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ORIGINAL ARTICLE

A POPULATION BASED SURVEY OF OCCURRENCE OF INJURY & FIRST AID PRACTICE AMONG MOTHERS OF UNDER 15 CHILDREN IN A RURAL AREA OF SOUTH INDIA

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ABSTRACT: BACKGROUND: Children less than 15 years of age are especially vulnerable to the morbidity and mortality resulting from injury. Injuries resulting from accidents are a leading cause of morbidity and mortality in India. **OBJECTIVES:** were to study the occurrence of injuries among families residing in a rural area in Bangalore Urban district of Karnataka state, to document the current treatment practices with respect to the injuries identified **METHODS:** A cross sectional study conducted among 140 mothers of under 15 children in a village of South India. A pretested interview schedule was administered which included socio-demographic details and questions covering practice regarding first aid in various circumstances **RESULTS:** Of the 140 subjects included in the study, 49 (35%) reported a domestic injury occurring in their house hold (either to themselves or to a family members) in the four weeks preceding the survey. There were several misconceptions regarding the management of various emergencies and injuries which could potentially lead to adverse outcomes following injury. **CONCLUSION:** The First Aid practice for management of injuries among women with children <15 years in the study area was poor.

KEYWORDS: First aid, Practice, rural, domestic injuries, under 15 children.

INTRODUCTION: In any community, mother and children comprise a priority group, with children under 15 years comprising nearly 40 % of the total population.[1] Nearly 50 lakh people lost their lives due to injury as per the WHO estimates for 2002; of these, more than one fourth are estimated to occur in the South East Asia Region

Childhood injuries are very common and comprise the base of the injury pyramid for all ages.[2]

Globally, more than 39,000 children per day or 14 million children per year require medical attention for accidental injuries.[3] Childhood injuries, mainly accidental injuries are the leading cause of death among children between 5-14 years of age.[4, 5]

It is ironic that thousands of children saved from nutritional and infectious diseases are killed or maimed by injuries[6]. A study in West Bengal found that the occurrence of accidental injury among children 1 – 12 years was 46.3%.[7]Children living in rural areas have significantly higher rates of hospitalisation due to injuries than those living in urban areas.[7,8]

METHODOLOGY: This was a descriptive study, done among mothers of children aged below 15 years between September 2007 and August 2008 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.

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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.

The interview schedule used in the study of practice had two parts: Part 1 comprised of the demographic details collected at the household. It comprised details of age, number of children and gender distribution, socio economic status using the Standard of Living Index and identification of the head of the family. Part 2 comprised questions on practice regarding First Aid.

A population listing of households in the village was obtained, and those houses which had a mother with youngest child <15 years of age were identified. Following finalization of the schedule, consent was obtained at the community and individual levels and the schedule administered to women who had their youngest child <15 years of age by means of a survey of all identified houses. Houses found locked even after 3 visits were considered non-responders. There were a total of 140 women thus identified and included in the study.

The data was compiled in a MS excel worksheet and analyzed using Epi Info ver 6.

RESULTS: A total of 140 women with their youngest child below 15 years of age participated in the study. Table 1 shows the socio demographic distribution of the study subjects. The age distribution of mothers in the study ranged from 16 to 45 years. Of the 140 women, majority (54.3%) were in the age group of 25 to 34 years. Most mothers (72.9%) were housewives. As assessed by the Standard of Living Index, 65.7% of the study population belonged to the middle socio-economic class.

Characteristic	Frequency N=140	Percent
Age in years		
< 25	54	38.6
25-34	76	54.3
> 35	10	7.1
Occupation		
House wife	102	72.9
Coolie	11	7.9
Agriculture	10	7.1
Power loom	4	2.9
Tailor	7	5.0
Health worker	3	2.1
Shopkeeper	3	2.1
Socio-economic Class		
Upper class	21	15.0
Middle class	92	65.7
Lower class	27	19.3

Table 1: Socio-demographic characteristics of study population

Table 2 shows age and gender distribution of children of mothers in the study population. The total number of children belonging to the study subjects was 251.They were grouped into 2 age

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groups based on their ages. Most of the children (72.1%) were in the age group of 6-15 years. There was no significant difference in the distribution of male and female children in both age-groups.

Age-group	Male (%)	Female (%)	Total (%)
≤ 5yrs	34 (13.5)	36 (14.3)	70 (27.9)
6-15yrs	91 (36.3)	90 (35.9)	181 (72.1)
Total	**125 (49.8)**	**126 (50.2)**	**251 (100)**

Table 2: Age and gender distribution of children of the mothers

Injury	Frequency N=140	Percent
Yes	49	35.0
No	91	65.0
Total	**140**	**100.0**

Table 3: Experience with domestic injuries by the study population in the four weeks preceding the survey

Of the 140 subjects included in the study, 49 (35%) reported a domestic injury occurring in their house hold (either to themselves or to a family members) in the four weeks preceding the survey.

Injury	Frequency N=49	Percent
Cuts with bleeding	36	73.5
Burns	11	22.4
Foreign body nose	1	2
Fractures	1	2
Total	**49**	**100**

Table 4: Profile of the injuries in the study population

-Of the domestic injuries, 36 (73.5%) were cuts with bleeding and 11 (22.4%) were burns.

First Aid administered Immediately	Frequency (N=49)	Percent
Yes	37	75.5
No	12	24.4
Total	**49**	**100.0**

Table 5: First Aid administered by study population immediately following injury

-Among the 49 women who had encountered injury during the past four weeks, 37 (75.5%) administered some form of First Aid immediately at the time of injury.

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Nature of First aid	Frequency N=11	Percent
Coconut oil	2	18.2
Applied burnol	1	9.1
Immersed in cold water	1	9.1
Immersed in cold water and applied burnol	1	9.1
Immersed in cold water& applied calamine	1	9.1
First Aid not given	5	13.9

Table 6: Nature of first aid administered by the study population for burns

-The commonest practice followed for first aid of burns was application of coconut oil.

Response	Frequency	Percent
Correct	25	17.9
Incorrect	115	82.1
Total	**140**	**100.0**

Table 7: Ability to demonstrate giving first aid to a person with bleeding in forearm

- Of the 140 subjects, only 25 (17.9%) were able to demonstrate the right procedure of First Aid to a victim with bleeding in forearm.

The correct answer should have covered all the following Aspects:

- Bring the sides of the wound together with a clean hand & press firmly with a clean cloth.
- Place the casualty in a comfortable position and raise the right hand above the heart level.
- Press the pressure point for 10-15 min until bleeding stop.
- Finally bandage firmly but not too tight & take him to hospital.

Received	Frequency N=140	Percent
Yes	38	27.1
No	102	72.9
Total	**140**	**100.0**

Table 8: First Aid received by subjects for any condition

- Only 38 (27%) of the study population had themselves received First Aid at some time in their lives.

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Performance	Frequency	Percent
Performed	106	75.7
Not Performed	34	24.3
Total	140	100.0

Table 9: First Aid performed by subjects for any condition

- Of the 140 subjects, 106 (75%) had performed First Aid at least on one prior occasion.

Conditions	Frequency	Percent
Burns	87	62.1
Poisoning	4	2.9
Cut wounds	100	71.4
Drowning	3	2.1
Seizure episode	21	15
Animal bite	57	40.7
Others*	11	7.8
Not Performed first aid	34	24.3

Table 10: Conditions in which First Aid was performed by subjects

(Note - Multiple responses given)

- Of the 140 subjects, 100 (71.4%) of the women had given First Aid for cuts and wounds.
- Of the 140 subjects, 87 (62.1%) of the women had given First Aid following burns.

Reported practice	Number N=49	Percentage
No First Aid	12	24.5%
Turmeric, coffee powder for cuts	6	12.2
Potato application for cuts	3	6.1
Eye ointment	1	2.0
Pressure with hand	3	6.1
Talcum powder with coconut oil	4	8.2
Ointment	2	4.1
Washed & applied nebasulf powder	1	2.0
Herbal powder	2	4.1
Pressure with hand & turmeric powder	1	2.0
Washed & applied pressure.	3	6.1

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Cleaned with cloth	3	6.1
Application of coconut oil followed by immersing in cold water, then applying Burnol or Calamine for burns.	6	12.2
Induced sneezing for foreign body nose	1	2.0
Applied egg white to immobilize the fractured limb	1	2.0

Table 11: Reported practice of First Aid among those reporting recent injury in the study Population

Of the 49 women who reported injury, 37 (75.5%) administered immediate First Aid of which application of turmeric powder is the commonest practice. For burns, the commonest First Aid practice was application of coconut oil followed by immersing the wound in cold water then applying burnol or calamine as first aid for burns.

Local First Aid Practices: The common practices for First Aid as assessed by qualitative study are as given in Table 9, grouped by situation:

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.

Table 12: Common First Aid practices in the study population

DISCUSSION: The number of women identified and interviewed was 140 comprising 12.4% of the total population. This is lower compared to the national estimate of the proportion of women in the age group of 15 to 45 years which is estimated at 19%.[9]

This difference could be attributed to the fact that unmarried women and those who did not yet have children were not included in this study.

Injuries in the study Population: It has been seen that among the causes of injury, domestic accidents occupies a prominent position**.** Road traffic accidents are a rarity in rural areas and thus domestic and occupational related accidents are the commonest cause of injury in rural areas.[10]

Among the 140 subjects interviewed, 35% reported a domestic injury (either with self or with a family member) in the four weeks preceding the survey. In a study done to document injury among children in an industrial town ship of West Bengal, domestic injuries were found to be the highest cause contributing to 46.3% of all the injuries reported.[7]

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Profile of the injuries in the study Population: Of the 49 reported domestic injuries, 36(73.5%) were cuts and 11(22.4%) of the domestic injuries were burns. It was found that several studies documented falls causing cuts and abrasions as a common cause of injury in the pediatric age group. These studies further go on to mention that though these injuries are relatively trivial, improper wound management by application of certain topical substances would cause secondary infection, delayed wound healing and even sepsis.[11,12,13]

First Aid practice in the study Population: Of the 49 women who reported injury, 37(75.5%) administered some form of First Aid immediately after the injury.

The commonest practice followed for first aid of a cut with bleeding was the application of turmeric powder. In a study done in Chandigar among high school children regarding minor injuries, 84.6% of the rural children reported application of turmeric powder as a first Aid on a wound with bleeding.[12]

Though this is reported to have wound healing properties, studies also document the application of other topical substances which have the ability to retard healing.[12&14]

One of the practices followed for first aid of burns was application of coconut oil. The rest reported immersing the wound in cold water and then applying burnol or calamine. Other studies have reported the application of a variety of other substances such as tooth paste, butter on burn wounds as a First aid measure. This could result in wound infection and should be avoided.[15]

The practice followed for first aid of a foreign body in the nose was to induce sneezing by using chilli powder or snuff. This is a harmful practice and may lead to further and deeper impaction of the foreign body in the nasal cavity as the person has to inhale deep in while sniffing the chilli powder/ snuff and before sneezing.[16]

For a fracture the first thing done was to take the injured to a traditional healer. This could be harmful as malunion could occur if the fracture were to be improperly treated.[17]

CONCLUSIONS: Among the 140 subjects included in the study, 35% had experienced a domestic injury (either with self or with a family member) in the four weeks preceding the survey, most of which were cuts (73.5%) and burns (22.4%).

75.5% of the study population who experienced injury in the 4 weeks preceding survey administered some form of First Aid immediately at the time of injury. However the practices of first aid were not satisfactory.

The study thus shows that domestic injuries are a common occurrence in rural areas. Practice regarding First Aid for injuries among women with children <15 years in the study area was poor.

Training on First Aid can improve knowledge on First Aid among women with children <15 years in a rural area.

RECOMMENDATIONS: Based on the conclusions drawn from this study done to assess the injury and Practices regarding First Aid among mothers of children less than 15 years in a rural area in Bangalore urban District, the following are recommended:

- To create awareness regarding the problem of domestic injuries and their prevention among the general population, considering the high occurrence of domestic injury.

- Education regarding First Aid to students in schools building by teachers.
- A suitable curriculum in First Aid could be designed and incorporated into the school syllabus.
- To design and implement an education programme on First Aid for the study population.
- 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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