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Original Research Article

Study of socio-demographic patterns and epidemiological correlates of unintentional injuries among 1-5 year children in Moradabad

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ABSTRACT

Background: Unintentional injuries among children are an emerging public health problem. Accidental injuries are one of the leading causes of death, hospitalization and disability across the world. Fragile, helpless and innocent, an infant enters the world completely dependent on its caretakers. Children's environment plays a critical role, both in the occurrence and severity of an injury. Hence, this study was carried out to assess the domestic unintentional injuries among under-five children.
Methods: This cross-sectional study was undertaken in the urban field practice area of Teerthanker Mahaveer Medical College and Research Centre Moradabad. Information about domestic accidents among the family members in the last one year from the date of survey was obtained by interviewing the head of the family or responsible member of the family age ≥ 18 year. Study target sample size was taken 440 was selected by using two stage cluster sampling technique.
Results: Out of 440 children 20% (88) reported to have experience unintentional injuries. History of fall was the commonest 42 (47.3%) form of injury reported followed by injury due to sharp object and road traffic accident. Toddlers, male child were affected more. Only 48.9% caregivers were aware about first aid measures to be taken after unintentional injury, 71.3% participants reported implementation of preventive measures.
Conclusions: Unintentional injuries are becoming more common. We recommend for prompt and target group interventions in order to prevent and control the domestic accidents, promotion of household safety measures and creation of awareness among the community using information, education, and communication (IEC) interventions have to be undertaken.

Keywords: Under five children, Unintentional injuries, First aid

INTRODUCTION

The public health experts have created the term "modern day epidemic" for accidents.[1] Injuries among children are an emerging public health problem. Accidental injuries are one of the leading causes of death, hospitalization and disability across the world. South-East Asia Region contributes 31% to world burden and 27% of injury related mortality in 2004, WHO estimated about 0.8 million deaths in India were due to unintentional injuries.[2]

Fragile, helpless and innocent, an infant enters the world completely dependent on its caretakers. Although the

surroundings should be a safe heaven for the child, it can at times be dangerous.[3] the burden of injury on children falls unequally. It is heaviest among the poor with the burden greatest on children in the poorer countries with lower incomes. Overall, more than 95% of all injury deaths in children occur in low-income and middle-income countries. The majority of these deaths occurred at home.[4]

The remarkable changes in lifestyle, increased motorization, relative softness of body parts of children, psychological characteristics like impulsiveness, experimentation, lack of knowledge on judgment of speed and low level of concentration make children more vulnerable to injuries.[5] Children's environment plays a critical role, both in the occurrence and severity of an injury. Most injuries take place near homes and the most common injuries are falls, burns, poisoning, drowning, road traffic accidents and suffocation.[6]

The burden of childhood injury in India has not been clearly explored. Data from National crime records bureau and few independent studies have revealed that, nearly 15-20% of injury related deaths occurs among children.[7] there has been surprisingly little research to identify factors that motivate parents' decisions to engage in safety practices known to reduce child injury risk in the home. Hence, this study was carried out to assess the domestic accidents among under-five children so that suitable interventions could be suggested for enhancing maternal home-safety practices depending on the type of injury.

The objectives of the study were,

1. To study the prevalence of accidents in 1-5 years of children.
2. Relationship of accidents with socio-demographic and epidemiological correlates.
3. To assess knowledge of mothers regarding domestic childhood injuries
4. Home safety measures adopted by mothers.

METHODS

This cross sectional study was undertaken in the urban field practice area of Teerthanker Mahaveer Medical College and Research Centre Moradabad.

After extensive review of literature, a semi-structured interview schedule was prepared and pre-tested in order to assess the knowledge and practice of home-safety measures of mothers of under five children regarding domestic injuries countered by children.

The interview schedule had 2 sections: section A included the demographic data, section-B contained knowledge and practice and questions of home injuries. Section A dealt with demographic data consist of 10 items used to collect the sample characteristics, which comprised of age, religion, type of family, occupation, educational status, income, age of the child, sources of information and any type of accident. Section B consisted of 33 items, which had knowledge and practice questions of home injuries. These statements had 3 options out of which one was the correct response. For every correct response a score of "one" and for every wrong response a "zero" was awarded. There were 33 questions out of which 14 were knowledge questions and 19 were practice questions resulting with a maximum score of 14, 19; and minimum score of 0 (zero), 0 (zero) respectively.

The knowledge and the practice level of respondents were classified as inadequate/low level with scores, moderate level with scores, and adequate/high level with scores.. Study period was from April to June 2016.

Data collection method

Information about domestic accidents among the family members in the last one year from the date of survey was obtained by interviewing the head of the family or responsible member of the family age ≥18 year. Information was collected using a pretested and pre-structured proforma in local language.

Sample size estimation

In order to calculate the sample size, a pilot study was conducted in 50 households comprising 67 subjects. The annual incidence rate of domestic accidents was found to be 44%. At 44% incidence rate, 15% relative error of the prevalence, two-sided 95% confidence interval, calculated sample size came out to be 218. Assuming design effect= 2, in the cluster sampling, revised estimated sample size was 436. Finally, for this study target sample size was taken 440.

Sampling technique

To draw the representative sample from the study population, two stage cluster sampling technique was adopted. In first stage, out of 24 local wards, 5 were selected randomly. In the second stage, household were selected randomly with 88 household from each of the five selected clusters assuming one household have at least one under five child to achieved at least 440 sample size. In case selected household was not available for interview due to any reason, another household was selected to replace them. All the children under five year's age in the selected households were taken for the study. If the mother or primary care giver was absent on the day of interview, second visit was made on next day. Verbal informed consent was taken.

Statistical analysis

Data was analysed using statistical package for social sciences, version 23 (SPSS -23, IBM, Chicago, USA). Categorical data was presented in frequency and

percentage. Chi-square test/Fisher exact test was used to test the association between the variables. A $p<0.05$ considered as statistically significant.

RESULTS

Out of 440 children 20% (88) reported to have experience unintentional injuries.

Most of the children (30.91%) were toddler (2-3 years), least (12.27%) were in 4-5 years. among participants 53.86% were males and 46.14% were female.

Mothers play most crucial role in life of child; her education and occupational status determines quality of care received by child. In our study only 18% were graduate or above while 31.82% were illiterate, 65.91% mothers were homemakers, 34.10% were working out of which 16.10% were unskilled workers only 7.90% were in professional job. Distribution of Study participants according to family type was (joint and nuclear family) almost equal (Table 1).

88 (20%) children out of 440 study participants reported to experience an unintentional injury in last 1 year, while no death was reported due to unintentional injury. History of fall was the commonest 42 (47.3%) form of injury reported followed by injury due to sharp object & road traffic accidents in 12 (13.6% each), aspiration was observed in 8 (10.2%) children, animal bite in 5(8%) cases, burn in 4(5%) drowning in 3(5%) cases & electrocution was reported in 2(2.5%) child (Figure 1).

Table 1: Association of sociodemographic profile with unintentional injury.

	Total		Injury		P value
	n	%	n	%	
Age group					
1- 2 years	123	27.95	18	20.45	<0.001
2-3 years	136	30.91	35	39.77	
3-4 years	127	28.86	13	14.77	
4-5 years	54	12.27	22	25.00	
Sex					
Male	237	53.86	55	62.5	0.069
Female	203	46.14	33	37.5	
Education of mother					
Illiterate	140	31.82	35	39.77	0.142
<8th	73	16.59	17	19.32	
8th-12th	146	33.18	27	30.68	
>Graduate	44	10.00	5	5.68	
Professional	37	8.41	4	4.55	
Occupation of mother					
Housewife/unemployed	290	65.91	48	54.55	0.010*
Unskilled worker	71	16.14	23	26.14	
Semiskilled worker	9	2.05	3	3.41	
Skilled worker	35	7.95	10	11.36	
professional	35	7.95	4	4.55	
Family					
Nuclear	224	50.91	52	59.09	0.086
Joint	216	49.09	36	40.91	

Chi-square test/ *Fisher exact test used

Table 2: Distribution of respondents according to the awareness about first aid.

Variable	Category	N (%)	P value
Aware about first aid	Yes	215 (48.9)	0.634
	No	225 (51.1)	
Sources of information	Health worker	39 (18.14)	0.002
	Elders	57 (26.51)	
	Media	79 (36.74)	
	Friends/relatives	40 (18.60)	

One sample Chi-square test used.

Our study reveals that boys are more prone to injuries which contributes to 62.5% of children who experienced unintentional injury although the relationship of injury incidence with sex was not statically significant (p>0.05) Toddlers (2-3 years age group) were the most commonly 35 (37.2%) injured, followed by 4-5 years old kids 22 (25%) least incidence was observed in 3-4 years age group, this age distribution of injuries was statistically significant (p<0.05). Table 1 shows relationship of socio demographic factors of children experienced unintentional injuries in last 1 year.

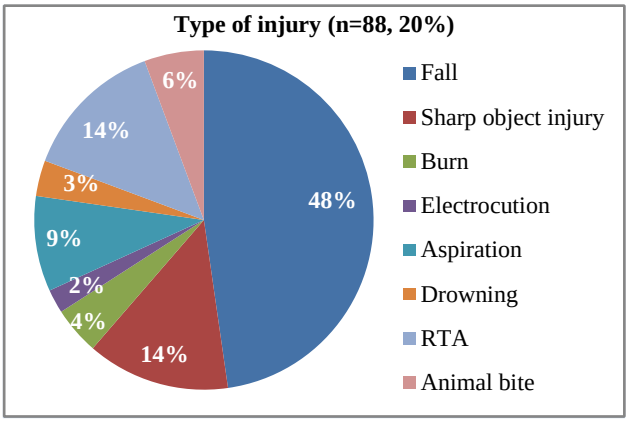

Figure 1: Type of unintentional injury.

Most of children 56.8% experienced injuries in indoor area while 43.2% had in outdoor area. Fall was the most common indoor accident while road traffic accident was most common outdoor accident, followed by animal bite. Among kids who had history of fall, falling from bed or furniture was the most common. While among outdoor road traffic accidents playing near or on road was most commonly associated.

Among primary caregivers only 48.9% were aware about first aid measures to be taken after unintentional injury, while rests were totally ignorant about it. Media was the most important source of information (36.74%) to participants, followed by elders or friends or relatives. Although 40% of them had average knowledge, 35% had poor information (Table 2).

Almost 90% children received first aid either at home or nearby clinic, only 3% needed hospital admission. There was no mortality reported in last 1 year due to unintentional injury. 71.3% participants reported implementation of preventive measures to like keeping the floor clean and dry, 83.7% kept sharp objects away from the reach of children. More than half of the respondents (62.1%) tried to prevent burns by restricting access to open fires, hot objects and by covering plug points. 41% stored poisonous items safely away from their children's reach.

DISCUSSION

Unintentional injuries are a leading cause of death, ill health and long-term disability in childhood but are largely preventable with proper information and safe practices.[8] Young children are particularly susceptible to accidents due to their innate desire to explore their world and the inability to perceive the dangers of their actions.

Our study reports 20% incidence of unintentional injury out of 440 under five children, our results are comparable to Zaidi et al in their Tamil Nadu reported the prevalence of injury to be 14% among under-five children.[7] On the contrary study from Karnataka showed much higher prevalence (46.3%).[9] In our study history of fall was the commonest 42 (47.3%) form of injury reported followed by injury due to sharp object and road traffic accidents in 12 (13.6% each), aspiration was observed in 8 (10.2%) children, animal bite in 5 (8%) cases, burn in 4 (5%) drowning in 3 (5%) cases and electrocution was reported in 2 (2.5%) child. These findings are comparable as reported earlier.[7,9,10.]

Our study demonstrates a non-significant male child predominance (62.5%) similarly study from Tripura reports that domestic injuries were more common among male children (57.28%), on the contrary Shriyan, showed that 72.7% of the injured children were boys.[9,10] There was statistically significant (p<0.05). Age related distribution in our study. Toddlers (2-3 years age group) were the most commonly 35 (37.2%) injured, followed by 4-5 years old kids 22 (25%) least incidence was observed in 3-4 years age group. on the contrary Shriyan reported that majority (56.8%) of the children were in the age group of more than three years.[9] As per our results there was no significant correlation with education & occupation of mother as well as type of family. this observation was similar as reported earlier.[10]

Among our study participants only 48.9% were aware about first aid measures to be taken after unintentional injury, while rests were totally ignorant about it. Media was the most important source of information to participants, followed by elders or friends or relatives. Although 40% of them had average knowledge, 35% had poor information. Our results are comparable to previous reports.[9,11] Similarly a study by Eldosoky et al revealed that 73.4% of the respondents knew about first aid and 56.1% reported that media was their primary source of information.[12] Almost 90% children received first aid either at home or nearby clinic, only 3% needed hospital admission. While in a report from Tripura 91.26% participants/parents said that they gave first aid to their children after any domestic injury.[10]

71.3% of our participants reported implementation of preventive measures to like keeping the floor clean and dry, 83.7% kept sharp objects away from the reach of children. More than half of the respondents (62.1%) tried to prevent burns by restricting access to open fires, hot objects and by covering plug points. 41% stored poisonous items safely away from their children's reach. these observations are comparable with other report.[9]

CONCLUSION

Unintentional injuries are becoming more common. Falls were the most common domestic injury seen in the study. Among primary caregivers only 48.9% were aware about first aid measures to be taken after unintentional injury. Almost 90% children received first aid either at home or nearby clinic, only 3% needed hospital admission. There was no mortality reported in last 1 year due to unintentional injury.

Recommendations

Child safety is a social value that demands attention hence, these findings therefore call for prompt and target group interventions in order to prevent and control the domestic accidents, promotion of household safety measures and creation of awareness among the community using information, education, and communication (IEC) interventions have to be undertaken.

Limitation

Collecting information through self-report, cross-sectional study and do it in a city were limitations of this study, so conducting the research in the larger society and carry out qualitative research in this area is recommended.

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