"Effectiveness of Simulation-Based Learning Programme on Knowledge and Skill Regarding First Aid Management of Selected Medical Emergencies Among School Children"

Sr. Teena[1], Dr. Anoopa K.R[2] Prof. Sr. Dr. Mony. R[3]

[1]Thressiamma K. L (Sr. Teena) Professor and Research scholar, Holy cross college of nursing, Kottiyam, Kollam District, Kerala University of Health Science, Thrissur.

[2]Dr.Anoopa K.R, Principle, SIMET College of nursing, Konni, Pathanamthitta District.

Corresponding Author: Thressiamma k. L (Sr.Teena)

[3]Prof. Sr. Dr. Mony. R. A.R. College of Nursing, Tenkasi. Tamilnadu

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ABSTRACT

Introduction: Children are the future of every country and all societies strive to ensure their health and safety. Basic First Aid Training programme should be taught in schools, as it is mandatory to our modern and stressful life. First aid knowledge and skill also increase the social responsibility towards the society and strengthen humanitarian values. An experimental study was conducted to assess the effectiveness of simulation-based learning programme on knowledge and skill regarding first aid management of selected medical emergencies among school children in selected schools at Kollam district.

Methodology: A true experimental one group pretest posttest control group design was used for the study. Based on inclusion and exclusion criteria 40 samples were selected by using multistage cluster sampling with randomization. The tools included are **Tool-1**: socio demographic Performa.**Tool-2**: structured knowledge questionnaire **Tool-3**: Observational checklist for skill assessment. The study was conducted in 2 higher secondary schools at Kollam district.

Results and Discussion: The overall mean difference of knowledge in selected medical emergencies such as drowning, choking, seizure, oral drug, kerosine, and snakebite, was 34.35. Between Pre-test, and post-test 1 ($p<0.001$). and it was increased to 37.60 between Pretest, and post-test 2($p<0.001$). The overall mean difference of skill in selected medical emergencies such as drowning, choking, seizure, oral drug, kerosine, and snakebite, was 34.25. Between Pre-test, and post-test 1 ($p<0.001$). and it was increased to 37.95 between Pretest, and post-test 2($p<0.001$).

Conclusion: The study on simulation-based learning program was effective as there was significant difference existed between pretest and post-test 1, post-test 2 in increasing level of knowledge and skill among school students ($p<0.001$). Thus, the investigator concludes conducting a simulation-based learning programme on first aid management of medical emergencies was found to be highly effective, appropriate and feasible.

Keywords: Effectiveness, Simulation-based learning programme, First aid, School children

INTRODUCTION AND BACKGROUND

Children are the future of every country and all societies strive to ensure their health and safety. Basic First Aid Training programme should be taught in schools, as it is mandatory to our modern and stressful life. School-age children are highly active at home, in the community and in the school environment. Their increased activity and time away from parents increase the risk for unintentional injuries and accidents such as car accidents,

drowning, falls, burns, chocking, and poisoning pose a serious threat to the survival of children and adolescents worldwide. The "First aid" refers to providing initial and prompt care to a patient suffering from a minor or serious accident or disease.[1] A quantitative study explored the impact of simulation-based training on knowledge retention for first aid in drowning among high school students. The results demonstrated that students who underwent simulation-based training showed significant improvements in knowledge immediately after the training and retained this knowledge more effectively over time compared to those who received traditional instruction[2]A quantitative study investigated the impact of simulation-based learning on first aid knowledge for seizure management in school children. The findings showed significant improvements in seizure management knowledge immediately after the simulation-based training, with better knowledge retention compared to traditional training methods.[3]Therefore, the schools should impart basic first aid education as it promotes a person's social duty to society and strengthens humanitarian values.

Need And Significance of the Study

The urgent need of today is that all men and women and children should learn what to do if faced with an accident or sudden injury to save a life and how to protect a person from injury or illness before becoming worse All adults should receive first aid training, as emergencies can occur at any time for anyone. Therefore, the trained teachers and students can become skilful and able to administer first aid independently and spontaneously in real life situations[4]. A quantitative research study was conducted to evaluate the impact of a skills training program on knowledge of first aid management among secondary school students at Vadodara in Gujarat. The findings of the study showed that students responded well to a structured skill-training program that covered specific first aid skills[5]. The June 2023 issue of Arogyamasika, a Malayalam health magazine, featured an article on "First Aid". It discussed the significance of providing first aid in emergency scenarios, including drowning, snakebite, heart attacks, choking, burns, and fractures and emphasizes the importance of teaching society's youth and young adults how to administer first aid in an emergency.[6]A quasi-experimental non-equivalent control group pre-test -post-test research study was conducted at Bareilly in India, to evaluate the knowledge, attitude, practice and the effectiveness of training programs regarding first aid management among school children. The major findings of the study revealed that schoolchildren knew more about first aid management at post-test (37.67) than at pretest (21.67)[7].

A quasi-experimental study examined the impact of simulation-based learning on first aid management skills in high school students. The findings indicated that the experimental group demonstrated a significant improvement in first aid management skills compared to the control group ($p < 0.01$).[8]A quantitative study investigated the impact of simulation-based learning on first aid knowledge for choking among middle school students. The results revealed that students in the simulation-based training group demonstrated significant improvements in their knowledge of choking first aid immediately after the training and maintained higher levels of knowledge over time compared to those who received traditional instruction.[9]. A quantitative study evaluated the effectiveness of simulation-based education on first aid knowledge for seizures among high school students. The results indicated that the simulation-based training significantly improved students' knowledge of seizure first aid immediately after the training and led to better knowledge retention over time compared to those who received traditional training.[10]The simulation-based learning proved to have a powerful positive effect on students' achievement outcomes and competency level as well as it improves their self-efficacy regarding performance of skills specially in emergencies.

Purpose of the Study

To evaluate the effectiveness of simulation-based learning programme on knowledge and skill regarding first aid management of selected medical emergencies among school children

Statement of the Problem

“A study to assess the effectiveness of simulation-based learning programme on knowledge and skill regarding first aid management of selected medical emergencies among school children in selected schools at Kollam district”

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Objectives of the Study

1.To assess the knowledge and skill regarding first aid management of selected medical emergencies among school children in experimental and control group.

2.To determine the effectiveness of simulation-based learning programme on knowledge and skill regarding first aid management of selected medical emergencies among school children in experimental group.

3. To compare the effectiveness of simulation –based learning programme on knowledge and skill regarding First aid management of selected medical emergencies among school children between experimental and control group at different intervals.

4. To find out the correlation between knowledge and skill regarding first aid management of selected medical emergencies among school children after simulation-based learning programme in experimental and control group.

5. To find out the association between knowledge and skill regarding first aid management of selected medical emergencies with selected socio demographic variables of school children in experimental and control group.

HYPOTHESES

H_1: There is a significant difference in mean pretest and posttest knowledge scores regarding first aid management of selected medical emergencies among school children after simulation-based learning programme.

H_2: There is a significant difference between mean pretest and posttest skill scores regarding First aid management of selected medical emergencies among school children after simulation-based learning programme.

H_3: There is a correlation between pretest score knowledge and skill regarding first aid management of selected medical emergencies among school children in experimental and control group.

H_4: There is a significant association between pretest knowledge and skill scores regarding first aid management of selected medical emergencies with selected socio demographic variables.

Conceptual Frame Work: Imogene King's Goal Attainment Theory (2001).

METHODOLOGY

Research Design	: True experimental - pretest posttest control group design
Research Setting	: Selected higher secondary schools at Kollam district.
Sample	: School children between the age group of 15 to 18years studying in selected higher secondary schools in 11th and 12th, standards at Kollam district.
Sample size	**:** 40 (Experimental group20 and Control group 20)
Sampling technique	**:** Multistage sampling with Randomization.
Dependent Variable	: knowledge and skill on First aid management selected medical emergencies
Independent Variable	: Simulation based learning programme on First aid management selected medical emergencies

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Inclusion Criteria

The school children who are:

Studying in11th and 12th standard

Between the age group of 15 to18 years

Available at the time of data collection

Both gender

Exclusion Criteria

The school children who are:

Intellectually, physically, mentally and socially challenged.

The students who have undergone any first aid training from other sources like NSS.

Taking treatment for chronic illness and having medical problem

Tools and Insruments

Tool 1: Socio demographic Proforma

Tool 2: Self structured knowledge questionnaire for selected medical emergencies

Tool 3: Observational checklist for skill assessment on for selected medical emergencies.

Ethical consideration: The data were collected after obtaining ethical approval from the institution and prior permission from the concerned management. Informed consent was taken from parents and participants at the beginning of the study

Data Collection Process

After obtaining permission from school management the data were collected from higher secondary school students of selected schools at Kollam district. Informed consent was sought from each student at the beginning of the study. In phase one Pretest knowledge was assessed using structured knowledge questionnaire and skill assessed using observation checklist foe selected medical emergencies. Phase two educational intervention given by lecture, PowerPoint presentation and conducted simulation-based learning programme. In phase three reinforcement was given on 7^{th} and 22^{nd} day and the 1st posttest done on 15th day and 2nd post-test done on 30th day.

DATA ANALYSIS AND RESULTS

The data were analyzed by applying SPSS statistics version 20. Descriptive and Inferential statistics were used to analyze the data. Then data were organized in relation to objectives and presented under the following sections:

Section 1: Assessment of level of knowledge and skill regarding first aid management of selected medical emergencies among school children in experimental and control group in pretest.

Section 2: Effectiveness of simulation-based learning programme on knowledge and skill regarding first aid management of selected medical emergencies among school children in experimental group

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Section 3: Effectiveness of simulation-based learning programme on knowledge and skill regarding first aid management of selected medical emergencies among school children between experimental group and control group at different intervals.

Section 4: correlation between knowledge and skill regarding first aid management of selected medical emergencies among school children after simulation-based learning programme in experimental group and control group

Section 5: Association between knowledge and skill regarding first aid management of selected medical emergencies with selected socio demographic variables of school children in pretest.

Table 1: Distribution of level of knowledge regarding first aid management of selected medical emergencies among school children in experimental and control group in pretest N=40

Sl. No	Knowledge on First aid management of selected medical emergencies	Experimental Group [n=20]		Control Group [n=20]		χ^2	p-value
		No.	%	No.	%		
1.	Drowning						
	Good [8-10]	0	00	0	00	0.173	0.677
	Average [5-7]	4	20	3	15		NS
	Poor [0-4]	16	80	17	85		
2.	Choking					0.125	
	Good [8-10]	0	00	0	00		0.723
	Average [5-7]	6	30	5	25		NS
	Poor [0-4]	14	70	15	75		
3.	Seizure					0.000	1.000
	Good [8-10]	0	00	0	00		NS
	Average [5-7]	3	15	3	15		
	Poor [0-4]	17	85	17	85		
4.	Oral drug					0.143	0.705
	Good [8-10]	0	00	0	00		NS
	Average [5-7]	5	25	4	20		
	Poor [0-4]	15	75	16	80		
5.	Kerosine					0.000	1.000
	Good [8-10]	0	00	0	00		NS

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	Average [5-7]	4	20	4	20		
	Poor [0-4]	16	80	16	80		
6.	Snakebite					0.143	0.705
	Good [8-10]	0	00	0	00		NS
	Average [5-7]	4	20	5	25		
	Poor [0-4]	16	80	15	75		

NS – Non Significant

Table 2: Distribution of level of skill regarding first aid management of selected medical emergencies among school children in experimental and control group in pretest N=40

Sl. No	Skill on First aid management of selected medical emergencies	Experimental Group [n=20]		Control Group [n=20]		χ^2	p-value
		No.	%	No.	%		
1.	Drowning					0.000	1.000
	Good [8-10]	0	00	0	00		NS
	Average [5-7]	4	20	4	20		
	Poor [0-4]	16	80	16	80		
2.	Choking					0.000	1.000
	Good [8-10]	0	00	0	00		NS
	Average [5-7]	1	05	1	05		
	Poor [0-4]	19	95	19	95		
3.	Seizure					0.000	1.000
	Good [8-10]	0	00	0	00		NS
	Average [5-7]	3	15	3	15		
	Poor [0-4]	17	85	17	85		
4.	Oral drug					-	-
	Good [8-10]	0	00	0	00		
	Average [5-7]	0	00	0	00		
	Poor [0-4]	20	100	20	100		
5.	Kerosine					0.173	0.677

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	Good [8-10]	0	00	0	00		NS
	Average [5-7]	4	20	3	15		
	Poor [0-4]	16	80	17	85		
6.	Snakebite					0.000	1.000
	Good [8-10]	0	00	0	00		NS
	Average [5-7]	4	20	4	20		
	Poor [0-4]	16	80	16	80		

NS – non-significant

Table 3: Comparison of Mean level of knowledge regarding first aid management of selected medical emergencies among school children in experimental group between Pretest, and post-test 1. N=20

Knowledge regarding first aid management of selected medical emergencies	**Pre-test**		**Post-test 1**		**Mean difference**	**Paired t-value**	**p value**
	Mean	**SD**	**Mean**	**SD**			
Drowning	3.55	1.394	8.80	1.056	5.25	12.254	<0.001*** S
Choking	4.45	1.503	9.20	1.239	4.75	9.774	<0.001*** S
Seizure	2.50	1.572	8.85	1.225	6.35	18.976	<0.001*** S
Oral drug	3.30	1.719	8.75	1.371	5.45	11.020	<0.001*** S
Kerosine	3.45	1.700	8.85	1.496	5.40	10.590	<0.001*** S
Snakebite	3.90	1.552	9.25	0.910	5.35	15.988	<0.001*** S

***Significant at p<0.001

Table 4: Comparison of Mean level of knowledge regarding first aid management of selected medical emergencies among school children in experimental group between Pretest, and post-test 2. N=20

	Pre-test	**Post-test 2**			**p value**

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Knowledge regarding first aid management of selected medical emergencies	Mean	SD	Mean	SD	Mean difference	Paired t-value	
Drowning	3.55	1.394	9.60	0.502	6.05	17.212	<0.001*** S
Choking	4.45	1.503	9.60	0.502	5.15	14.714	<0.001*** S
Seizure	2.50	1.572	9.60	0.502	7.10	21.939	<0.001*** S
Oral drug	3.30	1.719	9.70	0.470	6.40	16.853	<0.001*** S
Kerosine	3.45	1.700	9.75	0.444	6.30	15.828	<0.001*** S
Snakebite	3.90	1.552	9.70	0.470	5.80	16.457	<0.001*** S

***Significant at p<0.001

Table 5: Comparison of Mean level of skill on first aid management of selected medical emergencies among school children in experimental group between Pretest, and post-test 1. N=20

Skill on first aid management of selected medical emergencies	Pre-test		Post-test 1		Mean difference	Paired t-value	p value
	Mean	SD	Mean	SD			
Drowning	3.10	1.165	7.90	0.718	4.80	15.341	<0.001*** S
Choking	2.40	1.095	8.15	0.587	5.75	19.892	<0.001*** S
Seizure	2.45	1.605	8.50	1.051	6.05	14.414	<0.001*** S
Oral drug	1.90	0.718	8.40	1.095	6.50	22.757	<0.001*** S
Kerosine	2.95	1.571	8.05	0.759	5.10	13.813	<0.001***

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							S
Snakebite	3.75	0.910	8.05	0.510	4.30	17.039	<0.001*** S

***Significant at p<0.001

Table 8: Comparison of Mean level of skill on first aid management of selected medical emergencies among school children in experimental group between Pretest, and post-test 2. N=20

Skill on first aid management of selected medical emergencies	Pre-test		Post-test 2		Mean difference	Paired t-value	p value
	Mean	SD	Mean	SD			
Drowning	3.10	1.165	9.50	0.512	6.40	20.029	<0.001*** S
Choking	2.40	1.095	9.60	0.502	7.20	25.127	<0.001*** S
Seizure	2.45	1.605	9.80	0.410	7.35	18.413	<0.001*** S
Oral drug	1.90	0.718	9.75	0.444	7.85	43.196	<0.001*** S
Kerosine	2.95	1.571	9.50	0.512	6.55	18.634	<0.001*** S
Snakebite	3.75	0.910	9.90	0.307	6.15	26.446	<0.001*** S

***Significant at p<0.001

Table 9: Comparison of mean level of knowledge regarding first aid management of selected medical emergencies among school children between experimental group and control group at different intervals N=40

Level of knowledge		Experimental group (n=20)		Control group (n=20)		Mean difference	't' value	p value
		Mean	SD	Mean	SD			
Drowning	Pre-test	3.55	1.394	2.95	1.394	0.60	1.361	0.182 NS
	Post-test 1	8.80	1.056	2.85	1.348	5.95	15.534	<0.001*** S

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	Post-test 2	9.60	0.502	3.25	1.019	6.35	24.983	<0.001*** S
Choking	Pre-test	4.45	1.503	4.20	1.542	0.25	0.519	0.607 NS
	Post-test 1	9.20	1.239	3.65	1.268	5.55	13.996	<0.001*** S
	Post-test 2	9.60	0.502	3.50	0.888	6.10	26.723	<0.001*** S
Seizure	Pre-test	2.50	1.572	2.90	1.293	0.40	0.878	0.385 NS
	Post-test 1	8.85	1.225	2.90	0.967	5.95	17.037	<0.001*** S
	Post-test 2	9.60	0.502	2.95	0.887	6.65	29.170	<0.001*** S
Oral drug poisoning	Pre-test	3.30	1.719	3.55	1.234	0.25	0.528	0.600 NS
	Post-test 1	8.75	1.371	2.90	0.852	5.85	16.200	<0.001*** S
	Post-test 2	9.70	0.470	3.30	0.923	6.40	27.622	<0.001*** S
Kerosine poisoning	Pre-test	3.45	1.700	3.80	1.281	0.35	0.735	0.467 NS
	Post-test 1	8.85	1.496	3.55	1.145	5.30	12.575	<0.001*** S
	Post-test 2	9.75	0.444	3.80	1.005	5.95	24.211	<0.001*** S
Snakebite	Pre-test	3.90	1.552	3.55	1.099	0.35	0.823	0.416NS
	Post-test 1	9.25	0.910	3.50	1.147	5.75	17.559	<0.001*** S
	Post-test 2	9.70	0.470	3.65	0.988	6.05	24.726	<0.001*** S

***Significant at p<0.001

Table 10: Comparison of mean level of skill on first aid management of selected medical emergencies among school children between experimental group and control group at different intervals N=40

Level of skill	**Experimental group (n=20)**		**Control group (n=20)**		**Mean difference**	**'t' value**	**p value**
	Mean	**SD**	**Mean**	**SD**			

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Drowning	Pre-test	3.10	1.165	3.15	1.386	0.05	0.123	0.902NS
	Post-test 1	7.90	0.718	3.05	1.356	4.85	14.133	<0.001***S
	Post-test 2	9.50	0.512	3.45	1.050	6.05	23.151	<0.001***S
Choking	Pre-test	2.40	1.095	2.00	1.169	0.40	1.116	0.271NS
	Post-test 1	8.15	0.587	2.20	0.951	5.95	23.800	<0.001***S
	Post-test 2	9.60	0.502	2.95	0.944	6.65	27.796	<0.001***S
Seizure	Pre-test	2.45	1.605	2.40	1.569	0.05	0.100	0.921NS
	Post-test 1	8.50	1.051	2.50	1.277	6.00	16.220	<0.001***S
	Post-test 2	9.80	0.410	3.25	1.019	6.55	26.653	<0.001***S
Oral drug	Pre-test	1.90	0.718	1.80	0.615	0.10	0.473	0.639NS
	Post-test 1	8.40	1.095	1.80	0.615	6.60	23.490	<0.001***S
	Post-test 2	9.75	0.444	3.40	1.046	6.35	24.983	<0.001***S
Kerosine	Pre-test	2.95	1.571	2.20	1.542	0.75	1.523	0.136NS
	Post-test 1	8.05	0.759	2.50	1.000	5.55	19.769	<0.001***S
	Post-test 2	9.50	0.512	3.60	0.994	5.90	23.575	<0.001***S
Snakebite	Pre-test	3.75	0.910	3.10	1.293	0.65	1.838	0.074NS
	Post-test 1	8.05	0.510	2.75	1.118	5.30	19.285	<0.001***S
	Post-test 2	9.90	0.307	3.45	1.099	6.45	25.273	<0.001***S

***Significant at p<0.001

Table 11: Correlation between level of knowledge and skill regarding first aid management of downing among school children among experimental group and control group in Post-test 2 N=40

Group		**Variable**	**Mean**	**SD**	**Karl Pearson's 'r'**	**p value**
Experimental group	downing	Level of knowledge	9.60	0.502	0.408	0.074NS
		Level of skill	9.50	0.512		
Control group		Level of knowledge	3.25	1.019	0.184	0.437NS
		Level of skill	3.45	0.105		
Experimental group	choking	Level of knowledge	9.60	0.502	0.375	0.103NS
		Level of skill	9.60	0.502		

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Control group		Level of knowledge	3.50	0.888	-0.157	0.509NS
		Level of skill	2.95	0.944		
Experimental group	seizure	Level of knowledge	9.60	0.502	-0.153	0.519NS
		Level of skill	9.80	0.410		
Control group		Level of knowledge	2.95	0.887	0.015	0.951NS
		Level of skill	3.25	1.019		
Experimental group	oral drug poisoning	Level of knowledge	9.70	0.470	0.126	0.597NS
		Level of skill	9.75	0.444		
Control group		Level of knowledge	3.30	0.923	0.033	0.891NS
		Level of skill	3.40	1.046		
Experimental group	Kerosine poisoning	Level of knowledge	9.75	0.444	0.346	0.135NS
		Level of skill	9.50	0.512		
Control group		Level of knowledge	3.80	1.005	-0.505	0.023*S
		Level of skill	3.60	0.994		
Experimental group	snakebite	Level of knowledge	9.70	0.470	0.145	0.541NS
		Level of skill	9.90	0.307		
Control group		Level of knowledge	3.65	0.988	0.153	0.521NS
		Level of skill	3.45	1.099		

NS – non-significant

DISCUSSION

To assess the knowledge and skill regarding first aid management of selected medical emergencies among school children in experimental and control group.

The present study showed that, highest percentage of school children in the experimental group and in the control, group had poor knowledge and skill regarding first aid management of medical emergencies such as drowning, choking, seizure, oral drug, kerosine, and snakebite. The χ^2 value and p value shows that school children in the experimental group and control group were homogenous and comparable ($p>0.05$). The findings of the study are supported by a cross-sectional study conducted to evaluate the knowledge of first aid among school children found similar results.[11] They reported that a large proportion of students had inadequate knowledge about managing medical emergencies. The current study result is consistent with an evaluative study conducted to assess the level of first aid skills among school children and reported that a significant proportion of students had inadequate skills in managing common emergencies.[12]

To determine the effectiveness of simulation-based learning programme on knowledge and skill regarding first aid management of selected medical emergencies among school children in experimental group.

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Mean difference between pretest and posttest domain wise level of knowledge shows that there is significant difference between mean level of knowledge regarding first aid management of selected medical emergencies in terms of drowning, choking, seizure, oral drug, kerosine, and snakebite among school children in experimental group between Pretest, and posttest 1 ($p<0.001$). and between Pretest, and post-test 2 ($p<0.001$). Mean difference between pretest and post-test domain wise level of skill shows that there is significant difference between mean level of skill on first aid management of selected medical emergencies in terms of drowning, choking, seizure, oral drug, kerosine, and snakebite among school children in experimental group between Pretest, and post-test 1 ($p<0.001$). and between Pretest, and post-test 2 ($p<0.001$). The results of the present study is consistent with a quasi-experimental study by Patel et al. (2019) evaluated the impact of a first aid training program on primary school students found that the intervention significantly improved the children's first aid skills, particularly in the areas of choking and seizure management.[13]

To find out the correlation between knowledge and skill regarding first aid management of selected medical emergencies among school children after simulation-based learning programme in experimental and control group. Karl-Pearson correlation coefficient showed that among experimental group, there is non-significant positive correlation between level of knowledge and skill regarding first aid management of selected medical emergencies ($r= 0.408$; $p>0.05$). Which inferred an increase in level of knowledge there is increase in level of skill. In control group, there is non-significant weak positive correlation between level of knowledge and skill regarding first aid management of selected medical emergencies ($r=0.184$; $p>0.05$). Which inferred an increase in level of knowledge there is an increase in level of skill. The present study is supported by a cross-sectional study on "The Correlation Between Knowledge and Practical Skills in First Aid Among Middle School Students" found a non-significant positive correlation ($r = 0.082$) between knowledge and skills, suggesting that while a positive trend was observed, it was not statistically significant ($p > 0.05$).[14]

To find out the association between knowledge and skill regarding first aid management of selected medical emergencies with selected socio demographic variables of school children in experimental and control group. The Chi-square test revealed no significant association between level of knowledge and skill regarding first aid management of drowning with selected sociodemographic variables ($p>0.05$). The current study findings are supported by a cross-sectional study on"Socio-Demographic Factors and Their Impact on First Aid Knowledge Among School Children".[15] Their findings showed no significant associations between the level of first aid knowledge and socio-demographic variables.

NURSING IMPLICATIONS

Nursing practice

The school health nurse should conduct periodically first aid training programmes for the school teachers and school children which will improve their knowledge and skills to apply it during emergency situation.

Nursing education

Nurse educator has to pay more attention on training of school children regarding First aid management of medical emergencies. The findings of the study can be utilized to organize health teaching programmes like exhibitions in the hospital as well as in the community settings

Nursing Administration

The nurse administrator can plan and organize the workshops and seminars, symposium, regarding First aid management of medical emergencies at different settings.

Nursing Research

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The researcher has to take up a role in preparing and teaching First aid management to other paramedical and non-paramedical staffs. The nurse researcher can narrow down the present research topic into more precise and clearer.

Limitations of the study

The study focused on short-term improvements in knowledge and skills on first aid management of medical emergencies.

Generalizability of the finding is limited as setting was limited to particular settings.

RECOMMENDATIONS

Integrate digital learning platforms in first aid education and promote peer to peer learning through digital media.

The schools should culturally adapt first aid content for digital delivery and in corporate digital citizenship into health education.

The schools should conduct periodic refresher training sessions to reinforce students' knowledge and skills in handling medical emergencies like choking, drowning, and poisoning, and ensuring long-term retention.

Teachers and school staff should be trained in simulation-based first aid techniques in order to guide and support students in emergency preparedness, creating a well-rounded safety network within the school.

Further research can be conducted on digital influence and cultural patterns on first aid knowledge retention and behavioural change

CONCLUSION

The research project analysed on the effectiveness of simulation-based learning programme for teaching higher secondary school children regarding first aid management of selected medical emergencies.The findings of the study showed that simulation-based learning program was effective as there was significant difference existed between pretest and post-test 1and post-test 2 in increasing level of knowledge and skill after the intervention among school students in the experimental group ($p<0.001$). A 16-year-old male student from a higher secondary school in Kollam demonstrated the application of skills learned during the simulation-based first aid program when his younger cousin experienced a seizure at home. Having participated in a month-long training covering common medical emergencies including seizure response the student was able to remain calm, ensure the environment was safe, position the patient correctly, and monitor the duration of the seizure until medical assistance arrived. The student shared that everyone else was panicking, but he remembered what they practiced in the simulation. He knew that he has to keep him on his side and clear the space around him. This real-life response not only underscores the practical skill acquisition from the program but also highlights the improvement in confidence and decision-making under pressure. Such individual experiences reinforce the broader outcomes of the study which demonstrated a marked increase in students' knowledge and competence in first aid management. Thus, the investigator strongly recommends that First Aid modules can be implemented as a mandatory part of curriculum among higher secondary school children.

Declaration by authors

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