

# Prevalence of Home Accidents among Children Aged 1-4 and Its Association of Knowledge, Attitude and First Aid Practices of Mothers in Sri Lanka

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**Abstract**— Injuries are a leading cause of morbidity and mortality among children worldwide and in Sri Lanka. The objective of this study was to assess the prevalence of home accidents among children aged 1-4 years and its association with knowledge, attitude, and first-aid practices of their mothers in the Medical Officer of Health (MOH) area, Bulathsinhala, Sri Lanka. A community-based descriptive cross-sectional study was carried out among 309 mothers using cluster sampling. Data collected by interviewers using questionnaires were analysed in SPSS version 20. A majority (172, 55.7%) of the children were female. The prevalence of home accidents was 53.7% for three months (95% CI 47.6-59.3). One hundred and ten falls (35.6%, 95% CI 29.9-41.2), 32 (10.4%) cuts, 16 (5.2%) burns, 4 (1.3%) poisonings, 9 (2.9%) chokings, 11 (3.6%) cat/ dog bites, 15 (4.9%) scorpion/ centipede bites and 5 (1.6%) insect bites were reported. First-aid knowledge was good among 40.3% (95% CI=34.3-45.0) mothers, and the attitudes and practices were satisfactory. History of any type of home accident was not associated with overall first aid knowledge ( $\chi^2=0.045$ ,  $p=.907$ ). There was a significant association of a history of animal bites with overall first aid knowledge ( $\chi^2=4.456$ ,  $p=.046$ ) and with specific knowledge on animal bites ( $\chi^2=8.762$ ,  $p=.003$ ). Educating mothers and caregivers about first-aid and further research on risk factors for home accidents and factors affecting the first-aid competency of mothers is recommended.

**Keywords:** *injury, children, knowledge, attitude, practice*

## I. INTRODUCTION

First aid is “immediate help provided to a sick or injured person until professional help arrives”. It is concerned not only with physical injury or illness but

also with other initial care, including psychosocial support for people suffering from emotional distress from experiencing or witnessing traumatic events (IFRC, 2016). Early administration of suitable life saving measures and stabilizing measures in injuries save lives, prevent disabilities and reduce suffering.

Injury is defined as “a body lesion at organic level, resulting from an acute exposure to energy (mechanical, thermal, electrical, chemical or radiant) in amounts that exceed the threshold of physiological tolerance. In some cases (e.g. drowning, strangulation, freezing) the injury results from an insufficiency of a vital element” (Baker, 1984).

Injuries can be categorized in a number of ways. Intentional injuries are those due to violence and due to self-inflicted injuries. Unintentional injuries are categorized according to mechanism of injury (drowning, burns, falls, poisoning) and place of injury (road traffic accident, home injury, occupational injury, leisure injury).

According to Backet (1965) home accidents are “accidents that take place in and around the house. The home includes the dwelling unit itself, the garden, the yard, the garage and all that is personal to the household”.

Even though injuries can take place in a wide variety of environments, home is the most likely location for accidents involving children less than five years. Domestic accidents reflect more clearly than any other, the character and lifestyle of people (Lafta et al., 2013).

Injuries are a leading cause of death, hospitalization and disability throughout the world accounting for nine percent of all deaths and 16% of all disability annually. Over 875,000 children less than 18 years



An Interviewer Administered Questionnaire with close-ended questions constructed according to the objectives was used to collect data after pretesting. Four pre-intern doctors were recruited and trained as data collectors. Permission was obtained from relevant authorities. Proper research ethics was followed including obtaining written informed voluntary consent. Ethical clearance to conduct this study was granted by Ethics Review Committee, Faculty of Medicine, University of Colombo.

After the basic data of the child, the mothers were asked if the index child had each of the home accidents during the previous three months. In the affirmative only, they were asked about the action that was taken. Next, the knowledge about each home accident was assessed. The knowledge question was asked after their practice so that their answer would not be affected by the knowledge question. They were asked about falls, cut injuries, burns and scalds, animal, snake and centipede/scorpion bites, bee/ wasp stings, poisoning, choking and drowning.

Each knowledge question had “yes”, “no” and “don’t know” as responses. Each correct answer was given +1 mark, each incorrect answer was given -1 mark and “do not know” answer was given zero mark. Final mark for each question was the algebraic sum of marks of its statements. Negative marks were not carried over. Final score was converted into hundred. Seventy or more out of hundred marks were considered good knowledge. Attitudes were measured according to a Likert Scale. “Strongly agree” was given +2, “agree” +1, and “do not agree” zero marks. Then total marks were converted into hundred. Seventy or more marks were considered as having good attitude. Practices of first aid were analysed as correct or incorrect. The correct and incorrect first aid practices were summarized with numbers and percentages.

### III. RESULTS

Although the calculated sample size was 340, only 309 mothers participated making the response rate 90.1%. Majority (172, 55.7%) of the children were female.

The prevalence of home accidents in the studied sample was 53.7% with 95% Confidence Interval (CI) being 47.6%-59.3% (Table 1). Commonest injuries were falls (35.6%) followed by cuts (10.4%) and burns (5.2%). There were no snake bites in the

studied population. The least prevalent home accident was drowning (0.3%).

Table 1: Prevalence of home accidents by type

Type of home accident	No. (%)	95% CI
Falls	110 (35.6)	29.9-41.2
Cut injury	32 (10.4)	7.5-13.7
Burns	16 (5.2)	2.9-7.8
Poisoning	4 (1.3)	0.0-2.7
Choking	9 (2.9)	1.3-4.6
Drowning	1 (0.3)	0.0-1.0
Dog/ cat bites	11 (3.6)	1.6-5.9
Snake bites	0 (0)	
Scorpion/ centipede sting	15 (4.9)	2.6-7.6
Insect bites	5 (1.6)	0.3-3.2
Any home accident	166 (53.7)	47.6-59.3

All the participated mothers of children aged 1-4 years had good attitudes towards first aid for home accidents.

Knowledge of all the mothers, irrespective of recent history of home accident, was assessed. Majority of the mothers knew the correct first aid measures for falls (97.4%), drowning (71.8%) and for choking (64.1%). But, only a minority of mothers had good knowledge on first aid measures for cuts (27.5%), burns (22.3%), insect stings (10.3%), snake bites (11.7%), dog/ cat bites (10%) and scorpion stings (7.7%). Overall level of first aid knowledge (minimum of 70% of knowledge level) was 40.3% (95% CI 34.3-45.0) [Table 2].

Table 2: Level of first-aid knowledge on home accidents among the mothers

Type of home accident	Good knowledge	95% CI
Falls	301 (97.4)	95.1-99.0
Cut injuries	85 (27.5)	22.6-31.6
Burns	69 (22.3)	17.3-26.6
Dog/ cat bites	31 (10)	6.9-13.6
Snake bites	36 (11.7)	7.9-14.9
Scorpion stings	24 (7.7)	4.9-10.9
Insect stings	32 (10.3)	6.9-14.2
Choking	198 (64.1)	58.7-69.2

Drowning	222 (71.8)	65.8-77.0
Overall knowledge	123 (40.3)	34.3-45.0

Out of those who reported recent home accidents, commonly practiced first aid measure by mothers following a fall was talk to the child (87 of 110, 79.1%). For burns, commonly practiced first aid measure was rinsing burn site with tap water (15 of 16, 93.8%). Only 2 out of 16 (12.5%) punctured blisters following burns, which is a wrong practice. Regarding burns, the majority applied ointment to the site (14, 87.5%). All the participated mothers, whose child got a cut, washed wound as a first aid measure (100%), while a majority also dressed the wound (31 of 32, 96.9%).

All the participants who had experienced poisoning of the child took the bottle of poison to the hospital and all of them induced vomiting. All the mothers who experienced drowning of the child called for help, talked to the child and checked for breathing. None of them practiced chest compression or rescue breathing. All the mothers of children who experienced animal bites rinsed the wound with soap and water and avoided dressing it, which is desirable. Only 9 out of 11 (81.8%) identified and observed the animal.

Table 3: Association of first-aid knowledge with a history of home accident

History of ...		Knowledge		Total	$\chi^2, p$
		Poor	Good		
any home accident	Yes	67	96	163	0.767, 0.815
	No	56	86	142	
falls	Yes	58	50	108	0.116, 0.143
	No	124	73	197	
cuts	Yes	18	12	30	0.969, 1.000
	No	164	111	275	
burns	Yes	11	5	16	0.578, 0.447
	No	171	118	289	
any animal attack (dog, scorpion, insect)	Yes	12	17	29	4.456, 0.045
	No	170	106	276	

Recent history of none of the home accidents was associated significantly with knowledge on first aid practices of their mothers except for the children

who had a history of animal attacks. Over half (58.6%) who had recent animal attacks had good knowledge while only about one-third (38.4%) who did not have a recent animal attack had good knowledge ( $\chi^2 = 4.456, d.f= 1, p= .046$ ).

#### IV. DISCUSSION

The prevalence of home accidents among children aged 1-4 years was 53.7% for three months (95% CI 47.6%-59.3%). In rural Egypt, El-Sabely and others (2014) reported a point prevalence of 84.7% home accidents among preschool children. A more recent study in Saudi Arabia reported a 56.1% past history of drowning, choking or burn injuries (Habeeb & Alarfaj, 2020). In Sri Lanka, the incidence of unintentional injuries was 28.1% in MOH area, Kolonnawa, in the same age group (Punyadasa, 2012). This high value in present study may be due to the differences in two study settings where Kolonnawa is an urban area and Bulathsinhala a rural area.

The most prevalent home accident in the present study was falls (35.6%) followed by cuts (10.4%). But, this differs from Kamel and others' study (2014) where the most prevalent home accident was cuts (48%) followed by falls (36%). This difference is due to difference in working definition of variables. For example, in our study, fall is considered as an event which caused injury by falling from a height and from slipping.

Overall first aid knowledge in the current study was 40.3% (95% CI 34.3%-45.0%) which is not satisfactory. A study in rural Egypt also described poor first aid knowledge among mothers regarding home accidents (Eldosoky, 2012). This may be due to low socioeconomic status in rural areas. Also, the rural mothers have limited access to rapid resources of new knowledge such as internet. Sometimes grassroot level healthcare personnel who deliver health massages to door steps are vacant in rural areas. A study in a metropolitan area in Thaiwan indicated good knowledge of first aid among parents, as 72% (Wei et al., 2013). In a study regarding first aid knowledge on choking, burns and drowning, the knowledge was high in only 6% and moderate in 55% and was significantly high in fathers than mothers, among the higher educated and salaried and employed mothers (Habeeb & Alarfaj, 2020). In a hospital based study on first aid knowledge on burns in Lahore, Pakistan, only 4.5% had good knowledge which was significantly associated with their past experience, educational and economic

level (Naumeri et al, 2019). First aid training in the past year was significantly (OR=3.32) associated with knowledge on burn injuries in Australia (Burgess et al, 2019). In our study, 40.3% had good knowledge while association with socio-demographic factors were not assessed.

In our study, all the mothers had good attitude towards first aid as in another study (Goniewicz et al., 2002). Practices following different injuries were satisfactory. In the study of Naumeri and others (2019), only 13.2% had irrigated the burn area with tap water. In our study, 15 out of 16 mothers who reported a burn injury had done so. This figure as 94% in Australia (Burgess et al, 2019).

This research provides baseline information to policy makers in planning and implementing services to reduce the burden of child injuries. This can be achieved through reducing home accidents and conducting first aid training for first contact persons; parents, in home accidents.

The low level of first aid knowledge among mothers indicates the need to improve knowledge. Therefore, programmes should be implemented to improve mothers' knowledge on first aid.

All the studied mothers have good attitudes towards first aid. This is important in implementing first aid training programmes to mothers. Good attitudes enhance their participation in training programmes and practicing first aid not only at home, even outside home and not only to their children but also to others' children as well.

As there is no association between exposure to any type of home accident and first aid knowledge, it is important to improve knowledge through routine measures such as workshops and seminars.

## V. CONCLUSION

Over half (53.7%, 95% CI=47.6-59.5) of children aged 1-4 years in Bulathsinhala area had experienced home accidents during a period of three months. The knowledge of their mothers on first aid for home accidents was low, while attitudes were good.

As there was only one significant association between prevalence of any type of home accident and first aid knowledge, first aid training programmes are recommended to be carried out to mothers in general. Further research is recommended to find out risk factors for home accidents and socio-demographic factors

associated with first aid knowledge, attitude and practices among mothers.

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