Intervention program for the kindergarten teachers about pediatrics first aids

Nabila Hassan Ali Abdella[1], Nagwa Rizk Mohammed Abu-Elenen[2], Rehab Hani Elkazaz[3] and Maha Moussa Mohamed Moussa[4]

[1.2.3]Lecturers Department of Pediatrics Nursing, Faculty of Nursing, Port Said University, Egypt
[4] Lecturer Department of Community Health Nursing, Faculty of Nursing, Port Said University, Egypt
*__Corresponding__ Address; Nabillaabedella@yahoo.com[1], Nagwarizk99@gmail.com[2], Rehabhani@yahoo.com[3], and mahamoussa10@yahoo.com[4]

Abstract

First aid is the immediate help given to a victim of injury or sudden illness until appropriate medical help arrives, or the victim is seen by a healthcare provider. The kindergarten teachers have a crucial role in caring of children, supervision and prevention of health hazards. Therefore those teachers should be well trained on first aid and emergency control to save children lives. Kindergarten children constitute 11.5% of total population in Egypt. They are exposed to injuries and accidents their curiosity, lack of experience and increased mobility. **Aim of the study:** Is to evaluate the effectiveness of health educational program on the pediatric first aid knowledge and practice among kindergarten teachers at Port Said. **Subjects & methods:** An intervention study, the sample is convenience type and included 50 governorate kindergarten teachers. Data were collected using questionnaire to test teacher's knowledge concerning first aid and an observational checklist to assess their practice towards first aid of common emergency problems as wounds, fractures, epistaxis, chocking and burns. **Results:** The study results revealed that high significant improvement of knowledge and practice of the studied group in the post and follow up intervention in comparison to pre intervention. Additionally, the knowledge mean and SD for pre, post and follow intervention were 22.2 ± 5.0, 35.7 ± 4.7 and 33.3 ± 5.3 respectively. Also, the total practice was improved in post and follow up intervention compared to pre intervention as cleared by mean and SD of 17.4 ± 6.6, 16.1 ± 7.8 and 9.2 ± 5.1 respectively.

Conclusion: the designed health education and training program led to significant improvement of knowledge and practice of kindergarten teachers regarding first aid for children.

Recommendation: Adding practical course for first aid and emergency for the undergraduate curriculum in Faculty of Specific Education. Refreshing educational training courses for all nursery school teachers.

Key words: kindergarten teachers - first aid - preschool children

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Introduction

First aid is an immediate and temporary treatment of victims with sudden illness or injury while awaiting the arrival of medical aid. Childhood injuries are the leading cause of death for children in the preschool and school-going age in World [(1)]. One study reported that 84% of injuries occurring in the child care settings required first aid treatment. Early and appropriate treatment of such emergencies can help reduce morbidity and mortality [(2)]. Properly administered first aid can mean the difference between life and death, rapid versus prolonged recovery, and temporary versus permanent disability [(3, 4).]

The most important thing in first aid is to notice the situation and to call for help. Calling for help is a simple thing to do, but also the most important thing to ensure that the child will get professional help. The first hour after the accident is very crucial and if the correct first measures are taken. Lives could be saved and disabilities limited [(5, 6)]. Children less than 5 years of age are especially vulnerable to the morbidity and mortality resulting from injury because their bodies are developing and they have not yet learned to be aware both of themselves and various environmental dangers [(7).]

Children spend a significant portion of their day in kindergartens, so paediatric emergencies such as the accidental physical injuries are more likely to occur in those settings. Kindergartens are the best place to give care to those children in absence of mothers [(1, 8)]. The

kindergartens teacher has crucial role in caring for children, supervision and prevention of health hazards. They should be well trained on first aid and emergency control to save children lives and the first aider should have adequate knowledge and skills about what is he doing and be encouraging and reassuring to the victims [9, 10, and 11]. So; the pediatric nurse has the responsibility to educate the teachers as part of health education and school health services.

The aim of this study: Is to evaluate the effectiveness of health educational program on the pediatric first aid knowledge and practice among kindergarten teachers at Port Said.

Hypothesis: implementing intervention program will have positive effect on the kindergarten teacher`s knowledge and practices regarding pediatrics first aids.

Subjects and Methods

Design: This study used a quasi-experimental deign.

Setting The study was carried out in all governorate kindergartens in Port Said city.

Sample: the sample was convenience sampling.

Subjects: all governorate kindergarten teachers who were available during the time of data collection with the total number of (50).

Data collection tools: The researcher used two tools which were previously validated in Bangalore [12] India, [13] and Turkey [14] These tools were developed based on the review of related literature; the first tool was a structured interviewing questionnaire sheet that consists of two part I which includes teacher`s socio demographic data such as age, years of experience and level of education, part II that includes their knowledge about pediatrics first aids. The second tool was adapted from [15] and was observational checklist to assess their practice towards common first aid as wounds, fractures, epistaxis, chocking and burns **[16 and 17)**.

Pilot study: Before starting the pilot, and in order to ensure the validity of the use of the questionnaire in the study setting, professional opinion was sought from an expert panel in nursing. Then, **the pilot study** was carried out on five teachers (10%) working in governorate

kindergarten to assess the applicability of the tools. The necessary modifications were done in terms of rewording and rephrasing some items for more clarity. The pilot subjects were not included in the main study sample. The tool reliability was tested through assessment of its internal consistency. It proved to have good reliability with Cronbach alpha coefficient 0.68, which is quite acceptable as compared with similar tools [14].

Field work: A permission to conduct the study was obtained from the directors of the governorate kindergartens after explanation of the purpose of the study and its maneuvers. The researcher carried out the fieldwork through assessment, planning, implementation, and evaluation phases.

The assessment phase started by meeting with the teachers of each kindergarten, explaining to them the importance of the study and its procedures, and inviting them to participate. The interviewing questionnaire was filled.

Then, the planning phase involved analysis of the collected data in order to identify the most important topics to be addressed in the educational material. The researcher then developed an educational program aimed at improving the kindergarten teacher`s knowledge and Practices regarding pediatric first aid. The program covered theory and practice. The theoretical part included definition of pediatric first aids, types, signs and symptoms, of children injuries, cause and ways of protection. The practical part was about wounds, fractures, epistaxis, chocking and burns. The researcher also prepared an illustrative booklet to help participants self-learning. The booklet titled "pediatrics first aids" was specifically developed and printed for this research by the investigator based on a review of literature and the results of the assessment phase.

The implementation phases consisted of two sessions, one for the theoretical part and the last for the practice part. These were divided into two sessions weekly of 60 minutes for knowledge and 150 minutes for practice session. Teachers divided into 5 groups. Each group including 10 teachers, the implementation of the program was done for each group separately. The total duration of the program was 17.30 hours. The weekly sessions were conducted for each group of 6 weeks. Each group according to their available times and place for attendance which commonly in the afternoon between 12.00 PM until 3.00 PM. Different teaching methods as short lecture, group discussion, role playing, demonstration, and re - demonstration were used. Also different audio visual materials were used as pamphlets; hand out, pictures, and posters to facilitate the teaching of each topic. In addition to the necessary

equipment. Although the focus was on pediatrics first aids was addressed in the booklet. The booklet was distributed to teachers at the start of the lecture, and they were encouraged to read it after the lecture and use these pediatric first aid maneuvers in their practice.

The evaluation phase was carried out after was done immediately after implementation of the program. Then, re-evaluated after 6 months to evaluate the retention of gaining knowledge and improvement of practice, compared to baseline level. This was done using the same self-administered questionnaire form. The fieldwork was carried out from September 2013 to May 2014.

Ethical considerations: Administrative approvals were obtained before study. Consent from participants was also obtained as an approval to share in the study. **Statistical analysis:** Collected data were analyzed by SPSS computer software. Methods used were mean, standard deviation, chi square, paired t test, Q: Cochran Q test. Statistical significance was considered at p-value <0.05, the teacher`s knowledge was considered high if percent score was more than 60%, moderate if percent ranged from more than 30 % to 60% and low if 30% or less. While their practice was considered satisfactory if percent score was 50% or more and unsatisfactory if less than 50%

RESULTS

The study sample consisted of 50 teachers with no dropouts (response rate 100%). **Table 1** shows the socio-demographic characteristics of the kindergarten teachers, about one half of the teachers were in the age group between 25 to less than 30 years (46%), with a mean age of 25.5 ± 3.5 years. As regard to their years of experiences; 30% of them have 4 to 6 years of experiences, also two thirds (66%) of the teachers were BSC education. Finally, the majority (86%) of the studied sample didn`t attend training courses about pediatric first aid. Additionally, the teachers` practices regarding pediatric first aid, Table 3 indicates a highly statistically significant difference between pre, post and follow program intervention regarding first aid practices of (wounds, fractures, epistaxis, chocking). Examining the relation between teachers` socio demographic data and their knowledge regarding pediatric first aid, Table 4 revealed a statistically significant association with years of teachers experiences ($p< 0.050$) and attending programs about first aid ($p< 0.046$). The relation between teachers` practice improvement of pediatric first aid and their socio demographic

data, Table 5 showed that a statistically significant association with teachers` age, years of experience and the appointment last training session. Table 6 presents that there was positive correlation coefficient between teacher`s knowledge and practice regarding first aid.

Table (1): Distribution of studied sample according to their demographic data (n = 50)

Demographic data	No	%
Age (years)		
▪ 20-	18	36.0
▪ 25-	23	46.0
▪ 30+	9	18.0
Mean ± SD	25.5 ± 3.5	
Experience (years)		
▪ 1	11	22.0
▪ 2	13	26.0
▪ 3	11	22.0
▪ 4-6	15	30.0
Mean ± SD	2.8 ± 1.5	
Qualification		
▪ Diploma	17	34.0
▪ BSC	33	66.0
Training of first aid		
▪ No	43	86.0
▪ Yes	7	14.0
No of courses about first aid (n=7)		
▪ 1	7	100.0
The appointment last training session (n=7)		
▪ 1 yrs	6	85.7
▪ 3 yrs	1	14.3

Table 2: Distribution of the kindergarten teachers` Knowledge about pediatric first aid (n= 50)

Knowledge	Phase						X^2 (P)
	Pre-intervention		Post-intervention		Follow-up		
	No	%	No	%	No	%	
General knowledge							
▪ Low	15	30.0	1	2.0	5	10.0	14.3 (0.001)*
▪ Moderate	34	68.0	31	62.0	33	66.0	
▪ High	1	2.0	18	36.0	12	24.0	
Mean ± SD	17.8 ± 4.5		23.2 ± 3.2		21.3 ± 4.0		
Procedure knowledge							
▪ Low	49	98.0	4	8.0	4	8.0	19.4 (0.001)*
▪ Moderate	1	2.0	20	40.0	26	52.0	
▪ High	0	0.0	26	52.0	20	40.0	
Mean ± SD	4.4 ± 2.0		12.6 ± 2.9		11.9 ± 2.9		
Total knowledge							
▪ Low	31	62.0	2	4.0	3	6.0	16.1 (0.001)*
▪ Moderate	19	38.0	30	60.0	38	76.0	
▪ High	0	0.0	18	36.0	9	18.0	
Mean ± SD	22.2 ± 5.0		35.7 ± 4.7		33.3 ± 5.3		

X^2: Friedman test for related samples

* P < 0.05 (significant)

Table 3: Distribution of the kindergarten teachers` practice about pediatric first aid (wound, chocking, epistaxis, fracture and burn). (n= 50)

Practice	Phase						*Q* (P)
	Pre		Post		FU		
	No	%	No	%	No	%	
First aid of wound							
▪ Unsatisfactory	37	74.0	23	46.0	24	48.0	9.9 (0.007)*
▪ Satisfactory	13	26.0	27	54.0	26	52.0	
Mean ± SD	1.6 ±1.9		3.0 ± 2.1		2.8 ± 2.2		
First aid of choking							
▪ Unsatisfactory	45	90.0	19	38.0	21	42.0	17.6 (0.001)*
▪ Satisfactory	5	10.0	31	62.0	29	58.0	
Mean ± SD	1.1 ± 1.2		2.7 ±1.2		2.5± 1.3		
First aid of epistaxis							
▪ Unsatisfactory	36	72.0	21	42.0	23	46.0	10.6 (0.005)*
▪ Satisfactory	14	28.0	29	58.0	27	54.0	
Mean ± SD	1.8 ± 1.5		3.0 ± 1.5		2.8 ± 1.6		
First aid of fracture							
▪ Unsatisfactory	44	88.0	18	36.0	25	50.0	16.3 (0.001)*
▪ Satisfactory	6	12.0	32	64.0	25	50.0	
Mean ± SD	3.9 ± 2.4		7.0 ± 2.9		6.4 ± 3.1		
First aid of burn							
▪ Unsatisfactory	36	72.0	21	42.0	27	54.0	6.7 (0.010)*
▪ Satisfactory	14	28.0	29	58.0	23	46.0	
Mean ± SD	1.0 ± 1.0		1.8 ± 1.1		1.6 ± 1.1		
Practice total							
▪ Unsatisfactory	46	92.0	22	44.0	25	50.0	16.1 (0.001)*
▪ Satisfactory	4	8.0	28	56.0	25	50.0	
Mean ± SD	9.2 ± 5.1		17.4 ± 6.6		16.1 ± 7.8		

Q: Cochran Q test

* P < 0.05 (significant)

Table 4: Relationship between teacher knowledge and their demographic data after the implementing the educational program

Demographic data	Knowledge change		F (P)
	Mean	SD	
Age (years)			
▪ 20-	14.9	6.2	1.7 (0.190)
▪ 25-	13.9	8.0	
▪ 30+	9.7	5.9	
Experience (years)			
▪ 1	13.0	5.5	
▪ 2	13.2	7.9	2.7 (0.050)*
▪ 3	18.3	8.0	
▪ 4-6	18.6	5.8	
Qualification			
▪ Diploma	13.3	7.2	t=0.12 (0.889)
▪ BSC	13.6	7.3	
Training at first aid			
▪ No	12.8	7.1	t=2.1 (0.046)*
▪ Yes	18.0	6.3	
The appointment last training session			
▪ 1 yrs	18.8	6.5	t=0.83 (0.443)
▪ 3 yrs	13.0	0.0	

F: One WAY ANOVA

t: Student t-test

* P < 0.05 (significant)

Table 5: Relationship between teacher practice and their demographic data after the implementing the educational program

Demographic data	Practice improvement		F (P)
	Mean	SD	
Age (years)			
▪ 20-	6.5	4.2	2.0 (0.050)*
▪ 25-	8.6	3.8	
▪ 30+	10.3	3.3	
Experience (years)			
▪ 1	5.9	3.9	
▪ 2	8.2	4.2	2.2 (0.017)*
▪ 3	7.0	3.6	
▪ 4-6	10.6	3.3	
Qualification			
▪ Diploma	6.8	3.9	t=1.8 (0.082)
▪ BSC	8.9	4.0	
Training at first aid			
▪ No	8.4	3.9	t=1.1 (0.316)
▪ Yes	6.7	5.0	
The appointment last training session			
▪ 1 yrs	5.2	3.1	t=3.3 (0.022)*
▪ 3 yrs	16.0	0.0	

F: One WAY ANOVA

t: Student t-test

* P < 0.05 (significant)

Table 6: relationship between first aid knowledge and practice of the studied sample

Items	First aid general knowledge	First aid procedures knowledge	Total knowledge
Practice:			
First aid of wound	0.07	0.19*	0.15*
First aid of choking	0.06	0.48*	0.32*
First aid of epistaxis	0.09	0.28*	0.22*
First aid of fracture	0.11	0.35*	0.27*
First aid of burn	0.09	0.36*	0.27*
Practice total	0.11	0.40*	0.31*

*significant Pearson correlation coefficient
Weak (0.1-0.24)
Intermediate (0.25-0.74)
Strong (0.75-0.99)

Discussion

Improving knowledge of kindergarten teachers can help in prevention the complications of accidents among preschoolers. The teachers play a major role in management of emergencies that can occur to children therefore they should be prepared for that task [(18)]. This can be achieved by provision of continuous education and training to maintain and improve their

skills. The aim of this study: Is to evaluate the effectiveness of health educational program on the pediatric first aid knowledge and practice among kindergarten teachers at Port Said.

This study was carried out to test the research hypothesis that the implementation of an educational program will improve kindergarten teachers` knowledge and Practices regarding to pediatrics first aids. The study results lead to acceptance of this hypothesis since teachers knowledge improved significantly, and their practice has also improved due to the improvement of their knowledge. According to the current study findings, no one out of the 50 kindergarten teachers had high knowledge of pediatric first aid at the pre-intervention phase; while 36% of them had high knowledge immediately post the program intervention. Also, there was positive intermediate correlation between teacher`s total knowledge and practices regarding pediatrics first aids post the program intervention. These results could be attributed to the designed program was successful in upgrading teacher's knowledge and practice regarding pediatric first aid. In this respect [19 and 20]. reported that there was poor knowledge about pediatric first aid among staff in the preschools of Shanghai before the program intervention while their results showed that the knowledge score to be significantly higher among them after the program implementation.

For total teachers` knowledge, the current study shows that about two thirds of teachers had low knowledge and were below acceptable level regarding pediatric first aid before program implementation, compared to 4% of them immediately after the program implementation had low knowledge score, in addition to this percentage was slightly increased to 6% of teachers in the follow up phase. This may be explained by the fact that the majority of studied teachers did not attend any training courses in pediatric first aid and this may also be due to forgetting theoretical information caused by lack of practical training to reinforce information. In this respect, [21] reported that education increases knowledge and in

turn changes first aid practices to the best for primary school teachers. This finding is in the same line with [12] who reported that there was no primary school teachers with inadequate knowledge after the program implementation. The impact of the present program intervention on teachers` knowledge was confirmed through multivariate analysis, which identified that the attendance of the educational program was important predictor of the improvement in teachers` knowledge scores.

As regard the association between the teacher`s knowledge level and selected demographic variables as their years of experiences and the training courses about pediatrics first aids the study results found that there were statistical significance association post intervention program. These results might be attributed to training program allow teachers to maintain and increase their knowledge about pediatric first aids. These results were in the same line of [22 and 23] , who mentioned that short time first aid training course could be very useful to overcome teachers' inadequate

Knowledge for saving lives of children and as the teacher`s years of experience increase their benefits from the training courses about pediatric first aids was better.

As regards teachers` practices, the present study revealed that before the program, almost of them was unsatisfactory. Compared to 56% and 50% of them had satisfactory knowledge immediately post and follow up the program intervention respectively with statistical significance difference. The findings of the current study can be explained that the reasons for teachers' unsatisfactory practices namely lack of attending training programs about first aid. The current study results revealed that teachers` practice concerning the pediatrics first aids has significantly improved immediately after and follows the program intervention. However, some areas demonstrated better improvements than others. Thus, the first aid of chocking and fracture were more highly improved immediately after and follow the intervention, compared to first aid of wound, epistaxis and burn. This may attributed by first

aid of fracture and chocking were newly procedure for those teachers and they have massive desire to catch more practices in this concern. In congruence with this, ***(13 and23)*** found that the better improvement was in the fracture first aid after the program intervention.

As regard the association between the teacher`s practices improvement and selected demographic variables as their age, years of experiences and the appointment of the last training courses about pediatrics first aids the study results found that there were statistical significance association post intervention program. These results could be explained by the fact that there was enhancement of teacher`s practices regarding pediatrics first aids indicating the effectiveness of the program intervention.

Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Authors' contributions

Nabila Abdella conceived the study idea, designed the study protocol, reviewed the literature search results and collects the data, conducted the critical appraisal of the studies and drafted the manuscript.

Nagwa Rizk, developed the search strategies, conducted the searches, conducted the critical appraisal of the studies and prepared the final manuscript for publication.

Rehab El kazaz write reviewed the literature, assisted in designing the review methodology and search results and helped to modify the manuscript and finalized

Maha Moussa, write reviewed the literature and search results, interpretation of data and helped to modify the manuscript and finalized

All authors read and approved the final manuscript.

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