# **Original Research Article**

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# Effectiveness of an instructional module regarding first-aid of pediatric emergencies on knowledge among mothers of 1-6 years children

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#### **ABSTRACT**

**Background:** The first aid is given to preserve and protect life, prevent further injury or deterioration of the victim, and help to promote recovery. The objectives of the study were to assess the pre- test knowledge scores regarding first aid of pediatric emergencies among mothers of 1-6 years children, to evaluate the effectiveness of an instructional module regarding first aid of pediatric emergencies on knowledge among mothers of 1-6 years children, to find out the association between the post-test knowledge scores of mothers with their demographic variables.

**Methods:** Quasi-experimental with one group pre-test post-test design was used for 48 mothers at pediatric medical ward, surgery ward and trauma emergency KGMU, Lucknow and purposive sampling technique was used. Self-structured knowledge questionnaires on first aid of pediatric emergencies were used. Based on the objectives and the hypotheses the data were analyzed by using various statistical tests.

**Results:** The result reveals that the overall score was 13.17 in pre-test and 20.13 in post- test after distribution of Instructional module to mothers 22 (45.83%) had good knowledge and 26 (54.17%) had average knowledge regarding first aid of selected conditions of pediatric emergencies. Paired 't' test showed that there was a significant improvement between pre-test and post-test scores with a 't' value of -24.639, p<0.05.

**Conclusions:** The study findings revealed that the Instructional module regarding first aid of Pediatric Emergencies was effective in improving knowledge of mothers of 1-6 years children.

Keywords: First aid, Pediatric emergencies, Instructional module

# INTRODUCTION

First aid is the first assistance or treatment given to a victim for any injury or sudden illness before the arrival of an ambulance or a qualified paramedical/medical person. It may involve improvising with facilities

and materials available at the site.<sup>1</sup> The biggest threats to children's health are at home, school, and community and it should be kept safe.<sup>2</sup> First aid aims to preserve life, to prevent the worsening of one's medical condition, to

promote recovery, safe transportation to the nearest health care facility. 1

According to WHO, 6.3 million children under the age of five died in 2013 due to foreign body aspiration. In India (21%) and Nigeria (13%), both together account for more than a third of all under five deaths.<sup>3</sup> According to Stanford children's health, recent accident statistics show each year, about 2,000 children under ages 14 die as a result of a home injury. Unintentional home injury deaths to children are caused primarily by fire and burns,

suffocation, drowning, firearms, falls, choking, and poisoning.<sup>4</sup>

As a fact that children are curious and impulsive, their bodies are still developing, and they are not familiar with the environmental hazards, they are more prone to accidental injuries.5 The most common home accidents in 1-6 years of children include choking, foreign body aspiration, burns, poisoning, falls, and drowning. According to the National safety council, 2017 choking is the fourth most common cause of unintentional injuryrelated death 5.051 were died from choking in 2015 due to a foreign object like food.<sup>6</sup> Foreign body aspiration is an important cause of pediatric morbidity and mortality, particularly in children between the age of 6 months and five years. Foreign-body aspiration accounts for more than 300 deaths annually in the country. In India, pediatric burns account for 17-25% of total burn admissions. According to WHO, burns are a global public health problem; approximately 90% of burns are caused by household accidents. Poisoning is the 12th leading cause of admissions in pediatric wards in India and accounts for about 1% of hospitalized patients.3

In 2016, According to the national safety council the rate of fatal choking in American children <5 years of age in the general population was 0.43 per 100,000. On the other hand, a previous study explored non-fatal choking data of children under the age of 14 has shown a comparatively higher rate of 20.4 per 100,000 populations. 55.2% of these non-fatal choking cases in children<4 years of age involved hard candy and nuts which require hospitalization. Analysis of the national trend of inorganic foreign body aspiration has revealed that the overall rate of aspiration due to foreign bodies' aspiration which results in an emergency has remained stable from the years of 2001 and 2014.<sup>7</sup>

A recent study of the worldwide literature on foreign body aspiration showed a sex discrepancy with 60% of patients being male. Nuts were seen to be causative in 40% of cases in high-income and low-middle income nations. Among the inorganic foreign body's aspiration, a more proportion among the literate from high-income countries revealed that magnets were causative in 34% of the cases. The diagnosis was delayed by more than 24 hours in 60% of that particular cases.<sup>8</sup>

A Recent study by Jaklein in 2015 which was published in the journal of nursing education and practice has been emphasized that administering appropriate first aid to the victim soon after the injuries will save their lives and promote their health. Immediate treatment of such emergencies can reduce morbidity and mortality. In that case proficient and skillful firstaid mangers area priority. Consequently, mothers must acquire first aid training programs based on illustrating proper teaching methods.<sup>9</sup>

Pandey conducted a study to assess the knowledge of first-aid among Health teacher working in selected

schools of Dehradun, a study revealed that the majority of health teachers had average knowledge about first aid 29 (72.5%) and 10 (25%) were had good knowledge and 1 (2.5%) had poor knowledge regarding first aid. The study revealed that there was no significant association between socio-demographic variables such as gender, level of schools, year of experience as a health teacher and education provided by the teacher, but qualifications of teachers and type of schools were found to have a significant association (p>0.05).<sup>10</sup>

Rekha Sonavane (2014) conducted a study among 140 mothers of under 15 children in a village of South India. The objective of the study was to assess the first aid knowledge and current treatment practices in selected circumstances. The study revealed that correct knowledge on first aid in various situations was less than 30% in most of the situations. There were several misconceptions regarding the management of various emergencies and injuries which could potentially lead to adverse outcomes. The mean overall baseline knowledge score was 2.34±1.98 among mothers. 11

Mothers play a critical role in the care of children following injury the first few hours after an accident is very crucial and if the correct first aid measures are taken life could be saved and disabilities will be limited, so mother's knowledge and practice are relevant variables and are considered to be important factors while planning an instructional module for first aid in pediatric emergencies. The mothers should know about first aid management because they will be at home with the child. So, the researcher has selected them to improve basic knowledge and ensure the safe survival of children.<sup>3</sup>

Hence, to impart first aid at the time of need the most important pre-requisite is the presence of information and knowledge about first aid for pediatric emergencies. So, this study aims at improving the knowledge of mothers in selected first aid measures. The knowledge which they gain can be used in the prevention of children's health problems. Mothers must be knowledgeable in first aid measures for selected minor ailments among children. Therefore, the mothers should be provided adequate instructions and knowledge in first aid measures to provide first aid in emergencies because today's children are tomorrow's citizens. Hence, the researcher felt it was essential to improve the knowledge of the mothers regarding selected first aid measures for children.<sup>2</sup>

#### **METHODS**

The methods of the research study are defining the way; the data is gathered & analyzed to answer the research question or analysis of the research problem.

It indicates the pattern of organizing procedures for the development of the tool, pilot study, and procedure for data collection and plan for analysis (polit beck).<sup>12</sup>

Research Approach A quantitative approach was selected for the present study.

#### Research design

The research design selected for the study was quasiexperimental (one group pre-test post-test design) (Table 1).

Table 1: One group pre-test post-test design.

Pre-test	Intervention	Post-test
Q <sub>1</sub>	X	$Q_2$

Q1- assessment of pre-test level of knowledge regarding first aid of pediatric emergencies, X- instructional module regarding first aid of pediatric emergencies, Q2-assessment of post-test level of knowledge regarding first aid of pediatric emergencies.

# The setting of the study

The research setting refers to the specific place where the data is gathered. In this study, the setting was a pediatric medical ward, surgery ward, and trauma emergency KGMU, Lucknow

#### **Population**

In this study population under the study was the mothers of 1-6 years of age registered in pediatrics wards.

# Target population

In the present study, the target population is mothers of 1-6 years of age who were registered in pediatric wards of medicine, surgery, and trauma emergency.

# Accessible population

In this study, the accessible population consists of all the mothers who were present during the study in selected wards of tertiary teaching hospital Lucknow and were willing to participate in the study.

# Sample and sampling technique

The sample of the study was the mothers of 1-6 years of age, who met the inclusion criteria and agreed to participate in this study, which was selected as subjects.

In this study, a non-probability, purposive sampling technique was used to select the samples.

# Sample size

The total sample size is 48.

#### Development of the tools

Based on the objective's demographic variables, a Self-structured knowledge questionnaire on first aid of pediatric emergencies and an Instructional module was developed in English, translated into Hindi and back translated to check for appropriate translation. It was pilot tested and revised before use to assess the effectiveness of the instructional module regarding first aid of pediatric emergencies

#### Description of tools

It consists of two parts

Part -I consist of demographic variables and a selfstructured knowledge questionnaire on first aid of pediatric emergencies

Part –II: Instructional Module regarding first aid of pediatric emergencies.

#### Reliability of the tool

The reliability was found by using the split-half method to get the (r). The reliability of the questionnaire was 0.83. Hence the tool was found reliable and finalized for the main study.

#### Data collection process

The purposive sampling technique was used to select samples and a pre-test was conducted while administering a self-structured knowledge questionnaire regarding first aid of pediatric emergencies after that the Instructional module was explained for 15 minutes and it was given on the same day after the pretest. The post-test was conducted on 5th day by using the self-structured knowledge questionnaire.

#### Analysis

The data analysis was based on objectives, research questions, and analysis of the data was done by using descriptive and inferential statistics. Pre and post-test scores of knowledge were analyzed through the following technique.

# Descriptive statistics

Mean and standard deviation was used to quantify the level of knowledge before and after the Instructional module.

## Inferential statistics

A paired t-test was used to examine the effectiveness of the Instructional module. Chi-square test to determine the association of demographic variables with the post-test knowledge scores.

#### Duration of the study

# The duration of the study period was 01 November 2019 to 31 January 2020.

#### **RESULTS**

#### Section 1

Frequency and percentage distribution of the mothers of 1-6 years of children (Table 2).

Table 2: Frequency and percentage distribution of the mothers of 1-6 years of children n=48.

S. no.	Variables	Categories	Frequency	Percentage
	Mother's age in years	20-24	20	41.67
1.		25-30	16	33.33
1.	Wouler's age in years	31-34	09	18.75
		35-40	03	6.25
2.	Area of residence	Urban	22	45.83
4.	Area or residence	Rural	26	54.17
3.	Type of family	Joint	30	62.50
3.	Type of failing	Nuclear	18	37.50
		Profession or honors	2	4.17
		Graduate	9	18.75
		Intermediate or diploma	10	20.83
4.	Education	High school certificate	6	12.50
		Middle school certificate	10	20.83
		Primary school certificate	11	22.92
		Illiterate	0	0.00
		Housewife	37	77.08
5.	Occupation	Government employee	5	10.42
5.	Occupation	Private Practioner	6	12.50
		Others	0	0.00
		Below- 10,000	22	45.83
	Monthly income	10,001-20,000	19	39.58
6.		20,001-30,000	2	4.17
		Above-31,000	5	10.42
	Religion	Hindu	27	56.25
7		Muslim	11	22.92
7.		Christian	10	20.83
		Others	0	0.00
		Burn	9	18.75
0	History of analdout day to	Choking	5	10.42
8.	History of accident due to	Bites and stings	10	20.83
		None of the above	24	50.00

The findings revealed that the majority of mothers were aged between 20-24 years (41.67%), were residing in rural area (54.17%), belongs to a joint family (62.50%), have primary education (22.92%), were housewife (77.08%), having monthly income below Rs. 10,000/-(45.83%), were Hindu (56.25%), has history of accident due to none of the above-mentioned causes (50%).

#### Section 2

Major finding and discussions of the study

Findings related to knowledge- Among 48 mothers 79.17% (38) mothers had an average level of knowledge

and remaining 20.83% (10) mothers had a poor level of knowledge and none of them had a good level of knowledge in pre-test whereas 54.17% (26) mothers had an average level of knowledge, 45.83% (22) had a good level of knowledge and none of them had a poor level of knowledge. The mean score of the mother in the pre-test (Table 3).

The data shows that the mean of the knowledge score of the mother in the pre-test is 13.17and 20.13 in the post-test. The standard deviation is 3.08 in the pre-test and 2.27 in the post-test (Table 4).

Table 3: Pre -test and post-test scores of mothers of 1-6 years of children n=48.

Level of	Pre-	Pre-test		test
knowledge	F	%	F	%
Good	0	0	22	45.83
Average	38	79.17	26	54.17
Poor	10	20.83	0	0

Table 4: Comparison of pre-test and post-test mean scores n=48.

Level of knowledge	Pre-test	Post-test
Mean	13.17	20.13
SD	3.08	2.27

#### Section 3

There was a significant effect of the instructional module regarding first aid of pediatric emergencies among mothers of 1-6 years of children. Level of significance ( $\alpha$ ) $\leq$ 0.05, critical value for two-tailed tests=2.011. The researcher calculated the independent t value for the tabulated data. The calculated t value is- 24.639. Then the researcher compared the calculated t value with the critical value. The critical value for this study with 48 degrees of freedom is (2.011). Since the calculated value is lies beyond the critical value the researcher rejected the Null hypotheses and accepted the alternative hypothesis.

That means there is a significant change in the level of knowledge in pre-test and post-test (Table 5).

Table 5: Findings related to the effectiveness of Instructional module n=48.

Effectiveness	Mean	Sd	df	Paired, t-value
Pre-test	13.17	3.08	47	-24.639
Post-test	20.13	2.27	4/	p<0.05

Significance at p<0.05.

#### Section 4

Findings related to the association between post-test knowledge scores of mothers with their demographic variables

The researcher computed the chi-square value for each variable.

The chi values for each variable was age ( $\chi$ 2cal=4.341), area of residence ( $\chi$ 2cal=1.096), type of family ( $\chi$ 2cal=0.125), education ( $\chi$ 2cal=0.539), occupation ( $\chi$ 2cal=0.782), income ( $\chi$ 2cal=4.477), religion ( $\chi$ 2cal=0.091), history of accident ( $\chi$ 2cal=3.85). Then the researcher compared the chi value of each variable for critical values. The values were inside the range of critical values for each variable.

Table 6: Association between the post-test knowledge scores of mothers with their demographic variables (n=48).

Variables	Category	Sample n=48	Respondents knowledge		P value	$\chi^2$
variables			>Mean	<mean< th=""><th>&lt; 0.05</th><th>value</th></mean<>	< 0.05	value
	20-24 years	20	6	14		4.341
A go in woons	25-30 years	16	10	6	7.81	
Age in years	31-34 years	9	1	3	Df=3	NS
	35-40	3	0	3		
Area of residence	Urban	22	10	12	3.84	0.125
Area of residence	Rural	26	12	14	Df=1	NS
Type of family	Nuclear	30	12	18	3.84	1.096
	Joint	18	10	8	Df=1	NS
	Profession	2	1	1		0.539 NS
	Gtraduate	9	4	5		
Education	Intermediate	10	5	5	7.81	
	High school	10	5	5	Df=5	
	Middle school	6	2	4	D1=3	
	Primary	11	5	6		
	Illiterate	0	0	0		

So, the researcher rejected the alternative hypotheses and accepted the null hypothesis for each variable. That is there is no significant association between the demographic variable and their knowledge level (Table 6).

#### **DISCUSSION**

This study was conducted to assess the knowledge regarding first aid of pediatric emergencies among mothers of 1-6 years children.

Ralte conducted a study to assess the effectiveness of a self-instructional module on knowledge regarding first aid management of selected pediatric emergencies at home among mothers of under-five children, 60 mothers were selected by non-probability sampling technique. The pre-test knowledge regarding first aid management of selected Pediatrics emergencies among mothers of under five children. 9 (15%) of them had a poor level of knowledge score, 38(63.33%) of them had an average level of knowledge score, 13 (21.67%) of them had a good level of knowledge score and none of them had a very good level of knowledge score, the mean score was 9.83±3.216 with a mean percentage value of 57.82%. Assessment of post-test knowledge regarding first aid management of selected Pediatrics emergencies among mothers of under five children. None of them had poor and average knowledge levels in the post-test. 16 (26.66%) of them had a good level of knowledge score, 44 (73.33%) of them had a very good level of knowledge score. The mean score was 20.37±2.755 with a mean percentage score of 81.48.13 In the present study the data shows that the mean of the knowledge scores of the mothers in the pre-test is 13.17 and 20.13 in the post-test. The standard deviation is 3.08 in the pre-test and 2.27 in the post-test.

Linto conducted a study to assess the effectiveness of self-Instructional module on knowledge regarding selected first aid measures among primary school teachers, non-probability convenient sampling technique was used to select 60 samples. The study revealed that Mean, standard deviations and mean score percentage values were compared, and paired 't' test was applied at 5 levels of significance. The calculated value was 22.30 respectively for the knowledge regarding selected first aid measures. The calculated 't' value was much higher than the tabulated values at a 5% level of significance. Hence it is strongly interpreted that the self-Instructional module regarding selected first aid measures is effective. Thus, the H1 is accepted.<sup>2</sup>

In the present study the calculated t value is -24.639. Then the researcher compared the calculated t value with the critical value. The critical value for this study at 47 degrees of freedom is (2.011). Since the calculated value is lies. Beyond the critical value, the researcher rejected the null hypotheses and accepted the alternative hypotheses.

#### Limitations

The study was limited to mothers of 1-6 years of children of the pediatric medical ward, surgery ward, and trauma emergency KGMU, Lucknow. The study was limited to those who were willing to participate.

#### **CONCLUSION**

From the findings of the study, it has been observed that the level of knowledge regarding first aid of pediatric emergencies among mothers of 1-6 years children in the post-test score was higher than the pre-test score.

The study finding proved that the instructional module is effective to increase the knowledge regarding first aid of pediatric emergencies among mothers of 1-6 years of children. So, there is a need of providing proper information and demonstration and education regarding the first-aid of pediatric emergencies. So, the health care provider should provide education to improve their knowledge regarding the first aid of pediatric emergencies among mothers of 1-6 years of children.

#### Recommendations

A similar study can be replicated with a larger sample size with similar intervention and technique, a similar study can be conducted among different caregivers of under five-year children in urban and rural, a similar study can be conducted with different study designs and a similar study can be replicated to assess the cost-effectiveness.

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