26.0
7 – 10	27	54.0
10≤	10	20.0

Table (2) and figure (1) clarifies that there were statistically significant differences between knowledge of the studied teachers regarding first aid throughout the instructional program respectively in relation to, vital signs (paired T =7.07; p=0.0001), choking (paired T =3.62; p=0.001), wounds & bleeding (paired T =4.97; p=0.0001), fracture (paired T =2.63; p=0.01), burns (paired T =4.63; p=0.0001), epistaxis, (paired T =7.82; p=0.0001), poisoning & snakebite (paired T =2.94; p=0.004). Also, table (2) reveals that, there was a no significant difference between knowledge of the studied teachers regarding to sunstroke & fainting (paired T =1.75; p=0.08).

Table (2): Comparison of nursery school teacher’s knowledge pre and post intervention regarding first aid guidelines (n= 50).

Knowledge	Pre-Intervention	Post Intervention	Paired T-Test	P value
	Mean± SD	Mean± SD		
Vital Signs	2.3 ±0.4	2.8± 0.3	7.07	0.0001
Sunstroke & Fainting	2.5± 0.7	2.7 ±0.4	1.75	0.08
Chocking	2.2±0.6	2.6 ±0.5	3.62	0.001
Wounds & Bleeding	5.1 ±1.4	6.2 ±0.7	4.97	0.0001
Fracture	2.6 ±0.5	2.8 ±0.2	2.63	0.01
Burns	5.3 ±1.0	6.1 ±0.7	4.63	0.0001
Epistaxis	2.1±0.6	2.8 ±0.2	7.82	0.0001
Poisoning & Snakebite	1.6 ±0.6	1.9 ±0.4	2.94	0.004

Figure 1. The number and percentage distribution of the studied teachers according to their total knowledge (n=50)

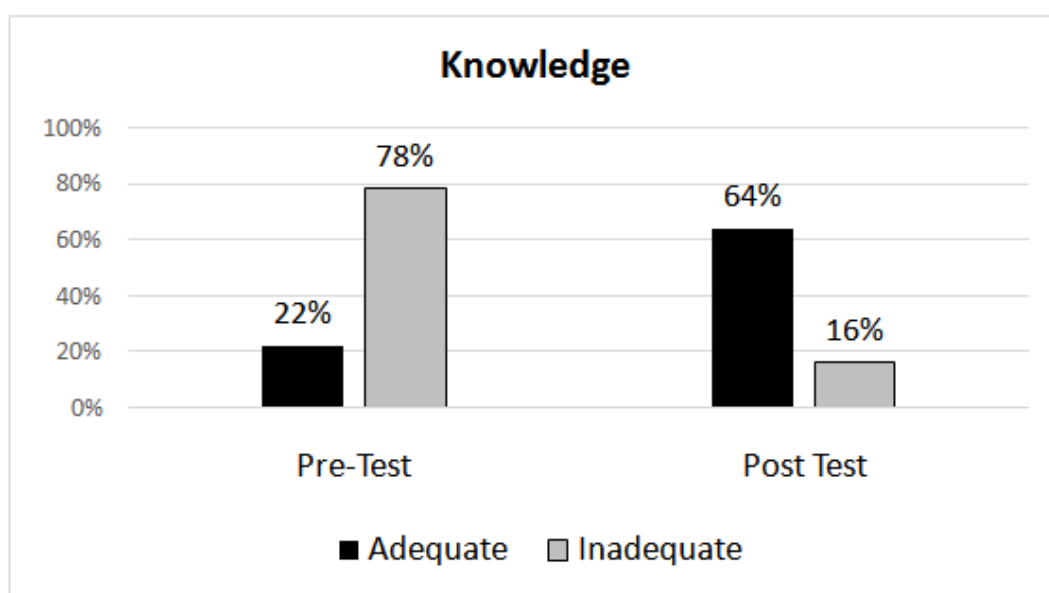
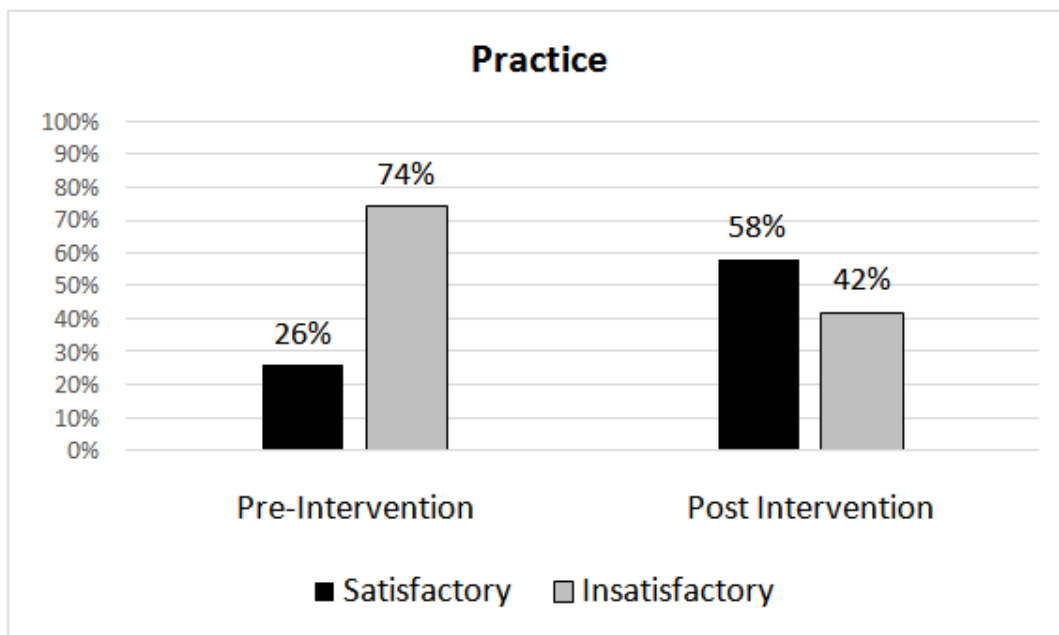


Table (3) and figure (2) clarifies that there were statistically significant differences between practices of the studied teachers regarding first aid throughout the instructional program in relation to, vital signs (paired T =5.64;p=0.0001), sunstroke & fainting (paired T =3.75; p=0.0003), chocking (paired T =3.51; p=0.001) , wounds & bleeding (paired T =2.95; p=0.004) , fracture (paired T =2.59; p=0.01) , epistaxis , (paired T =2.04; p=0.04). Also, table (3) reveals that, there was a no significant differences between practices of the studied teachers regarding to burns (paired T =1.55; p=0.12), poisoning & snakebite (paired T =1.93; p=0.06).

Table (3): Comparison of nursery school teacher’s practices pre and post intervention regarding first aid guidelines (n= 50).

Practices	Pre-Intervention	Post Intervention	Paired T Test	P value
	Mean± SD	Mean± SD		
Vital Signs	72.6±16.1	86.4± 6.3	5.64	0.0001
Sunstroke & Fainting	33.9±9.5	39.6±5.0	3.75	0.0003
Chocking	80.6±12.4	87.8±7.5	3.51	0.001
Wounds & Bleeding	111.2±15.6	118.6±8.4	2.95	0.004
Fracture	57.8±11.2	62.5±6.3	2.59	0.01
Burns	40.6±11.7	43.4±5.1	1.55	0.12
Epistaxis	19.4±6.3	21.6±4.3	2.04	0.04
Poisoning & Snakebite	31.4±9.2	34.2±4.5	1.93	0.06

Figure 2. The number and percentage distribution of the studied teachers according to their total practices (n =50)



Table(4) clarifies that there were highly statistically significant differences between studied teacher’s total knowledge and practices regarding first aid throughout the instructional program ($p < 0.01$).

Table (4): Comparison of nursery school teacher’s knowledge and practices pre and post intervention regarding first aid guidelines (n= 50).

Items	Pre-Intervention	Pre-Intervention	Paired T Test	P value
	Mean± SD	Mean± SD		
Knowledge	23.7 ±5.8	27.9 ±3.4	4.42	0.0001
Practices	447.5±92.0	494.5±47.4	3.21	0.002

Table (5) illustrates the positive correlation between total knowledge of the studied teachers and their total practices regarding first aid throughout the instructional program statistically significant difference at $p < 0.01$).

Table (5): Correlation between total knowledge of the studied teachers and their total practices regarding care of burn

Items	Knowledge			
	Pre-intervention		Post Intervention	
	r	P	r	P
Practices	0.72	0.04	0.90	0.001

IV. Discussion

Increasing nursery school teacher’s knowledge can help in limiting the complications of accidents between preschoolers. The teachers play an important role in control of emergencies that can happen to kids. hence, they should be prepared for this assignment (Ali et al., 2010). This can be accomplished through improving their knowledge and continued training to manage and enhance their skills.

The purpose of this study is to assess the effect of structured instructional program on compliance of nursery school teachers with First Aid guidelines for preschoolers

Part I: demographic characteristic

The findings of current study illustrated that about three-quarters (76%) of the studied nursery school teachers were female, the mean age of the teachers in this study was to be $25 < 30$ years old with a mean 27.2 ± 3.1 , and less than about three-quarters (72%) of them were diploma educational. In relation to years of experience, this table shows that more than half (54%) studied nursery school teachers have years of experience ranged between 7 to 10 years.

Part II: Nursery school teacher's knowledge related to First Aid guidelines.

The findings of the present study illustrated that nursery school teachers after intervention had improved their knowledge related to first aid guidelines included, vital signs, choking, wounds & bleeding, fracture, burns, epistaxis, poisoning and snakebite compared to before intervention. These findings were in accordance with the study of **Masih et al., (2014)** in his study "Primary School Teachers Knowledge and Practice Regarding First Aid Management for Children" who stated that the knowledge and practices rate after intervention of primary school teachers remained significantly higher than before intervention related to first aid managements of small injuries as minor fracture, burn, scald, epistaxis, minor wound. This study results clarified that that nursery school teachers after intervention had improved their total knowledge related to first aid guidelines compared to before intervention. This study was in an agreement with **Sobhaet al., (2014)** in his study "Knowledge and Practice of Primary Health School Teachers about the First Aid Management of Selected Minor Injuries among Children" who mentioned that providing adequate information and training practice performance of first aid guidelines was very useful in promoting and controlling of minor injuries. This result is supported by **Hassan et al. (2015)** in his study "Intervention Program for the Kindergarten Teachers about Nursery school children" who stated that two thirds of teachers had low information and were below satisfactory level regarding nursery school children. First aid before program implementation had low knowledge scale compared to after program in his study. These findings were in accordance with the study of **Ganfureet al., (2017)** in his study "First Aid Knowledge, Attitude, Practice, and Associated Factors Among Kindergarten Teachers of Lideta Sub-City Addis Ababa, Ethiopia" who mentioned that all teachers who involved in the study were found had low information about first aid guidelines. He recommended that, teachers should be quickly involved in first aid training program and they require detailed knowledge about it. This finding is agreement with the result of **Abdella et al., (2015)** in his study "Intervention Program for the Kindergarten Teachers about Nursery school children's First Aids" who found that the mean score of the responders was low. This finding is congruent with the similar study of **Awadet al., (2015)** in his study "Primary School Teachers' Knowledge about First Aid" and **Eze et al., (2015)** in his study "Primary School Teachers' Knowledge about First Aid" they reported that teachers' knowledge towards epilepsy, bleeding, and choking first aid control improved after training program. This study findings were supported by **Masih et al., (2014)** in his study "Primary School Teachers Knowledge and Practice Regarding First Aid Management for Children" who concluded that all teachers improved their knowledge following the teaching program based on pretest knowledge less than posttest knowledge. This finding is agreement with the result of **Sonavane, (2008)** in his study "Knowledge Attitude and Practice of First Aid Among Women in a Rural Area" who stated that improving educational teaching has improved the knowledge of not only the nursery or primary school teachers but also mothers of children. These findings were in accordance with the study of **Feng et al., (2012)** in his study "Nursery school children First Aid Knowledge and Attitudes among Staff in the Preschools of Shanghai" who reported that there was inadequate knowledge of nursery school children regarding first aid between staff of the preschoolers in Shanghai before the program interference compared to the elevated knowledge score between them after the program implementation. These findings were in accordance with the study of **Hirca, (2012)** in his study "Does Teachers' Knowledge Meet First Aid Needs of Turkish Schools" who stated that educational intervention improves primary school teacher's knowledge and practices related to first aid. This finding was in the same line with **Devi, (2006)** in his study "Effectiveness of Planned Teaching Program on Knowledge Regarding First Aid in Selected Conditions Among Primary School Teachers Working in School at B.K. Nagar, Bangalore" who reported that there were no primary school teachers with poor knowledge following the program implementation. The result of the present study on nursery school teachers' knowledge was established through multivariate analysis, which identified that the attendance of the instructional program was very important as a predictor of the improvement in teachers' knowledge scores. These results could be attributed to, the instructional program was highly effective in improving nursery school's teacher's knowledge regarding first aid management.

Part III: Nursery school teacher's practices related to First Aid

The current study revealed that nursery school teachers after intervention had improved their practices related to first aid guidelines compared to before intervention. This study finding was supported by **Masih et al., (2014)** in his study "Primary School Teachers Knowledge and Practice Regarding First Aid Management for Children" who stated that all teachers changed their practices positively after the program, based on pre-test

practices fewer than post-test practice. This study findings were similar to **Sonavane, (2008)** in his study “Knowledge Attitude & Practice of First Aid Among Women in a Rural Area, Bangalore” who stated that structure educational teaching has positively changed the practice of not only nursery or primary school teachers but also mothers of children. This finding is agreement with the result of **Sobhaet al., (2014)** in his study “Knowledge and Practice of Primary Health School Teachers about the First Aid Management of Selected Minor Injuries among Children” who stated that a training intervention was extremely useful in promoting meaningful knowledge about first aid leading to control of minor injuries. The current finding was in accordance with **Priyangika&Hettiarachchi, (2015)** in his study “Knowledge, Attitudes, and Practices on First Aid Measures among Senior School Prefects in Galle Education Division, Sri Lanka, Jeteraps” who stated that the score for the practices part was increased following the training schedule. These findings were in accordance with the study of **Hassan et al., (2015)** in his study “Intervention Program for the Kindergarten Teachers about Nursery school children First Aids” who revealed that before the intervention, maximum of pre-school teacher’s practices was inadequate. About 56% and 50% of them had adequate knowledge instantly post and follow up the intervention sequentially with statistical significance difference. These findings were in accordance with the study of **Van de et al., (2009)** in his study “Effectiveness of Non-resuscitative First Aid Training In Laypersons: A Systematic Review” who observed that great change was in the fracture first aid after the program interference. This could be due to the improvement of nursery school children practices related to first aid resulting from the effectiveness of the instructional program.

The current study illustrated that there was a positive correlation between total knowledge of the studied teachers and their total practices regarding first aid throughout the instructional program. This study finding was supported by **Sobhaet al., (2014)** in his study “Knowledge and Practice of Primary Health School Teachers about the First Aid Management of Selected Minor Injuries among Children” who stated that the intervention was highly effective in improving the significant knowledge regarding first aid management of minor injuries. This finding is agreement with the result of **Rakhi et al., (2017)** in his study “First Aid Knowledge among Health Assigned Teachers of Primary Schools” who found that a significant positive correlation between knowledge and practice scores of the studied teachers. This study finding was similar to **Hassan et al. (2015)** in his study “Intervention Program for the Kindergarten Teachers about Nursery school children First Aids” who reported that there was a positive intermediate correlation between teacher’s total knowledge and practices regarding nursery school children first aids post the intervention. These results were in the same line of **Nayir et al., (2011)** in his study “the First Aid Knowledge Levels and Attitude of the Teachers Who Work in Isparta City Center” who mentioned that a short time of first aid training course could be very useful to overcome teachers’ inadequate information and practices. This finding is agreement with the result of **Masih et al., (2014)** in his study “Primary School Teachers Knowledge and Practice Regarding First Aid Management for Children” who reported that positive correlation between the knowledge and practices. It means that the relationship is in a positive direction and when knowledge increases practices also increases. These results could be attributed to the structured instructional program was successful in upgrading nursery school teacher’s knowledge and practice regarding nursery school children first aid.

V. Conclusion

- Nursery school teachers who received structured instructional program were more compliant with First Aid guidelines for preschoolers after intervention than before intervention.
- Nursery school teachers who received structured instructional program after intervention had improved their total knowledge and practices related to first aid guidelines compared to before intervention

Recommendation

- Periodically First aid training program should be introduced at nursery school, elementary school, and college levels in order to decrease the early mortality and morbidity of accidents and emergencies.
- Mass media has a great responsibility for health awareness for accidents prevention among nursery school children.
- Multi- location studies in the country to assess the levels of knowledge, attitude, and practice about First Aid measures among nursery school teachers.

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