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A Pre Experimental Study To Assess The Effectiveness Of Self-Instructional Module On Knowledge Of Mothers Regarding First Aid Management Of Paediatric Emergencies Among Under-Five Children In Selected Rural Areas Of Udupi District

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Abstract

Paediatric emergencies are a significant concern, frequently affecting children and causing higher mortality rates in those aged 1 to 4 years compared to other childhood groups. Despite children forming a substantial portion of the population, readily available emergency care facilities are often insufficient. Research indicates that early recognition and appropriate first aid treatment can significantly improve outcomes and save lives.

Given that modern management of household emergencies in children emphasizes immediate first aid, mother's knowledge in this area is crucial for reducing under-five mortality. This study aimed to evaluate the effectiveness of a self-instructional module (SIM) on mothers' knowledge regarding first aid management of paediatric emergencies. **Objectives** included assessing pre-test knowledge, evaluating the SIM's impact, and exploring associations with demographic variables.

A pre-experimental, one-group pre-test post-test design was employed, involving 50 mothers of under-five children selected through purposive sampling. Data was collected using a structured questionnaire. Pre-test findings revealed that 26% of mothers had inadequate knowledge, while 74% had moderate knowledge, with no participants demonstrating adequate knowledge. Post-test results showed a notable improvement:

32% had moderate knowledge, and 68% achieved adequate knowledge. The study concluded that the self-instructional module effectively enhanced mothers' knowledge of first aid for paediatric emergencies.

Keywords: First aid management, Self-Instructional Module, Paediatric emergencies, Under-five children, Mothers, Rural areas

Introduction

Children are an embodiment of our dreams and hopes for the future. They are the most vulnerable group in the society. In any community the under-five children constitute a priority group, these children are vulnerable or special risk people and their health is related to their growth, development and survival.

Paediatric emergency is an unforeseen or sudden occurrence especially of a danger in children demanding immediate remedy or action. The injury death rate has remained relatively unchanged during the past decades: however, the corresponding rates from all other causes of death combined have declined significantly. Traumatic injury is the leading cause of childhood hospitalization, and younger children are at risk because of small size and inability to protect themselves. A major factor in the critical increase of injuries during early childhood is the unrestricted freedom achieved through locomotion combined with an unawareness of danger within the environment. The occurrence of paediatric emergencies are leading to delay in growth and development due to brain damage, respiratory distress, fracture and anaemia.

In India the major cause for paediatric injuries in the age group of below 5 years are burns, drowning, poisoning, electric shock, and snake bite. Unintentional injuries pose a significant global threat to children, accounting for over 2,000 deaths daily and ranking as the sixth leading cause of death in children under five. Annually, approximately 830,000 children die from such injuries, with millions more suffering non-fatal but often debilitating harm.

Unintentional injuries are a major threat to children. Burns, primarily home-related, cause 96,000 child deaths annually. Falls lead to 47,000 deaths. Poisoning, a significant concern in India, claims over 45,000 young lives. Seizures, snakebites, and electrical accidents also pose substantial risks, highlighting the urgent need for prevention

Paediatric emergencies are a global concern, particularly unintentional injuries in children under five. Recognizing mothers' crucial role, researcher developed a self-instructional module on first aid for paediatric emergencies. This aims to empower mothers with the knowledge to reduce injuries and fatalities among their young children.

Review of literature

A retrospective study at Kasturba Hospital, Manipal, examined 166 paediatric trauma fatalities (8.5% of autopsies). Males aged 13-18 were most affected (57.2%), with accidents being the primary cause. This research gathered epidemiological data on unintentional trauma in children.

A descriptive study in Sydney assessed the adequacy of first aid for minor childhood burns. Researchers interviewed 109 parents using a structured questionnaire, selecting them via non-probability random sampling. Findings revealed that only 24 out of 109 cases (approximately 22%) received adequate initial first aid. This highlights a clear need to educate both parents and health professionals on proper burn first aid.

A pre-experimental study in Mangalore assessed the effectiveness of a planned teaching program on first aid for common accidents among 50 9th-standard students at St. Aloysius High School. Using convenience and simple random sampling, a structured questionnaire revealed that before the program, 58% of children had poor knowledge and 42% had average knowledge.

A pre-experimental study in Bangalore assessed a self-instructional module's effectiveness on home management of diarrhoea among 40 mothers of under-five children. Using a structured questionnaire, the pre-test knowledge score was 46.8%**,** which significantly improved to 72.6% in the post-test**,** indicating the module's effectiveness.

Research methodology

This study used an evaluatory research approach to assess the effectiveness of a self-instructional module on mothers' knowledge of paediatric emergency first aid in rural Udupi district.

Research design: In the present study pre experimental i.e. one group pre-test post-test design was selected. In this design the investigator introduced a basic measure before and after a planned exposure. In the present study the measure was the structured questionnaire for assessing knowledge of mothers regarding first aid management of paediatric emergencies among under five children. The intervention given was the self-instructional module.

Variables under study:

Independent variable: Self -instructional module was the independent variable.

Dependent variable: level of knowledge of mothers of under five children in selected rural areas of Udupi district.

Extraneous variables: age of mothers, educational status, religion, type of family, number of children, previous source of information, total family income per month, occupation of the mothers, and previous exposure to paediatric emergencies.

Research setting: The present study was conducted in selected rural area named Kumbashi gram panchayat in Udupi District.

Population: The target population of the present study includes mothers of under five children in selected rural areas of Udupi District.

Sample: A sample of 50 mothers who met the sampling criteria were considered as the participants of the study

Sampling technique: he sampling technique adopted for the present study was purposive sampling technique for selecting the samples.

Data collection instruments: demographic Proforma and Structured Knowledge Questionnaire. Nine demographic items were collected: age, education, occupation, religion, family type, number of children, information source, family income, and previous exposure.

The structured knowledge questionnaire had 24 multiple-choice questions, each correct answer scoring one point, for a maximum of 24. It was prepared in Kannada.

Method of data collection: Subjects were chosen by purposive sampling technique. Instructions were given and the tool was administered.

Plan of data analysis: The data obtained was analysed using descriptive (mean, median, mean difference, and standard deviation) and inferential statistics on the basis of objectives and hypothesis of the study. The paired t-test will compare pre- and post-test knowledge mean scores. We'll use chi-square to associate pre-test knowledge with demographics.

Hypothesis:

H_1: There is significant difference between mean pre-test knowledge score and post test knowledge score among mothers of under five children on first aid management of paediatric emergencies.

H2: The mean post-test knowledge score of mothers in different areas of paediatric emergencies will be significantly higher than mean post-test knowledge scores.

H3: There is a significant association between knowledge scores of mothers with selected demographic variables.

Result

The collected data were analysed and computed using descriptive and inferential statistics according to the objectives and the hypothesis of the study.

Section A: This section deals with the description of demographic characteristics of mothers

Most mothers were Hindu (66%), in nuclear families (68%), had primary education (64%), and were homemakers/coolies (40%). They typically had two children (66%), earned ₹3001-5000 (46%), and lacked prior emergency experience (80%), often getting information from mass media (38%).

Section B: Knowledge of mothers regarding first aid management of paediatric emergencies among under five children

Knowledge of 50 mothers were assessed using a structured knowledge questionnaire and analysed using descriptive statistics.

Table 1: Frequency and percentage distribution of sample according to level of knowledge

Level of knowledge	Pre- test		Post- test	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Inadequate	13	26	-	-
Moderate	37	74	16	32
Adequate	-	-	34	68
Total	50	100	10	100

Pre-test showed 26% inadequate and 74% moderate knowledge, with none adequate. Post-test revealed no inadequacy, 32% moderate, and a significant 68% with adequate knowledge.

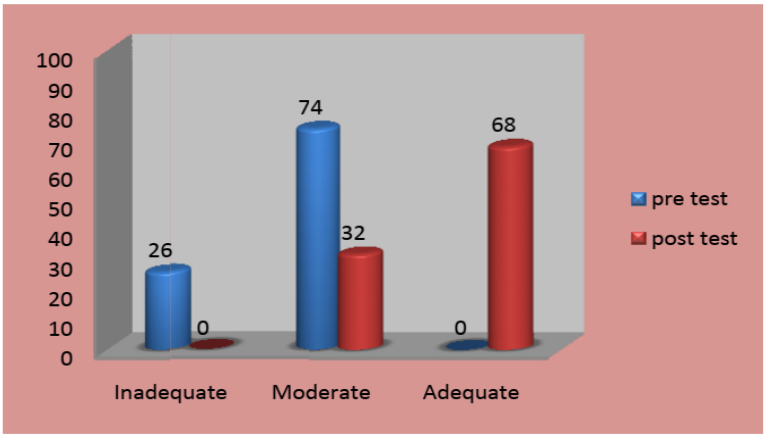

Figure 1: Bar diagram representing pre-test and post- test knowledge scores of mothers on first aid management of paediatric emergencies

Table 2: Range of scores, mean, median and standard deviation of pre-test and post-test knowledge level of mothers

	Range of score	Mean	Median	SD
Pre-test	4- 14	9.56	10	2.08
Post-test	13-21	17.46	17	2.26

Post-test knowledge scores (13-21, mean 17.46) significantly exceeded pre-test scores (4-14, mean 9.56).

Table:3 Area-wise mean, standard deviation of pre-test and post –test knowledge scores

Area	Maximum score	Pre-test		Post-test	
		Mean	SD	Mean	SD
Pediatric emergency and its types	2	1.3	0.6	1.8	0.4
First aid	4	1.2	0.9	3	0.8
First aid management of drowning	2	0.7	0.6	1.3	0.6
First aid measures of poisoning	1	0.6	0.5	0.9	0.2
First aid measures accidental injuries	4	1.7	0.8	3.1	0.7
First aid measures of epistaxis	3	0.9	0.7	1.9	0.8
First aid measures burns	1	0.3	0.5	0.8	0.4
First aid measures of febrile seizure	4	1.5	0.9	2.8	0.9
First aid measures of snake bite	1	0.4	0.5	0.7	0.5
First aid measures of electric shock	2	0.9	0.7	1.2	0.6

The table clearly shows that post-test mean scores across all ten areas (1.8, 3.0, 1.3, 0.9, 3.1, 1.9, 0.8, 2.8, 0.7, 1.2) were higher than their corresponding pre-test means (1.3, 1.2, 0.7, 0.6, 1.7, 0.9, 0.3, 1.5, 0.4, 0.9) after the module.

Section C: effectiveness of self-instructional module on first aid management of paediatric emergencies among mothers of under five children

A **paired t-test** was used to determine significant differences between mean **pre-test and post-test knowledge scores**, leading to a formulated null hypothesis.

Table:4 Mean, Mean difference, SD and 't' value of pre-test and post-test knowledge score.

Parameters	Mean	SD	Mean difference	't' value
Pre-test	9.56	2.08	7.9	21.53*
Post-test	17.46	2.26		

t_{49}= 2.00, P<0.05 * Significant

The data presented in the table shows that the mean post-test knowledge score (17.46+2.26) was higher than the mean pre-test knowledge score (9.56+2.08). The calculated 't' value (t_ {49} = 21.53 p0.05) was greater than the table value (t_{49} = 2) at 0.05 level of significance. Hence the null hypothesis is rejected and research hypothesis accepted.

Section D: Association between pre-test knowledge score and selected demographic variables

Table:5 Chi-square association between pre-test knowledge scores and demographic variables.

Sl. No	Variables	χ^2value	Df	Table value	P value	Inference
1.	Age	3.05	4	9.48	P>0.05	NS
2.	Religion	3.82	3	7.82	P>0.05	NS
3.	Type of family	0.15	2	5.99	P>0.05	NS
4	Education	1.69	3	7.82	P>0.05	NS
5	Occupation	2.96	4	9.48	P>0.05	NS
6	No of Children	5.64	2	5.99	P>0.05	NS
7	Income	3.61	4	9.48	P>0.05	NS
8	History	0.81	1	3.81	P>0.05	NS
9	Previous Knowledge	6.93	4	9.48	P>0.05	NS

Chi-square values exceeding 0.05 for all demographic variables indicate no significant association with pre-test knowledge scores. The null hypothesis is accepted.

Discussions

This study assessed mothers' knowledge of paediatric first aid. Initially, 26% had inadequate knowledge, and 74% had moderate knowledge. After a self-instructional module, 68% achieved adequate knowledge, demonstrating significant improvement (mean pre-test score: 9.56; post-test: 17.46; t-value: 21.53, $p<0.05$). No significant association was found between pre-test knowledge and demographic variables like age, education, or income.

Conclusion

Children under five face serious injury risks, often due to mothers' limited first aid knowledge. A self-instructional module was found to significantly improve mothers' understanding of emergency procedures, empowering them to react effectively.

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