A Study on Home Safety Practices to Prevent Childhood Injuries Among Mothers

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ABSTRACT

Introduction: Most unintentional injuries in children occur at home and many are preventable. Mothers and family's role in injury prevention is very important. We intended to study the role of home safety practices in prevention of childhood injuries.

Methods: This descriptive cross-sectional study was done using a questionnaire. Mothers of children aged one to five years were assessed about home safety practices to prevent childhood injuries. Questionnaire included personal data about the participants such as age, occupation, education, family size and number of children. Safety practices followed by mothers to prevent six types of injuries namely burn, cut, fall, drowning, poisoning and choking were noted.

Results: Of the 150 mothers interviewed, 104 were aged below 30 years, 88 were educated up to high school and 130 were housewives. Thirty mothers reported some kind of injury sustained by their children, of which twenty-one were falls. Among precautionary measures mother – behaviour safety initiatives e.g. checking the hot water temperature (88%) or not leaving child alone (92%) got better responses than passive or environmental modifications e.g. using electrical – outlet protection (44%), staircase gates (52%). Overall safety practices were reasonably good with the majority scoring above 50%. Age, education, number of children, occupation of the mother, child age and history of injury did not correlate with the level of safety practices.

Conclusions: Mothers' home safety practices to prevent childhood injuries were relatively better in majority of the study population. Mother's age, educational level, occupation, number of children, child's age and history of injury did not affect how mother and her family practiced safety measures.

Keywords: Childhood; Injury; Mother; Safety practices

INTRODUCTION

Childhood injury is a significant public health problem in terms of morbidity, mortality and lifelong disability. Children's characteristics make them more vulnerable for injuries.[1,2] According to a report by UNICEF Innocenti Research Centre; injury is the second most common cause of death in children below five years of age.[3] The prevalence of unintentional injuries among under five children varies from region to region; One South Indian study[4] showed 39% whereas a study from Nepal[5] showed 33% prevalence. Injuries in children vary from motor car accidents to falls, burns, poisoning, drowning, choking and violence.[6] Most unintentional injuries in children occur at home, due to the long duration spent at home, especially in small children and the numerous potential hazards being present at home.[7] Maternal stress and education are other indirect factors of paediatric unintentional domestic injuries.[8] Many of the childhood injuries are preventable which can be prevented by mother and the family. This study thus aims for the evaluation of mother's and family practices in the aspect of prevention of childhood unintentional injuries.

METHODS

This descriptive cross sectional study was done using a questionnaire. Mothers of children aged one to five years were assessed about home safety practices to prevent childhood injuries, when they attended the Paediatric outpatient and inpatient Departments of Fr. Muller Medical College Hospital, Mangalore, India. Mothers of children aged less than one year or more than five years, those unwilling to participate and with psychiatric illness were excluded. Sample size was estimated to be 130, using the formula $Z\ \alpha^2 p\ (1-p)/\ e^2$ where $Z\ \alpha = 1.96$ @ 95% CI, p = 31.6% [9], e = 8% allowable error. Rounding off, one hundred and fifty mothers were included in the study. Simple random sampling technique was used. Study duration was two months. Data were collected utilising a specifically designed structured questionnaire, based on available literature on this subject[10] after validating with a senior paediatrician. The questionnaire was made in English as well as in the local language. The questionnaire also included personal data about the participants like age, occupation, education, family size and number of children. Safety practices followed by mothers to prevent six different types of injuries namely burn, cut, fall, drowning, poisoning and choking were noted down. Informed consent was obtained from the mothers after assuring complete confidentiality. Participants were informed of the aims of the study which were to ascertain what were and were not safety practices in their home environment with respect to prevention of childhood injuries. They were also told that the researcher did not expect them to practise all the safety measures covered in the study. Good practice response was given a score of 1 and wrong practice was given a 0 score. Institutional ethical committee approved the study. The collected data were tabulated and analysed statistically using frequency, percentage and Chi-square test.

RESULTS

A total of 150 mothers were interviewed. Demographic characteristics of the study participants are shown in Table 1.

Table 1. Demographic characteristics (n = 150)
dimensions (cm)

Characteristic	Number (%)
Mother's age	
< 20 years	01 (0.7)
20 - 30 years	103 (68.7)
> 30 years	46 (30.6)
Mother's education	
Primary	31 (20.7)
High school	88 (58.7)
Degree	26 (17.3)
Post graduate	05 (03.3)
Mother's occupation	
Housewife	130 (86.7)
Working	20 (13.3)
Number of children	
1	36 (24.0)
2	69 (46.0)
More than 2	45 (30.0)
Child's age	
1 - < 2 years	62 (41.3)
2 - 5 years	88 (58.7)
History of injury	
Yes	30 (20.0)
No	120 (80.0)

Table 2. Safety practices and mothers' responses

	Questions on practice	Wrong practice	Right practice	NA
Burn	1. Safety plugs on electrical outlets	84 (56.0)	66 (44.0)	
	2. Check hot water temp before bath	18 (12.0)	132 (88.0)	
	3. Drink hot beverages with child on lap	42 (28.0)	108 (72.0)	
	4. Carry hot food when child is nearby	08 (05.3)	142 (94.7)	
	5. Turn handles of vessels to back of stove	85 (56.7)	65 (43.3)	
Cut	6. Keep sharp objects out of reach of child	32 (21.3)	118 (78.7)	
	7. Leave child alone in a room with breakable objects	12 (08.0)	138 (92.0)	
	8. Avoid children carrying breakables	57 (38.0)	93 (62.0)	
	9. Garbage can out of reach of child	37 (24.7)	113 (75.3)	
Fall	10. Safety railing for high bed	85 (56.7)	64 (42.7)	01 (0.7)
	11. Safety gates on the stairs	65 (43.3)	78 (52.0)	07 (4.7)
	12. Keep child alone on a table top	19 (12.7)	131 (87.3)	
	13. Allow child sit on countertop while cooking	17 (11.3)	133 (88.7)	
	14. Have anything around that child could climb & fall off	34 (22.7)	116 (77.3)	
	15. Allow to climb stairs unattended	39 (26.0)	105 (70.0)	06 (4.0)
	15. Balconies are protected (if lives in flat)	25 (16.7)	70 (46.7)	55 (36.7)
Drowning	17. Empty water buckets after use	37 (24.7)	113 (75.3)	
	18. Leave child alone having bath	05 (03.3)	145 (96.7)	
	19. Leave child alone near pool, lake, well or on beach	05 (03.3)	145 (96.7)	
	20. Let child play in bucket full of water, alone	10 (06.7)	140 (93.3)	
	21. Keep toilet lids closed / bathroom door closed	40 (26.7)	110 (73.3)	
Poisoning	22. Store medications out of reach of child	17 (11.3)	133 (88.7)	
	23. Store phenol etc. out of child's reach	17 (11.3)	133 (88.7)	
	24. Have poisonous plants around	16 (10.7)	134 (89.7)	
Choking	25. Keep child away from toys that have small pieces	40 (26.7)	110 (73.3)	
	26. Keep plastic bags out of child's reach	52 (34.7)	98 (65.3)	

Thirty mothers reported some kind of injury sustained by their children, of which fall from the bed topped the list. Twenty-one were falls, four were consumption of kerosene / floor cleaner, three were thermal (hot water / tea, bike silencer) injury, one was electric shock and one was cut injury. Among precautionary measures (Table 2) mother – behaviour safety initiatives e.g. checking the hot water temperature (88%) or not leaving the child alone (92%) got better responses than passive or environmental modifications e.g. using electrical – outlet protection (44%), staircase gates (52%).

Table 3. Overall safety practices

Practice -performance	Frequency (%)
Poor (< 50% right practice)	04 (02.7)
Moderate (50 - 75%)	68 (45.3)
Good (> 75%)	78 (52.0)
Total	150 (100.0)

Overall safety practices were reasonably good (Table 3) with majority scoring above 50%. Age, education, number of children, occupation of the mother, child age and history of injury did not correlate with the level of safety practices (Table 4).

DISCUSSION

Injury is defined as any unintentional damage to any part of the body.[1] Children are prone to injuries and most of those injuries are accidental. There are many contributing factors and some of them are preventable. As younger children spend most of the time at home, mothers' role in injury prevention is vital. In this background, the present study becomes important as it evaluates mothers' practices in preventing different types of injuries. Our study population comprised of relatively young mothers (69.4% below 30 years), reasonably educated and more than 85% were staying at home. This increases the strength of our study as majority were

Table 4. Correlation of demographic characteristics of mothers with levels of practice

Characteristics	Overall practice						
	Poor practice		Moderate practice		Good practice		Chi square/ Fishers exact test
	Count	Row %	Count	Row %	Count	Row %	p-value
Mother's age							0.811
< 20 years	0	0.0	0	0.0	01	100.0	
20 - 30 years	03	02.9	49	47.6	51	49.5	
> 30 years	0	0.0	19	42.2	26	57.8	
Mother's education							0.222
Primary	01	03.3	14	46.7	15	50.0	
High school	01	01.1	42	47.7	45	51.1	
Degree	0	0.0	11	42.3	15	57.7	
Post graduate	01	20.0	01	20.0	03	60.0	
Number of children							0.294
1	01	02.9	16	45.7	18	51.4	
2	01	01.4	36	52.2	32	46.4	
More than 2	01	02.2	16	35.6	28	62.2	
Mother's occupation							0.209
Housewife	02	01.6	62	48.1	65.0	50.4	
Working	01	05.0	06	30.0	13.0	65.0	
Child's age							0.209
1 - < 2 years	02	03.2	23.0	37.1	37	59.7	
2 - 5 years	01	01.1	45.0	51.7	41	47.1	
History of injury							0.254
Yes	02	06.7	14	46.7	14	46.7	
No	01	0.8	15	45.4	64	53.8	

with their kids at home, responsible for injury prevention.

Thirty mothers reported some kind of injury sustained by their children, fall from height topping the list. However, there was no report of any permanent disability due to injury. Falls were common causes of injury in other studies.[1] In a survey done in Central India,[11] accidental injuries due to non fatal falls at home had an incidence of 7.8%. Morrongiello BA *et al* states that more than four million pre-schoolers are injured yearly, mostly in their homes.[10]

Regarding precautionary measures taken by parents about injury risks at home, some parents had better responses than others. Of course there was no expectation that any parent will take all precautions listed in the questionnaire. In passive surveillance for childhood injuries trivial injuries may not get reported.[12] There are considerable variations in mothers' practices. The measures at mother's level like checking hot water temperature, not leaving child alone, storing medications out of reach etc. got better responses. Using safety plugs on electrical outlets, safety railing for high bed, safety gates on the stairs had lesser responses. Possibly, some of them involve additional cost for modifications or are not in their hands. It is also possibly related to lack of awareness amongst the parents. It may also imply mothers or family's perception that burns and drowning are more serious than preventing falls. Some may even think that falling is natural during development.[13]

Overall safety practices were good in our study, though there is scope for improvement. Majority scored more than 50%. When level of safety practices was correlated with age, education, number of children, occupation of the mother, child age and history of injury, none of them significantly correlated. However, a study by Ray K et al. found

correlation with mother's education and number of children.[1] We cannot know how accurately mothers reported on safety practices. However, mothers were told clearly in the beginning that they need not say yes for all good practices and that was not the intention of the study. Furthermore, we cannot be complacent about the findings of this study. There are lacunas and outcomes can be catastrophic. Better health education on safety measures is needed to prevent injuries and to improve the standards and quality of life of children. There are studies, which have shown significant improvements in mothers' knowledge after educational sessions.[14]

CONCLUSIONS

Mothers' home safety practices to prevent childhood injuries were relatively good in our study population. However, there is a need of ongoing education and vigilance from families in order to prevent or alleviate childhood injuries. Mother's age, educational level, occupation, number of children, child's age and history of injury did not affect how our parents adopt practices to prevent injuries in children.

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