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Pattern of Domestic Accidents among Children in Tumkur City - A Cross Sectional Study

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ABSTRACT

Background: Domestic accidents are worldwide public health problems. The present study was conducted to assess the pattern of domestic accidents among children and its association with various epidemiological factors .

Materials and Methods: It's a community based Cross sectional study.It was decided to study 900 households based on the sample size. 4391 population was covered in this study. Domestic accident was considered when any of the individual met with an accident inside the house or in immediate surroundings of house during last one year as listed from code V01 to X59 in chapter XX of ICD.

Results: Domestic accidents observed was 10.8%(117) out of the total study population(1083) which was more common in the age group 0-4years(69.2%). Among the domestic accidents most commonly observed one was falls(41.02%) followed by burns (33.3%). Most commonly observed place of domestic accidents was kitchen 51 (43.58) .153 (43.6) of the domestic accidents were during 6am -12 pm timings. Around 60% of the accidents occurred when children were playing within the house.

Conclusion: Domestic accidents are no longer called accidental; it's just the price we are paying for technological progress and our ignorance. Hence even this much of prevalence has to be taken seriously, as domestic accidents can be prevented completely by minute preventive strategies.

Key words: domestic accidents, falls, burns, injury

INTRODUCTION

Domestic accidents are worldwide public health problems. These accidents have not so far been recognized to the same extent as traffic and work-related injuries, largely because they have not been effectively counted. Children and elderly in particular, are more vulnerable to domestic accidents, resulting in disability and loss of future productivity. The biggest threats to children's health lurk in the very places that should be safest-home, school and community. Every year over 5 million children ages 0 to 14 die, mainly in the developing world, from diseases related to their environments-the places where they live, learn and play[1].

Many environmental threats to children's health are aggravated by persistent poverty, conflicts, natural and man-made disasters, and social inequity. The children worst affected are those in the developing world but there are many children in the more developed, even the richest, countries, who are also at risk[1]. Strategies have been developed to combat these threats to children's health. They need to be implemented on a global and national scale. So the World Health Day-2003 was dedicated to "Healthy Environment for Children". In September 2002, WHO launched the Healthy Environment for Children Initiative. They are now working with different groups around the world to turn this initiative into a vibrant, global alliance

which will be capable of mobilizing local support and intervening to make children's lives healthier where they live, learn and play[1]

That is why this study was carried out to assess the domestic accidents among children in Tumkur city so that suitable recommendations can be suggested for prevention of morbidity and mortality among them.

AIM AND OBJECTIVES

The present study was conducted to assess the pattern of domestic accident among children in Tumkur City and to assess its association with epidemiological factors.

MATERIAL AND METHODS

This study was conducted in Tumkur city, all 35 wards being the sampling frame and it was community based cross sectional study. Study period was from January 2019 to December 2019.Each household was the unit of study. All Children under the age of 15years of the selected family were the study population. Those families who were resident in that area for more than 1 year and given consent was included in the study. Houses locked even after 3 visits were excluded from the study.

For estimation of sample size, prevalence of domestic accident according to previous studies was taken as 10% [2], n = 4x10x90 =900.Therefore, it was decided to study 900 households. Taking Indian average family size of 4.2, the total population covered was 3780 members (900*4.2). However, 4391 population was covered in this study because of the variations in family size.

Domestic accident was considered when any of the individual met with an accident inside the house or in immediate surroundings of house during last one year. The accidents were classified according to the International Statistical Classification of Diseases and Related Health Problems (Tenth Revision), which are listed from code V01 to X59 in chapter XX.[3]

A list of all the wards of Tumkur city was taken from Tumkur city Corporation. Utilizing this list as a sampling frame, nine wards were selected by simple random sampling which was done using random number table. In each ward 100 houses were covered to make it to the present sample size of 900 households by systematic random sampling. In each ward there were around 1500 to 2000 houses. In the wards having average 1500 houses the sample interval was 15 i.e..,1500/100.To select the first house, simple random sampling was done by selecting a number between 1 to 15 and then by adding 15 to the next house. So every 15th house was taken till 100 houses were covered in each ward.

In the wards having average of 2000 houses the sample interval was calculated as 20. To select the first house, simple random sampling was done by selecting a number between 1 to 20 and then by adding 20 to the next house. So every 20th house was taken till 100 houses were covered in each ward. If the house which was selected was locked even after three visits, the next house was considered for the study.

All the households selected in each of the wards were visited, it was enquired whether there was any domestic accident of children aged less than or equal to 15years in their houses in the last one year or if any of them had to be hospitalised or had expired due to a domestic accident in last one year. Verbal consent was taken. Approval from institutional Ethical committee was obtained. A checklist suggested in the public health papers on domestic accidents number-26 was modified and used, keeping local housing conditions in mind to assess the agent and environment factors for accidents in all the households visited. Using this domestic accident questionnaire, the head of the family or the person present in the house at the time of study who was comprehend was asked questions orally.

The study tool consisted of following sections:

1) Socio-demographic profile - This section consisted of the socio demographic details and the variables that included were age, sex, religion, residence, occupation and income of head of the family and details of the family members.

2) Domestic Accident details- This section included details of the victim of domestic accident like age, sex, time spent at home, circumstances of injury like time of injury, place of injury, activity at the time of injury and under whose care the child was. Type of accident, type of injury, consequence of injury, parts involved health status at the time of injury and any risk factors were asked. Nature of care given, outcome due to accident, duration of disability and type of disability was taken into account.

3) Agent and Environmental Factors –details regarding the type of house, age of building, regarding condition of floors in room, toilets, about the ventilation in the house, type of kitchen, wells, drains, ditches present surrounding the house, stairs and finally the host factors due to which domestic accident took place.

Data thus obtained was coded and entered into Microsoft excel worksheet. This was analyzed using SPSS version 18. Data were analyzed by using

descriptive statistics, viz. percentages and the inferential statistics using Chi-Square test. The difference in proportion was considered statistically significant whenever P ≤0.05.

RESULTS

1083 children were studied in which 61.7% (669) of them belonged to age group between 5-14 years and gender was almost equally distributed. Domestic accidents observed was 10.8%(117) out of the total study population(1083) which was more common in the age group 0-4years (69.2%) as compared to children between 5-14years (30.8%). Male children were more vulnerable to domestic accidents and which was statistically significant (table 3). Domestic accidents were observed more among class 3 socio economic status i.e., 42 (35.8%) and the difference observed was statistically significant (table 4). Among the domestic accidents, most commonly observed one was falls (41.02%) followed by burns (33.3%) and fall of objects (10.25%). Most commonly observed place of domestic accidents was kitchen 51 (43.58) followed by bathroom and toilet 24 (20.51). 153 (43.6) of the domestic accidents were during 6am -12 pm followed by the timings between 12pm to 4pm were around 26% of domestic accidents had occurred. Around 60% of the accidents occurred when children were playing within the house. Lacerations, Haematomas and contusions and burns comprised more than 60% of the type of injuries acquired during domestic accident followed by fractures and dislocations (15.4%) (table 6).

DISCUSSION

Domestic accidents observed was 10.8%(117) out of the total study population (1083) in our study as compared to total of 171 domestic accidents had occurred during one year period with a prevalence of 146.02/1000 population in a study conducted in rural Bangladesh [4] The incidence rate of accidents in the children studied was found to be 3.13 per 100 child months or 0.35 per child per year. The total number of injuries recorded was 135 out of 325 children's surveyed in a study done at Belgaum [5]. The total number of reported domestic accidents in the study done by Bhanderi D J was 69, making the incidence 1.7%. Devroey et al. reported an incidence of 2.7% in their study done in Belgium [6]. Omoniyi A et al. in the study about accidents among Nigerian children, reported highest number of accidents in 5-9 years of age-group which is similar to our study which is probably because of less monitoring of adult children and their eagerness for trials. In contrary the study conducted in Karachi [13] showed more accidents under 2years of age.

Boys were found to be more involved in domestic accidents [6] which is consistent in our study also, may be because of their nature of nottiness more compared to female children. A survey of domestic childhood accidental injuries (1998) conducted in a rural general practice in Arau, Perlis, found that, male children between the age of 6-12 years were the most commonly affected with a male to female ratio of 1.7:1[7].

Table 1: Distribution of study subjects according to their age and gender:

Age (years)	Males (%)	Females (%)	Total (%)
0-4	198 (37.28)	216 (39.1)	414 (38.2)
5-14	333 (62.71)	336 (60.8)	669 (61.7)
	531(100)	552(100)	1083(100)

Table 2: Distribution of domestic accidents in the study population according to age groups

Age groups	Study population	Accidents observed	Proportion of accident observed
0-4	414 (38.2)	81 (69.2)	19.5
5-14	669 (61.7)	36 (30.8)	5.38
	1083(100)	117(100)	10.80

Figure in parenthesis indicates percentage

Table 3: Distribution of domestic accident victims according to their age and sex

Age groups	Sex of accident victims	
	Male (%)	Female (%)
0-4	45 (62.5)	36 (80)
5-14	27 (37.5)	9 (20)

Chi-square 44.68, P value <0.001

Table 4: Distribution of Domestic Accident victims according to Socio Economic Status:

Socio- Economic Status	Cases (%)
Class I	18 (15.38%)
Class II	28 (23.93%)
Class III	42 (35.8%)
Class IV	20(17.09%)
Class V	9 (7.69%)
Total	117 (100%)

Chi-square 35.6, P value <0.05

Table 5: Distribution of subjects according to type of accidents

Type of accident	Cases (%)	95% CI
Falls	48 (41.02)	39.6-56.4
Burns	39 (33.3)	34.4-43.6
Hit against objects	6 (5.12)	3.9-8.1
Fall of objects	12 (10.25)	6.8-17.2
Poisoning	6(5.12)	3.9-8.1
Others*	6 (5.1)	3.9-8.1
Total	117(100)	

CI=Confidence interval

Table 6: Distribution according to the place, time, activity and nature of injury:

	Accidents (%)	95% C I
Place of accident		
Immediate surroundings	18 (15.38)	12.7-23.3
Kitchen	51 (43.58)	41.4-60.6
Bedroom	9 (7.69)	4.3-13.7
Living and dining room	12 (10.25)	6.9-17.1
Bathroom and toilet	24 (20.51)	19.3-28.7
Balcony	3 (2.56)	0.03-3.03
Time of occurrence of accident		
4 AM – 6 AM	36 (10.3)	30.8-41.1
6 AM – 12 AM	153 (43.6)	143.4-162.6
12 PM – 4 PM	90 (25.6)	86.8-93.2
4 PM – 8 PM	54 (15.4)	48.7-59.3
8 PM - 4 AM	18 (5.1)	15.9-20.08
Activity at the time of accident		
Play	207 (59%)	191.2-222.8
Leisure	90 (25.6)	86.8-93.2
Activity at home	54 (15.3)	48.7-59.3
Nature of Injuries		
Burns	108 (30.8)	104.6-111.3
Blunt injury	36 (10.3)	30.8-41.1
Bruises and abrasions	9 (2.6)	5.97-12.03
Sprains and Strains	27 (7.6)	22.3-31.7
Lacerations, Haematomas and contusions	99 (28.2)	97.9-100.05
Fracture and dislocation	54 (15.4)	48.7-59.3
Poisoning and others*	18 (5.1)	15.9-20.08
Total	351(100)	

*= includes injuries to the eye, allergic reaction due to insect bite

Domestic accidents were more common among lower class [11] as compared to higher class according to study conducted by Pempe et all [12] which is same as our study and the reason may be due to less awareness and precautionary measured used to prevent.

In a study conducted by Bhanderi DJ et al., the most common accident reported was fall, i.e., 71.0%[8]. This category included fall on floor, slipping in bathroom, fall from height and fall from stairs. Other accidents noted were burns, scalds, electrocution, injuries and accidental poisoning. In accidental poisoning group, two cases of rat poison consumption and one case of cleansing acid consumption were reported. All the three cases were in the age group of 0-15years. Burns and sharp-object injuries were the most common types of domestic accidents in the study by Neghab et al. [9] and next was falls.

Falls form a major mode of injury. Falls at level and fall from height led to majority of domestic accidents. Many other studies carried out in India and abroad also report falls as the commonest mode of injury [11]. Most of the Domestic accidents took place during 6AM to 4PM which is similar to study done by tandon [14]. kitchen was the most common place of injury which is similar in many studies [2, 15].

Strengths and limitations:

Sample size was large enough to conclude the topic. Some degree of recall bias especially with reference to minor injuries which could not be ruled out. Domain of injuries includes lot of subjectivity in definitions, which might have affected the prevalence of domestic accidents.

CONCLUSION

There is no baseline survey done nationwide for comparing the prevalence with other places. A broader study involving the rural population may provide a clearer picture of the epidemiology of domestic accidents in our country. But however accidents are no longer called accidental; it's just the price we are paying for technological progress and our ignorance. Hence even this much of prevalence has to be taken seriously, as domestic accidents can be prevented completely by minute preventive strategies. Both rich and poor are equally affected but with different accident patterns. So each requires specific approach for its prevention. Simple epidemiological care regarding domestic accidents can tremendously reduce economic loses and can inturn increase productivity among paediatric age group.

REFERENCES

1. WHO: Shape healthy environments for children-the feature of life WHO Health Day -7 April 2003.
2. Ramesh Masthi N R, Kishore S G, Gangaboriah. Prevalence of domestic accidents in the rural field practice area of a medical college in Bangalore, Karnataka. Indian journal of public health.2012;56(3):235-237.
3. External Causes of Morbidity & Mortality (V01-Y98). International Statistical Classification of Diseases and Related Health Problems, WHO Geneva, 1992, 10th revision (1): 1012.
4. Shajedur R S et all. Domestic Accidents in a rural community of Bangladesh-A cross sectional study on their incidence and characteristics. Developing country studies. 2012; 2(7): 57-59
5. Nath A, Naik VA. Profile of accidents in children less than five years of age belonging to a rural community in Belgaum district. Indian J Community Med 2007;32:133-4.
6. Omoniyi A Olawale, Eme T Owoaje: Incidence and pattern of injuries among residents of a rural area in South-Western Nigeria: a community-based study. BMC Public Health; 2007; 7:246
7. External Causes of Morbidity & Mortality (V01-Y98). International Statistical Classification of Diseases and Related Health Problems, WHO Geneva, 1992, 10th revision (1): 1012.

8. Bhanderi D J, Choudhary S. A study of occurrence of domestic accidents in semi-urban community. Indian J Community Med 2008;33:104-6.

9. Neghab M, Rajaei Fard A, Habibi M, Choobineh A. Home accidents in rural and urban areas of Shiraz, 2000-02. East Mediterr Health J 2006;12:824-33.

10. 10.External Causes of Morbidity & Mortality (V01-Y98). International Statistical Classification of Diseases and Related Health Problems, WHO Geneva, 1992, 10th revision (1): 1012.

11. Backett EM: Accidents in the Home. WHO Chronicle; 1966; 20 (1): 3-18.

12. Pembe K et al. Home Accidents in the Community-Dwelling Elderly in Izmir, Turkey: How Do Prevalence and Risk Factors Differ Between High and Low Socioeconomic Districts?. J Aging Health.2008:20(7):824-836.

13. Siddiqui E U, Ejaz K, Siddiqui U. Unintentional, paediatric domestic injury in a semi rural area of Karachi. The Journal of the Pakistan Medical Association. 2012;62(7):638-43.

14. Tandon J N, Kalra A, Kalra K, Sahu SC, Nigam CB, Qureshi GU. Profile of accidents in children. Indian Pediatr 1993;30:765-9.

15. Aggarwal R and Singh G. Pattern of domestic injuries in a rural area of india. Internet Journal of Health. 2010:11(2).