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Research Article

A community based cross - sectional study on types of domestic accidents and their treatment seeking behaviour

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ABSTRACT

Background: The present study was done to find out different types of domestic accidents, their relationship and the treatment seeking behaviour of the respondents. The survey focused on the types of domestic accidents such as falls, burns, scalds, electrical trauma, injury and accidental poisoning and their relationship with age, sex, time, place, site of injury and their treatment seeking behavior.
Methods: The study was carried out from April 2010 to August 2010 in Chidambaram town. Among 50,000 populations, 33 wards were used for training and teaching medical students, interns and post graduates. In this study cluster sampling technique was used and sample of 300 households were surveyed for the details of types and relationship of domestic accidents, with a pretested structured proforma.
Results: The majority of the accidents seen in our study were scalds (36%), followed by falls (31.1%), injury due to sharp objects (24.2%) and total number of accidents was found in 103 individuals. It was observed that the commonest place of accident for electrical trauma and accidental poisoning was living room, common place for falls were staircase and other space around home. Majority of accidents occurred in the kitchen (63.1%) followed by other space around home (22.4%) which occurred during 8-12 noon (32%). The most common reason for falls were old age, hyperactive children and debilitated patients. Depression was the leading cause for poisoning in adults.
Conclusions: Hospital based data may incompletely reflect the occurrence of injury in the population as many injured patients might not seek or manage to obtain hospital care. Hence community based studies which are done for larger populations are always helpful to the policy makers to enforce laws and recommendations to the community.

Keywords: Domestic accidents, Injury, Scalds, Treatment, Prognosis

INTRODUCTION

Since the beginning of the 1990s the belief exists that more far reaching preventive measures should be undertaken since home accidents were regarded as largely avoidable. Some home accidents could be prevented by doing campaigns on the prevention of domestic hazards and considering living conditions.[1] The causes of deaths were all too familiar ones like electrocution and motor accidents (34%), drowning (13%), poisoning (5%) and falls (4%). Most of these according to the World Health Organization were perfectly avoidable. If the number of death from accident has decreased since 1997, the proportion of domestic death has however increased to over 30% even though progress has been made over the years to improve the awareness of parents to the dangers their children face.[2]

Recent progress in industrialization and use of vehicles, increased number of people living in crowded and unsafe settlements, coupled with inaccessible and unaffordable emergency health services also contribute to the higher health burden of injury in the developing regions of the world.[3]

The large analysis and review of European housing and health status (LARES) survey of the WHO Regional office for Europe (2006) reported cuts as the most frequent accident type, followed by falls and burns. According to the WHO, falls was ranked as the world's fifth cause of disease among children aged 5 to 14 years in 2000 as said by Peden et al on injury, a leading cause of the global burden of diseases, at Geneva.[4,5]

The presence of chemicals, which could be potential poisons (kerosene, phenyl, drugs and pesticides), in unlocked storage places was reported by 91% of the households. 35.5% reported storing kerosene at home in nonstandard containers usually meant for beverage or food item and 68.3% reported that these chemicals were accessible to children.

Gulliver et al reported that the most frequently recorded causes of hospitalization were found to be falls, scalds, poisoning and cut/piercing incidents among children under 5 years of age.[6] A study by Phelan et al revealed that falls was the predominant type of household injury among individuals aged 0 to 19 years, accounting for 38% of emergency treatments in USA.[7] The objectives of the present study was to find out different types of domestic accidents and their relationship with the risk factors and their treatment seeking behavior.

METHODS

The study was carried out on a representative population in semi-urban community located at Chidambaram town. Urban health training centre, under the Department of Community Medicine, Rajah Muthiah Medical College, in collaboration with Government Hospital of Chidambaram and the private practitioners in the area were responsible for providing the preventive, promotive and curative health service in those areas.

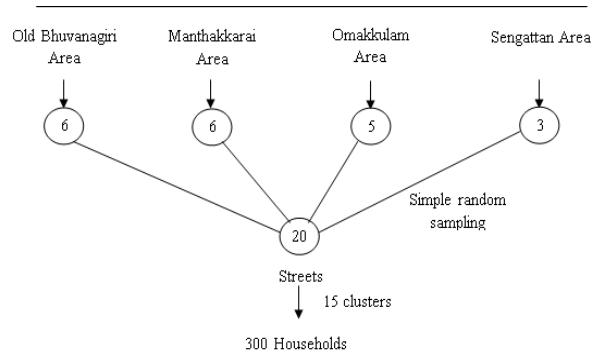

Figure 1: UHTC field service area.

Out of 50,000 populations, 33 wards were used for training and teaching medical students, interns and post graduates. Out of 33 wards, 20 streets were selected by simple random sampling and 15 clusters of households were surveyed from these 20 streets comprising of 300 households totally from 4 areas of Chidambaram municipality namely old Bhuvanagiri area, Manthakkarai Area, Omakkulam area and Sengattan area were surveyed for the present study (Figure 1).

Study period

The study was carried out from April, 2010 – August, 2010.

Study design

The study was a cross-sectional community based study. Data collection was done using a pre-tested structured interview schedule. House to house visit was done during evening hours when all the members of the household were available. The data were collected from a reliable person in the household.

The proforma aimed at collecting information regarding the details of different types of domestic accidents and relationship of domestic accidents with age, gender, time, place, site of injury & place of treatment, time of initiation of treatment and its prognosis. Respondents were included in this study after getting informed consent.

Data analysis

Statistical analysis was done using Descriptive statistics and Correspondence analysis were done to find out the Relationship between type of domestic accident with place of accident and Relationship between type of domestic accident with the other risk factors.

RESULTS

In this survey it was found that the majority of the accidents seen were scalds (35%) followed by falls (31.1%) and injury due to sharp objects (24.2%) (Figure 2).

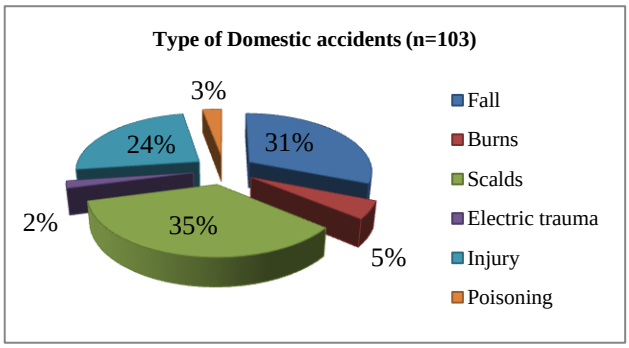

Figure 2: Distribution of types of domestic accidents.

As per the age distribution, majority of domestic accidents amongst children < 5 years were due to falls (90.9%) and majority in middle age groups were scalds and those in old age groups (> 75 years) were falls and injury (50%) each. Similarly, the accidents that occur among males were commonly due to falls (75%) and among females were due to scalds (41%). Most of the domestic accidents occurred during morning hours between 8 -12 noon (32%) and majority (52%) of the accidents in the afternoon was scalds and the place of accidents for scalds were found to be occurred in the kitchen (55.4%). The commonest type of domestic accidents that occurred in other places was found to be falls (73.9%). The commonest site of injury for domestic accidents occurred in upper limb and fingers (51%). Among the accidents that occurred in head and neck region majority were due to falls (63.6%) and in upper limb and fingers were due to scalds (35.3%) (Table 1).

Table 1: Distribution of types of domestic accidents with risk factors.

Types	Fall (%)	Burns (%	Scalds (%)	Electric trauma (%)	Injury (%)	Accidental poisoning (%)	Total (%)
Age group							
1-4	10 (90.9)	0(0.0)	0(0.0)	0(0.0)	0 (0.0)	1 (9.1)	11 (100)
5-14	08 (80)	0(0.0)	0(0.0)	0(0.0)	1 (10)	1 (10)	10 (100)
15-29	04 (19.0)	0(0.0)	11(52.4)	1(4.8)	4 (19)	1 (4.8)	21 (100)
30-44	03 (9.1)	3 (9.1)	13 (39.4)	0(0.0)	14(42.4)	0 (0.0)	33 (100)
45-59	03 (15)	1 (5)	11 (55)	1(5)	4 (20)	0 (0.0)	20 (100)
60-74	03 (50)	1 (16.7)	1 (16.6)	0(0.0)	1 (16.7)	0 (0.0)	06 (100)
>75	01 (50)	0(0.0)	0(0.0)	0(0.0)	1 (50)	0 (0.0)	02 (100)
Total	**32**	**05**	**36**	**02**	**25**	**03**	**103**
%	**31.1**	**4.8**	**35**	**1.9**	**24.3**	**2.9**	**100**
Gender							
Male	15(75)	0(0.0)	02(10)	0(0.0)	02(10)	01(05)	20(100)
Female	17(20.5)	05(06)	34(41)	02(2.4)	23(27.7)	02(2.4)	83(100)
Total	**32**	**05**	**36**	**02**	**25**	**03**	**103**
Time							
Early morning 4-8am	03 (37.5)	0 (0.0)	03 (37.5)	0 (0.0)	02 (25)	0 (0.0)	08 (100)
Morning 8-12noon	06 (18.2)	03 (60)	11 (33.3)	0 (0.0)	12(36.4)	01(30)	33 (100)
Afternoon 12-4pm	06 (24)	0 (0.0)	13 (52)	0 (0.0)	06 (24)	0(0.0)	25 (100)
Evening 4-8 pm	11(45.8)	02 (40)	06 (25)	02 (100)	03(12.5)	0(0.0)	24 (100)
Above 8pm	06 (46.1)	0 (0.0)	03 (23.1)	0 (0.0)	02 (15.4)	02 (15.4)	13 (100)
Total	**32**	**05**	**36**	**02**	**25**	**03**	**103**
%	**31.1**	**4.8**	**35**	**1.9**	**24.3**	**2.9**	**100**
Place							
Living room	6(66.7)	0(0.0)	0 (0.0)	2 (22.2)	0 (0.0)	01(11.1)	09 (100)
Bath room	4 (100)	0(0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	04 (100)
Kitchen	3 (4.61)	4 (6.15)	36 (55.4)	0 (0.0)	20 (30.7)	02 (3.1)	65 (100)
Staircase	02 (100)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	02 (100)
Other space around home	17 (73.9)	01(4.3)	0 (0.0)	0 (0.0)	05 (21.7)	0 (0.0)	23 (100)
Total (%)	**32 (31.1)**	**05 (4.8)**	**36 (35)**	**02 (1.9)**	**25 (24.3)**	**03 (2.9)**	**103 (100)**
Site of injury							
Head & neck	7 (63.63)	0 (0.0)	1 (9.09)	0(0.0)	3 (27.3)	-	11 (100)
Trunk & abdomen	2 (33.33)	0 (0.0)	4 (66.67)	0(0.0)	0 (0.0)	-	06 (100)
Upper limb & fingers	13 (25.49)	04 (7.84)	18 (35.29)	0(0.0)	16 (31.4)	-	51 (100)
Lower limb & toes	10 (31.25)	01 (3.12)	13 (40.62)	2 (6.25)	6 (18.7)	-	32 (100)
Total	**32 (32)**	**05 (05)**	**36 (36)**	**02 (02)**	**25 (25)**	-	**100****

** Accidental poisoning due to ingestion is not included, thus the total as 100.

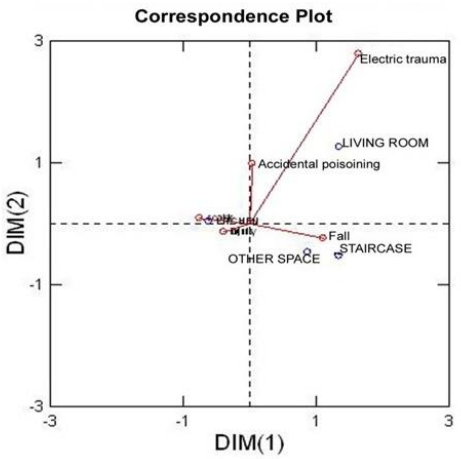

Figure 3: Relationship between type of domestic accident and place of accident using correspondence analysis.

Table 2: Distribution according to reasons for various types of domestic accidents.

Reasons	No.	Percentage
Falls		
Slippery floor	15	46.9
Uneven floor	12	37.5
Loose carpet	00	00
Tiles	01	3.1
Marbles	00	00
Things kept unevenly	03	9.4
Inadequate light	01	3.1
Total	**32**	**100**
Burns and scalds		
Gas stove	02	4.9
Cooking vessel	24	58.5
Firewood stove	02	4.9
Contact with cleaning acids	00	00
Hot liquid	13	31.7
Total	**41**	**100**
Electric trauma		
Electric point contact	00	00
Exposed wires	00	00
Improper earthing of wires	02	100
Total	**02**	**100**
Injury		
Knife	19	76
Scissors	00	00
Playthings (toys)	01	04
Sickle	00	00
Door	05	20
Total	**25**	**100**
Accidental Poisoning		
Kerosene	02	66.7
Drugs	01	33.3
Household cleaners	00	00
Acid	00	00
Paints	00	00
Dyes	00	00
Total	**03**	**100**

It was observed that the commonest place of accident for electrical trauma and accidental poisoning was living room and common place for falls were staircase and other space around home (Figure 3).

The Table 2 shows the distribution according to reasons for various types of domestic accidents. In our study commonest reason for falls were slippery floor (46.9%) followed by uneven floor (37.5%). Majority of the reason for burns and scalds were contact with cooking vessel (58.5%) followed by contact with hot liquids (31.7%). The reason for electrical trauma was due to improper earthing of wires (100%). Moreover the most common reason for injury was due to cutting with knife (76%) followed by accidental hitting on doors (20%) and the commonest reason for accidental poisoning was due to kerosene ingestion (66.7%) (Table 2).

Table 3: Distribution of domestic accidents by place of treatment, time of initiation of treatment and its prognosis.

Place of treatment	No	Percentage
GH	12	11.6
Private	20	19.5
RMMC&H	04	3.9
First aid at home	67	65.0
Total	**103**	**100**
Time of initiation		
½ hour	83	80.6
2 hour	08	7.8
6 hour	05	4.8
Delayed treatment	07	6.8
Total	**103**	**100**
Prognosis		
Cured completely	95	92.2
Cured with post treatment sequelae	08	7.8
Total	**103**	**100**

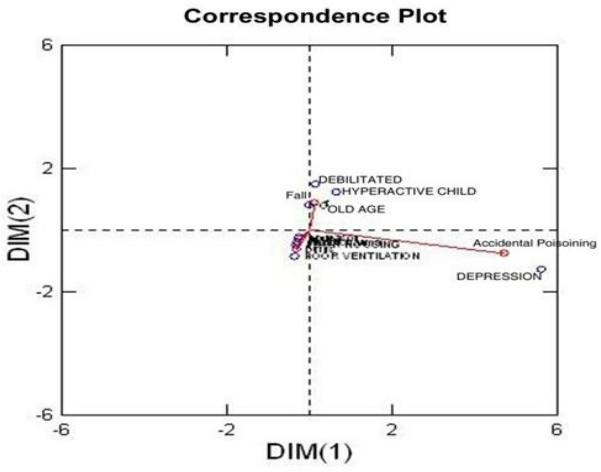

Figure 4: Relationship between type of domestic accident and risk factors using correspondence analysis.

According to the treatment seeking behaviour of the respondents most of them preferred to take first aid treatment at home (65%),followed by going to a private hospital (19.5%).Majority of the respondents had their treatment initiation within ½ hour (80.6%) and only 7 persons had delayed their treatment for more than 6 hrs (6.8%) . According to the prognosis of these domestic accidents, most of them (92.2%) had been cured completely (Table 3).

Correspondence plot was carried out using correspondence analysis. The most common reason for falls were old age, hyperactive children and debilitated patients. The depression was the leading cause for poisoning in adults (Figure 4).

DISCUSSION

In the present study the commonest type of domestic accidents seen was scalds (35%), for burns and scalds was due to contact with cooking vessel (58.5%) followed by spilling of hot liquids (31.7%). A few studies have proved that burns and scalds was the comment type of accident; like Erba P et al showed that burns 24.4% and other study done by Snidero S et al reported that 25.7% of burns.[8,9] A lower incidence of 13% was found in an Indian study done at Ludhiana by Aggarwal R et al Another study by Ahuja RB et al showed a higher incidence of 77.5%.[10,11]

In this study Falls form a second major cause of domestic accident (31.1%), next to scalds. The reason for falls was due to slippery floor (46.9%) followed by uneven floor (37.5%). Study done by Alptekin F et al had reported falls as a primary cause of injury (38.4%). Many studies have reported a higher incidence of 68.8%, 71% and 44.3% of falls by Matantire DN et al, Bhandheri DJ et al and Aggarwal R et al respectively.[10-14]

As per the data reported in this study, Injury was the 3rd common type of domestic accidents (24.2%) next to falls. The reasons for injury were due to cutting with sharp objects like knife (76%) followed by accidental hitting on doors (20%). The large analysis and review of European housing and health status (LARES) survey of the WHO regional office for Europe reported that cuts were the most frequent accident type, followed by falls and burns.[4]

In the present study the frequency of electrical trauma was only 1.9% and least occurrence among other types of accidents. The cause of electrical trauma was due to improper earthing of wires in the present study. Similar incidence was reported by Aggarwal R et al and Bhandheri DJ et al as 1.6% and 1.4% respectively.[10,14]

According to the risk factors surveyed in this study, Domestic accidents were highest in the extreme age groups, 20% for age above 75 and 70 years respectively and 16.4% for 1-4 years. Study done by Alptekin F et al also reported that age under 14 or over 65 years have highest incidence.[12]

In contract to this Aggarwal R et al in their study on pattern of domestic injuries in a rural area of India observed that maximum number of domestic accidents occurred in the 15-45 years age group (34.3%).[10] Large number of accidents under 5 years age group can be explained on the basis of their exploratory habit. The accidents that occur among males were commonly due to falls (75%) and among females were due to scalds (41%).

In the present study the domestic accidents occurred during 8-12 noon (32%). As domestic accidents mainly occurs by carelessness or during rapid working to finish the domestic chores in time by the females, the time of occurrence of domestic accidents also plays a vital role. Studies done by Bhanderi DJ et al and Gupta RK et al also reported morning hours (46.4%) and 9 am - 9 pm in their study respectively.[14,15] In contrast to the above findings Alptekin F et al reported that injuries more frequently occurred in the evening (32.6%) followed by morning (24.4%) in their study on non - fatal home - related injuries in Turkey.[12]

In this study most frequent place of accident was kitchen (63.1%) followed by other space around home (22.4%). Hence, Kitchen is the most dangerous place for domestic accidents for all age groups especially children and woman. Few studies done by Mittal BN et al and Alptekin F et al reported that kitchen is the second common place of accident next to living room with frequency of 26.7% both.[12,16]

A study done by Snidero S et al[9] reported that kitchen was the most frequent place of accidents (52.9%) as in this study. In the present study most frequent site of injury due to domestic accidents was Upper limb and fingers (51%) followed by lower limb and toes (32%). Similar finding was seen in various studies done by Snidero S et al, Lindblad BE et al and Mohammadi R et al who reported 60.4%, 41% and 43% respectively from various parts of the globe.[9,17,18]

In the present study majority of them had their first aid treatment at home itself which is similar to the study done by Gupta RK et al.[15] A community - based study on incidence and pattern of injuries among residents of rural area in Nigeria by Olawale OA et al reported that more than half (58%) were treated in government hospital and another study also reported treatment was given at primary care setting.[3] Since domestic accidents results in minor injuries that were negligible or can be treated at home itself, most of the people do not visit health facilities. In the present study 92.2% had been cured completely and 7.8% had been cured by post treatment sequelae. Studies done by Neghab M et al, Olawale OA et al and Bhandheri DJ at al showed that full recovery was observed in 80.5%, 66% and 82.6% of cases respectively.[3,14,19] No accidents due to drowning, choking

and suffocation were reported. Deaths were also not reported in this study.

CONCLUSION

The results of the study clearly demonstrate that most frequent type of domestic accidents seen were scalds, followed by falls and injury observed during peak hours of cooking between 8-12 noon, contact with cooking vessels or with hot liquids were the commonest reasons for scalds. Majority of the accidents affected upper limb fingers and first aid treatment given at home was initiated within ½ hour. Most of the respondents were cured completely and no serious events like deaths were reported.

Since domestic accidents results in minor injuries that were negligible or can be treated at home itself, most of the people do not visit health facilities. Hospital based data may incompletely reflect the occurrence of injury in the population as many injured patients might not seek or manage to obtain hospital care. Hence community based studies done for larger populations are always helpful for the policy makers to enforce laws and recommendations to the community. Thus few Recommendations made from our study include the following.

Young children should not be allowed inside the kitchen; if that is unavoidable, they have to be constantly supervised. Never drink or carry hot liquids while holding or carrying a child. In the bathroom, hot water, either in the bucket or in the bathtub, poses a risk for children.

Therefore, they should never be left unattended. Not only for children, adults should also check the temperature of water before bathing. Storing kerosene at home in nonstandard containers usually meant for beverage or food items must be avoided.

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