# **Research Article**

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# A study to evaluate the effectiveness of first aid training on mothers among under 15 years children in a rural area of South India

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# **ABSTRACT**

**Background:** Studies done in developed and developing countries have demonstrated deficiencies in knowledge of first aid among caregivers. With nearly 73% of the population of India is residing in rural areas. Thus this study was undertaken to document the effectiveness of first aid training on mothers in a rural area of South India.

**Methods:** A cross sectional study conducted among 140 mothers of under 15 children in a village of South India. For the purpose of assessing the overall knowledge of subjects regarding first aid, 13 questions which assessed different aspects of knowledge regarding first aid were considered. A post training evaluation of the participant women was done to assess a change in their knowledge in comparison to their pre training levels.

**Results:** The mean baseline knowledge score was  $2.34\pm1.98$ . Fifty six women participated in the training programme on first aid, and the mean knowledge score among these 56 women was  $11.64\pm1.27$  immediately following training. There was a significant improvement in the total knowledge scores in the post evaluation as compared to pre evaluation levels (p<0.001).

Conclusions: Training on first aid can improve knowledge among women with children <15 years in a rural area of South India.

Keywords: First aid, Knowledge, Rural, South India

# INTRODUCTION

In any community, mothers and children comprise a priority group, together comprising of nearly 59% of the population. Children under 15 years comprise nearly 40% of the total population. The woman's role in the family in the Indian context is multidimensional. Women provide maximal care in the family as far as health is concerned. Women are considered to be the best teachers and have potential influence on the family members, particularly the children. They also have high degree of tolerance and capacity to work. Women involvement can

become an entry point for many developmental activities.<sup>2</sup> Thus it is desirable that women possess knowledge and skills of first aid to react to situations requiring the use of first aid in their family. However studies done in both developed and developing countries have demonstrated a lack in the knowledge, attitudes and practices of caregivers towards common problems occurring in childhood including the occurrence of injuries. Children living in rural areas have significantly higher rates of hospitalization due to injuries than those living in urban areas.<sup>3,4</sup> In terms of facilities, rural areas have been found lacking the requisite needful. The

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comparison between urban and rural areas with regard to health facilities has shown that urban areas have 4.48 hospitals, 6.16 dispensaries and 308 beds per lakh urban population as compared to 0.77 hospitals, 1.37 dispensaries, 3.2 primary health centers and 44 beds per lakh rural population. The per capita expenditure on public health is 7 times lower in rural areas as compare to government health spending for urban areas. This reflects the striking inequity in terms of health that exists between the urban and rural areas in the country. This study therefore aims to assess the knowledge of first aid among mothers of children less than 15 years of age in a rural area and to subsequently conducted an appropriate training programme to study their different aspects of knowledge regarding first aid.

# **METHODS**

This was a cross sectional study, done among mothers of children aged below 15 years between September 2013 and August 2014 at Mugalur village, Anekal Taluk, Bangalore District, Karnataka State. Mugalur village is part of the rural field practice area of the Department of Community Health, St John's Medical College Bangalore and is located approximately 37 kilometers from Bangalore city. The Rural Community Health and Training Centre of the Department are situated at this village and cater to a population of 12000 within a radius of five kilometers in the surrounding 16 villages.

# Data collection

A house to house survey was done to assess the occurrence of injuries between 9 AM and 5 PM on each day of the survey period to identify women whose children were aged less than 15 years. The 140 women thus identified were administered the interview schedule. In case of houses with the door locked or when the respondent was unavailable, two additional visits were made on different days after which these mothers were considered as non-responders.

# Scoring of knowledge

For the purpose of assessing the overall knowledge of subjects regarding first aid, 13 questions which assessed different aspects of knowledge regarding first aid were considered.8 A correct response for each question was awarded '1' mark. A partially correct response was awarded '0.5' marks. A completely wrong response was awarded '0' marks. The maximum marks that could be scored by a subject was '13' marks for a total of 13 questions.

# Training on first aid

An appropriate training program was designed for mothers and implemented (Resource Material: St. John's Ambulance Association). A total of 56 women (out of 140) attended the programme The training was done for

56 mothers in 2 group sessions using audio visual aids such as blackboard and chalk, charts and posters, demonstration with simulation exercises and patients. A post training evaluation of the participant women was done to assess a change in their knowledge in comparison to their pre training levels.

# Statistical analysis

The data was compiled in a MS excel worksheet and analyzed using Epi Info version 6. Percentages and Chisquare test were the statistical tests used to study the associations between pre and post first aid training evaluation and levels of knowledge.

#### Ethical issues

The study was approved by institutional ethical committee of St John's Medical College Bangalore. Human subject recruitment was done following ethical approval. Written informed consent was obtained from the mothers/respondents. The schedule administered to women who had their youngest child <15 years of age by means of a survey of all identified houses.

#### **RESULTS**

# Scoring of knowledge

Baseline knowledge of all subjects (n=140) was assessed. Table 1 shows overall baseline knowledge of first aid in the study population. 77.10% and 18.60% of women studied had knowledge scores in the "low" and "medium" category respectively. The mean knowledge score out of a possible score of 13 was 2.34, indicating a poor level of knowledge among the study population. The knowledge score obtained by the subjects ranged from 0 to 10, with a mean of 2.34±1.98.

Table 1: Baseline scoring of knowledge among subjects.

Score (0-10)	Low (≤3.25)	Medium (3.26-6.5)	High (6.6-9.75)	Very high (9.76 - 13)	Total
Number	108	26	5	1	140
Percentage	77.10	18.60	3.60	0.70	100
Mean score (Mean±SD)	2.34	± 1.98			

# Training on first aid

A training programme on first aid was organized for those women who were willing to attend. A total of 56 women (out of 140) attended the programme. Their knowledge score was assessed after the four week of training programme (post evaluation), and compared with the baseline value obtained before the programme

(pre evaluation). Of the 56 subjects assessed before and after the training programme, 43 had a low knowledge score before training. Of them, 41 scored very high and 2 scored high after four week following training. Nine subjects had medium knowledge score pre training. All of them obtained a very high score after four week following training. Three subjects had a high score at the baseline and 1 had a very high score at baseline. All 4 had a very high score after four week following training. The difference in knowledge scores of the 56 subjects were analyzed using a paired t test (Table 2). The scatter diagram shows that most participants had low pre training levels of knowledge, which were transformed to high scores, as assessed after four week following training (Figure 1).

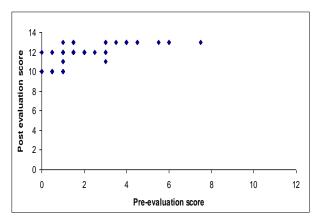
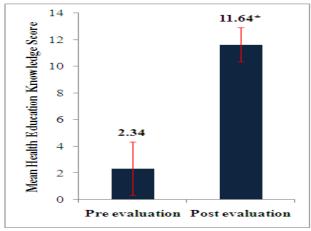


Figure 1: Scatter diagram showing distribution of knowledge scores: pre evaluation and post evaluation.

The assessment was repeated for the 56 subjects who attended the training program after four week following training, and the scores obtained post-training was compared with their baseline scores (Table 2). There was a highly significant (p<0.001) increase in the total knowledge scores in the post evaluation (11.64 $\pm$ 1.27) as compared to pre evaluation levels (2.34 $\pm$ 1.98). It was analyzed by using a paired t test (Figure 2).

Table 2: Knowledge scores: pre evaluation and post evaluation.

	Post e				
Pre evaluation	Low	Medium	High	Very high	Total
Low (≤3.25)	0	0	2	41	43
Medium (3.26 - 6.5)	0	0	0	9	9
High (6.6 - 9.75)	0	0	0	3	3
Very high (9.76 - 13)	0	0	0	1	1
Total	0	0	2	54	56



\* Post evaluation score Vs Pre evaluation (p<0.001) [paired t test].

Figure 2: Health education knowledge scores: pre evaluation and post evaluation.

#### DISCUSSION

Women are considered to be primary caregivers of the sick in the family and the most common to respond to any situation needing first aid (Dr Ruth). Women having less than 15 year children were selected because of the fact that domestic accidents are a common occurrence among children, usually needing first aid. 6 Childhood injuries, mainly accidental injuries are a leading cause of death among children between 5-14 years of age. 10,11 The knowledge of the 140 mothers of children <15 years was assessed with different aspects of knowledge regarding first aid using a scoring system.<sup>8</sup> Previous research work on knowledge of first aid practices among mothers about the management of specific situations is harmful and may interfere with the recovery of the child from injury (Table 3). The maximum possible score was 13 in present knowledge scoring system, which was not attained by any of the subjects. The pre evaluation knowledge score in the 140 women ranged from 0 to 10 was obtained with a mean score of 2.34±1.98 in our present study.

Though a large proportion of the 140 women included in the study expressed a desire to have training on first aid, only 56 women attended the training program on first aid. Their mean pre training (pre evaluation) score was 2.34±1.98 which rose to 11.64±1.27 after four week following training (post evaluation). This increase was significant (p<0.001) thus demonstrating the usefulness of training in improving knowledge regarding first aid. This finding evaluates the importance of training in first aid. The same finding has been documented in other studies where caregivers felt better equipped to handle emergencies after training. <sup>13</sup>

Table 3: Common first aid practices in the study population.<sup>12</sup>

Situation	Practice	
Cuts and bruises	Applying turmeric powder, talcum powder, Coffee powder	
Burns	Applying slice of potato or salt, powder of "expired tablets" (tablets which have passed the date of expiry as stated on their packaging)	
Dog bite	Applying the juice of jack fruit	
Snake bite	Putting heavy weight like a stone on the victims head to prevent the spread of poison, Reciting mantras or religious incantations.	
Seizures	Branding to the child, giving metal keys to hands of the victim	
Foreign body nose	Induce sneezing	
Poisoning	Induce vomiting with salt water/soap water.	
Fractures	Application of white of the egg to immobilize the affected part.	

#### **CONCLUSION**

A highly significant difference was found between pre evaluation and post evaluation knowledge scores among mothers of under 15 years children regarding different aspects of knowledge in first aid. Their mean pre evaluation score was  $2.34\pm1.98$  which rose to  $11.64\pm1.27$  after four week following training (post evaluation), this finding emphasizes the training on first aid can improve knowledge on first aid among women with children <15 years in a rural area. Based on the conclusions drawn from this study done to assess pre and post knowledge regarding first aid, specific training programs in first aid can be designed and administered to various target groups in the rural areas such as parents, care givers, teachers, women in Mahila Mandals, self-help groups, school children, youth groups.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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