

Parental Adherence to Prevent Unintentional Home Injuries among Children in a Community of Bhaktapur, Nepal

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ABSTRACT

Background: Unintentional injuries are the serious worldwide public health problem directing to mortality, morbidity, disability, economic stress to health care system and household level. Curious nature of children to learn new skills around the home premises can be harmful sometime. Household injuries are often fatal but are preventable. The study was conducted to analyse the level of parental adherence to prevent unintentional injuries among under five children and its association between independent variables.

Methods: An analytical cross sectional research design was conducted in Madhyapur Thimi Municipality, Bode-8, Bhaktapur, Nepal among 220 parents. Data was collected in August 2021 by using non-probability purposive sampling technique. A semi-structured questionnaire was self developed, it was pretested and was used for data collection.

Results: The study suggests that majority (65.9%) of the respondents had more level of adherence and 34.1% had less level of adherence regarding unintentional injury prevention. Level of parental adherence was significantly associated with religion ($p=0.048$), number of siblings ($p=0.045$), number of floors ($p=0.047$) and number of rooms in the house ($p=0.046$).

Conclusion: The study concludes that parents were able to maintain more level of adherence regarding injury prevention among children. Parental experience on injuries helps to prevent its occurrence in the future.

Keywords: Under-five children, unintentional injury prevention, parents, parental adherence

INTRODUCTION

Unintentional injuries are the serious worldwide public health problem directing to mortality, morbidity, disability, economic stress to health care system and household level, significant psychological impact on the child and family members with numerous adverse consequences.¹ Children are fragile and helpless, who enters this world built by adults.^{3,4} Eventhough home is the safe place for children accidents happens within its premises too.⁴ Common accidents in the home are fires and burns, suffocation, choking, poisoning, drowning, falls, cuts and lacerations.⁴⁻⁶

Each day around the world, more than 2000 families loss their child due to an unintentional injuries.⁷ Accidents are more commin in pre-school children because of their curious nature and increased kinetic capacities than before.⁴ In comparison to Western world injuries to children occurs three times more in Nepal.⁸ Studies have shown that caregivers adequate supervision, experience, education helps to prevent home accidents.^{4,9,10}

The objective of the study was to analyse the level of parental adherence to prevent unintentional home injuries among children and to find out the association of the parental adherence to prevent unintentional home injuries with selected variables. In this study unintentional injuries refers to accidental injuries in home like fall, poisoning, burn, suffocation and drowning that threatens the life of one to five years of age children.

METHODS

An analytical cross sectional study was done in Madhyapur Thimi municipality Bode, ward number eight which is situated in Bhaktapur district, in eastern part of Kathmandu valley in the month of August, 2021. Non- probability purposive sampling technique was used. The sample was analyzed by taking $p=61\%$ ¹¹ with 5% non-response rate. The inclusion criteria were primary care giver of under five children willing to participate and primary care giver of children less than one year were excluded. The data were collected by using purposive sampling technique.

Interview method was adopted by using self-developed

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semi-structured interview schedule. The questionnaire consists of two parts, first part consists of eight questions on socio-demographic information of parents, seven questions on information related to children and four questions on information related to house. Second part consists of 21 questions on preventive measures related to unintentional injuries at home on falls, burns, poisoning, drowning and suffocations. Parental preventive measures related to unintentional injuries were asked by using the statement "Do you (precautions items) or Are your (precautions item) or 'Does your child (precautions item)?" to the parents. Answers for each questions were scored as: three for yes, two for sometimes and one for no. Pre-testing was done in 5% of the total sample size in ward number nine of Madhyapur Thimi municipality.

The data collected were coded and entered in statistical package for social science (SPSS) IBM, NY20 version program for analysis. Descriptive statistics of quantitative data was presented by frequency, percentage, mean and standard deviation. Chi square and fisher's exact test, were used to measure the association between level of awareness and selected variables. The probability (p-value) of less than 0.05 was considered statistically significant. Ethical approval was taken from institutional review committee (IRC) of Yeti Health Science Academy (YHSA). Informed written consent was obtained from informant and participation was voluntary. Anonymity

and confidentiality of the participants were maintained.

RESULTS

The sample of the study was 220. The maximum (73.2%) of the informant were of the age less than 40 years with mean age of 33.13 (SD=8.149). Of them maximum (52.7%) were female with ethnicity Brahmin (133, 60.5%). Additionally, 76.8% were Hindu, 38.6% having primary educational level. Among the respondent, majority 41.8% were of housewife living in joint family (50.9%). Similarly, maximum (40%) of the family had annual income of the family of NPR. 30000-45000.

In the child related information, more than half (63.2%) of the children were between the age 1-3 years. Also, in the gender 52.7% were boy having one sibling as the highest (51.45%). Nearly half (50.5%) the children had a previous history of fall in the home environment. There was surprising preponderance (98.2%) of receiving medical treatment in case of injury. An appreciable amount (53.6%) for providing care to the children was the mother alone.

Nearly half (42.3%) of the parents reside in the house of two floors having staircase. Greatest number (94.5%) of the respondent had no water pooling area around the residence.

Parental precautions to prevent unintentional injuries have been shown in **Table 1**.

Table 1: Adherence to Prevent Unintentional Home Injuries among Children (n=220)

Injury	Precautions	Yes (%)	Sometimes (%)	No (%)
Falls	leave your baby unaccompanied at home?	21(9.54)	98(44.54)	101(45.90)
	keep your child unattended on bench, chair, or couch, for even a second?	23(10.45)	99(45)	98(44.54)
	operable window guards in place?	203(92.27)	3(1.36)	14(6.36)
	put down the baby in a baby walker?	58(26.36)	47(21.36)	115(52.27)
	allow your child to climb the staircase unattended?	66(30)	73(33.18)	81(36.81)
Burns	anyone in your home ever smoke inside the house?	62(28.18)	32(14.45)	126(57.27)
	drinking or carrying hot liquids when holding your baby?	26(11.81)	101(45.90)	93(42.27)
	you use wood burning stoves or gas heater or oil stove in presence of child?	32(14.54)	17(7.72)	171(77.72)
	put electronic devices and cable away from the reach of children?	198(90)	6(2.72)	16(7.27)
	use electrical outlet safety covers?	194(88.18)	2(0.9)	24(10.9)
Poisoning	place match box and pocket lighter away from the reach of children?	200(90.9)	10(4.54)	10(4.54)
	read label before giving drugs to child?	203 (92.27)	14 (6.36)	3 (1.36)
	dispose old medicines?	210 (95.45)	4 (1.81)	6 (2.72)
Drowning	store medications, detergent, phenol, petrol out of the child's reach?	201 (91.36)	8 (3.63)	11 (5)
	keep your child alone around water sources or bathroom even for second?	9 (4.09)	52 (23.63)	159 (72.27)
	let your child play with water alone?	10 (4.54)	37 (16.81)	173 (78.63)
	empty all water buckets immediately after use?	177 (80.45)	29 (13.18)	14 (6.36)
Suffocation	permit your child swim unsupervised?	12 (5.45)	14 (6.36)	194(88.18)
	child hang a pacifier or wear neck chain?	39 (17.72)	30 (13.63)	151 (68.63)
	child plays with beads, or nuts?	19 (8.63)	87 (39.54)	114 (51.81)
	keep plastic bags away from child reach?	141 (64.09)	50 (22.72)	29 (13.18)

Table 2 represents the level of parental adherence. Majority (65.9%) of the parents had more level of parental adherence. Level of parental adherence was calculated by using mean percentage score as cut off value. Thus, the value more than 43% was considered as more level of adherence and value less than 42% was considered as less level of adherence.

Table 2: Level of parental adherence (n=220)

Level of adherence	Frequency	Percentage
Less level of parental adherence (<43%)	75	34.1
More level of parental adherence (>43%)	145	65.9
Total	220	100.0

Table 3 shows the relation between level of parental adherence with sociodemographic information of the parents where religion has been found to be significantly associated with level of parental adherence to prevent unintentional injuries.

Table 3: Association between level of parental adherence to prevent unintentional injuries and socio demographic information of the parents

Variables	Level of parental adherence	p-Value
	Less	
Age **		
<30	36	65
30-50	36	69
>50	3	11
Gender *		
Male	42	62
Female	33	83
Ethnicity*		
Brahmin/Chhetri	31	49
Others (Janajati, Muslim, Madhesi, Dalit)	44	96
Religion**		
Hinduism	58	98
Buddhism	2	18
Others (Christian, Islam)	15	29
Educational level *		
Illiterate	12	12
Primary educational level	34	15
Secondary educational level	19	56
Higher educational level	10	26
Occupation *		
Housewife	17	44
Teacher	6	13
Others (farmer, labor worker)	52	88
Types of family *		
Nuclear/Single	40	68
Joint	35	77

*Chi-square test, ** Fisher Exact Test

Table 4 depicts the level of parental adherence to prevent unintentional injuries with the sociodemographic information of the children. The numbers of siblings was significantly associated with the level of parental adherence to prevent unintentional injuries.

Table 4 : Association between level of parental adherence to prevent unintentional injuries and socio demographic information of the children

Variable	Level of parental adherence		p-value
	Less	More	
Age of child *			
1-3 years	28	53	0.9
3-5 years	47	92	
Gender *			
Boy	38	78	0.660
Girl	37	67	
Number of siblings **			
One	35	78	0.045
Two	36	48	
Three	4	19	
Previous childhood injury**			
Cuts	28	40	0.077
Fall	36	75	
Burn	5	24	
Others (Suffocation, poisoning, drowning)	6	6	
Medical Treatment **			
Received	73	143	0.607
Not-received	2	2	
Care giver of children *			
Mother alone	39	79	0.726
Mother with others	36	66	

* Chi-square test

** Fisher Exact Test

In **Table 5** parental adherence to prevent unintentional injuries and information related to the structure of the house has been shown. In this floors of house and number of rooms in house was significantly associated with the level of parental adherence.

DISCUSSION

Children are prone to get accidental injuries which are often preventable.¹² Children less than five years spend more time inside their house yet they are more susceptible to environmental risks for injury due to their curious and desire to master news skills.^{4, 13}

The study population consists of the mother of age group less than 40 years, which is similar to others.¹⁴⁻¹⁶ Major occupation of the women in this study is housewife similar to the finding of other literature.^{5, 10} Mother's role is indicated as chief in preventing injuries at home as young children spend most of the time indoor.^{11, 12} A lot of working women are blamed for not attending to the needs of their children leading to frequent occurrence of the domestic accidents.¹⁰ There is higher prevalence of accident

Table 5: Association between Parental Adherence to prevent Unintentional Injuries and Information related to the structure of the house.

Variables	Level of parental adherence		p-Value
	Less	More	
No. of Floor *			
1	20	25	0.047
2	35	58	
3 and more	20	62	
No. of Rooms*			
1-4	20	24	0.046
5-8	32	53	
9-12	23	68	
Presence of staircase *			
Yes	55	120	0.101
No	20	25	
Water pooling **			
Present	5	7	0.548
Absent	70	138	
* Chi-square test		** Fisher Exact Test	

in the under five in working mother as she spend less time in home to take care of her children during her working hours and also leave the children at home for job.¹³

Present study reported fall as the major previous childhood injuries as in other studies^{1,13} which had received medical treatment suggesting it as dangerous mode of injury-producing accidents for children under five. In fact, this might be only because accidents treated in a medical institution are more easily recalled as suggested by other literature.¹³ In contrast to this, wound was the major type followed by fall in the study done at Egypt¹⁴ which prevalence is second highest in our study. Major cause of injury for hospital admission from birth to six years of age is falls.¹⁵

Majority of the accidents episodes occurred in males as similar to other studies^{4,10} Joint family was prevalent as similar to finding of other studies^{5,10} whereas nuclear family was common in others.^{4,13,16} In this study maximum children had only one sibling similar to the study done in India.¹⁰ Increase in the number of siblings increases the risk for injury as mother spends less time to look after them.¹⁷

Findings of this study shows that the type of structure of house influences the home accident prevention. Majority of the houses had two-stored building with room number ranging from eight to twelve, which might have increased the risk of fall.¹⁷ There was no any water pooling area around the resident and water storage tanks were covered by lids.

The common parental practice for preventing childhood injuries, for the prevention of fall injury, majority of the family never left children alone in the home, allowed the child to climb the staircase unattended, place infant in the walker and had operable guards in the window. Liter-

ature had shown that falling of children from furniture and staircase are the common causes of fall injuries. Head injuries were common to those children who had fallen from staircase, whereas upper- extremity injuries were common to those who had fallen from furniture.¹⁸ Installation of the safety equipment's in the stairs, windows, bathrooms are the safety precautions to prevent falls, also not using baby walkers or modifying the product has been recommended for preventing falls.¹⁹

Scald burn and contact burn were the major type of burns injury present in the under five children.^{20,21} Pulling of the hot beverages and hot food was the frequent cause of scald burn.²⁰ Most of the respondents in this study had recounted drinking of hot liquid while holding the baby which is regarded as the burn safety rule in other studies.^{21,22} As smoking increase the risk for fire²¹ nobody in the family of the respondent smoked inside the house. Respondent had stored matchboxes away from the reach of the child as in other study.⁴ Storage of the matches or lighter and electrical appliances and wires out of the reach of children, is being practiced by the parents in this study, which is recommended for preventing thermal injury.¹⁹

Respondent in this study had never left the child alone in the water storing area, or allowed child for swimming alone, empty the water bucket after used. This finding is supported by the study where, close supervision is essential all the time in or near water. Fencing the four side of the pool, removing or covering water hazards are recommended to prevent drowning.¹⁹

Another repeated and major cause of emergency admissions and long-lasting disability is non-fatal poisonings.¹⁹ Reading the level of the drugs, disposing old medication and storing medications away from the reach of the children were precautions practiced to prevent poisoning in this study. Parents kept medicines and household cleaners out of children as practiced on other study.²² Strategies to prevent poisoning were removing the toxic agent, implementing rules for packing child-resistant medicine and poisons packing, drugs packaging in safer amount, initiating poison control centers and keeping medicine away from children.^{2,19}

In our study, plastic bags and balloons were kept away from the children by their parents, which is a precaution methods practiced to prevent suffocation.²² Edible foods in small, round or cylindrical in shape (e.g. peanuts, seeds and hard candy) conforming to the contours of a child's airway increase the risk for choking.²³ Parents in this study had not allowed children to play with those objects. Swallowing of coin is the most common nonfatal foreign body ingestion leading to choking.²³ Suffocation can be caused by strangulation of pacifier cord or jewelry around the neck so respondent in this study had followed this practice.

According to the study results, high level of parental adherence is found which indicates parental awareness to prevent injuries and child safety. This finding is different from other study where less level of parental adherence is due to negligence and lack of knowledge of the parents.²²

Age of the mother is not significantly associated with level of adherence which is similar to studies done in India^{4,11} but is contradictory to the other study.¹⁷ A mother can care and guide her children for safe be-

haviours to prevent injuries.⁴ Early age of the mother affects the maturity and level of the information of accidents prevention in the children.¹⁹

Age, education level and mothers' profession were related with the parental adherence to prevent home injury in other studies^{10, 17, 22} where as, our study did not supported the findings. As maternal education increases, mothers were able to find more risk and reduce the accidents in the children. Educational level of mothers have thought to play an important role regarding upbringing and nursing of a child.¹⁸ Education is the foremost way to prevent accidents.¹⁰ Parental adherence level was found lower in civil servant, probably because of the work demand where civil servants is demanded to spend their working hours away from home.¹¹

Age, gender previous child hood injuries and children caregiver were not associated with the level of parental adherence for injury prevention. Where as in the study done in Turkey, age of the child was associated with parental adherence.²² It was found that number of sibling was associated with the level of parental adherence, which is similar to findings of India.¹⁷

The study also reveals that housing type influences the home accidents. Number of floor and rooms were significantly associated with the adherence level of the parents. The finding is similar to that of study done by K.Tsoumakas et al, which shows that guardian capability decreases to handle their children in spacious home.¹¹

The study had some limitations first one being data collection technique was based on the face-to-face interview rather than direct observation; this can lead to subjective recall bias. On the other hand sample selection was done in urban area and in limited geographical area. As non-probability sampling was used selection bias could not be avoided.

Education interventions with follow up studies can be effective to determine the injury prevention among under five children by care givers. Training courses about first aid measures for parents about unintentional injuries prevention can be helpful in reducing them in children. Child friendly home environment can be adopted for injury prevention. For preventing poisoning, legislative regulations in drug safety and act from government side can be useful. Future research work is recommended in the areas of adopting child friendly parental practices to prevent childhood injuries is recommended.

CONCLUSION

Home injury is common in under-five children and its prevention is multifactorial. Level of parental adherence was significantly associated with religion, number of siblings, number of floors and number of rooms in the house. Majority of the respondents had good level of adherence towards unintentional injury prevention among children at home. Mother devote most of her time in home managing household work and care of the child due to their accustomed role in our conservative community. Experience of family members on managing injuries helps in treatment of injuries at present and also preventing it on future. Therefore, education to the mother and primary care giver about injury prevention, home environment modification is essential for unintentional injury prevention in the children.

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