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## A study on prevalence of domestic accidents in a rural community

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### Abstract

**Background:** Domestic accidents are worldwide health problems. Domestic 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. Very few studies are available regarding domestic accidents in India, and there is no study available from the rural areas. Hence the present study was undertaken with an aim to assess the prevalence of domestic accidents in a rural community.

**Aim & Objective:** To assess the prevalence of domestic accidents in a rural community.

**Materials and Methods:** The study was conducted in the rural field practice area of Katuri Institute of Medical Sciences, Guntur. Totally 5419 individuals were selected from 30 clusters using Cluster Sampling Technique. In each cluster, 178 individuals (some clusters had more than 178 individuals) were surveyed by house-to-house visit. Information about domestic accidents among the family members in the past one year was obtained by interviewing the head of the family or responsible adult informant using a pre-tested structured proforma. The data was compiled and analyzed.

**Results:** Among 5419 individuals, 2748 (50.9%) were males and 2671 (49.1%) were females. Prevalence of domestic accidents in the rural community was found to be 9.6%, majority (21.8%) of domestic accidents are observed in children 1-4 years of age. Most common domestic accidents reported were falls (43.2%). Majority (44.1%) of domestic accidents occurred in the morning hours. Commonest place for occurrence of domestic accidents was kitchen (46.5%). Majority (53.6%) was treated at home and complete recovery was observed in 91.9% of domestic accident cases.

**Conclusion:** The prevalence of domestic accidents in the rural community was 9.6%. Falls were the most common domestic accidents.

**Keywords:** Domestic accidents, falls, rural community

### Introduction

Accidents as a whole are making an increasing contribution to the sum total of morbidity and mortality almost everywhere in the world, with the decline in many of the major communicable diseases<sup>[1]</sup>.

Accidents along with cardiovascular diseases and cancers currently form the leading causes of morbidity and mortality both in developed and developing countries. Each year, tens of thousands of accidents occur worldwide. In a World Health Organization (WHO) report, the number of deaths caused by accidents was estimated to be 3.5 million annually. This figure corresponds to an average of 10,000 deaths per day. Accidents can take place in a wide variety of environments and there is a possibility of accidents in every sphere of human life: at home, while travelling, at play and at work<sup>[2]</sup>. In today's world, in the developed as well as the developing countries, danger prevails not only on the roads, but it also exists in the home and playgrounds<sup>[3]</sup>. Home is the most likely location for unintentional injuries<sup>[4]</sup>.

The pattern of domestic accidents is complex, involving cultural, social and economic factors<sup>[5]</sup>. The rates of unintentional home related injuries are high among the elderly (over 65 years old) and youngsters (0-14 years old)<sup>[5]</sup>. The type of domestic injury is often determined by several host factors (age, sex, residence, co-morbidity, alcohol and drugs, etc.), agent factors (a number of domestic products which are commonly used by people for day-to-day activities) and environmental factors (type of housing, flooring, roofing, safety environment, etc.)<sup>[6]</sup>.

Home accidents are a major cause of death and injury<sup>[2]</sup>. Every domestic accident brings a varying measure of distress to the victim as well as the family members. The consequences may be disastrous both for the individual and the society when the accident results in

permanent disability, as the victim loses his earning capacity and may not be able to enjoy a normal productive life [7].

There are very few research studies done on home injury compared to road traffic and occupational injuries. Although, domestic accidents represent an important setting for unintentional injuries, most of the studies were confined only to specific types of injury, mainly in the pediatric age group and among hospital cases [8]. Studies on domestic injuries are virtually non-existent in India (underreporting!) [6] and there is no study available from the rural community. In this background the present study was conducted to assess the prevalence of domestic accidents in a rural community and this information obtained may contribute to the planners in developing appropriate preventive measures.

### Aim

To assess the prevalence of domestic accidents in a rural community.

### Objectives

1. To describe the socio-demographic profile of the study population.
2. To find out the prevalence of domestic accidents.
3. To list the different types of domestic accidents.
4. To describe the occurrence of domestic accidents according to time, place and person.
5. To describe the treatment taken and outcome of domestic accident cases.

### Methodology

**Place of study:** Rural field practice area of Katuri Medical College, Guntur, Andhra Pradesh India.

**Study period:** One year (Jan to Dec 2019).

**Study design:** Cross sectional study.

**Sample size:** From the pilot study conducted on 30 households comprising of 138 subjects, the prevalence of domestic accidents was found to be 9 (7%) which yields prevalence = 0.07 with relative precision of 10% at 95% confidence interval ( $\alpha=0.05$ ).

**Sampling technique:** Cluster Sampling Technique.

### Inclusion criteria

- All domestic accidents are included in the study.

The study population should be residents for a minimum of 6 months.

### Operational definition

- Domestic accident is an accident which takes place in the home or in its immediate surroundings and more generally, all accidents not connected with traffic, vehicles or sport [9]
- In the present study home includes a dwelling place, yard, garage and all that is personal to the household, also included are the areas, stairs and approaches to flats or rooms, so long as they are reserved for the use of tenants [1]

### Collection of data

This study was conducted in the rural field practice area of

Katuti Institute of Medical Sciences, Guntur. The study was conducted from January 2019 to December 2019. 30 clusters were selected using Cluster Sampling Technique.

Information about domestic accidents among the family members in the past one year from the date of survey was obtained by interviewing the head of the family or responsible adult informant using a pre-tested structured proforma in local language (Telugu).

The socioeconomic status was assessed based on the Standard of Living Index (SLI) [10].

### Statistical analysis

The data was entered in Microsoft Excel and analysis was done by using SPSS.

V.11.0. Data was analyzed by using descriptive statistics viz. percentages and the inferential statistics using Z-test to test the difference between proportions. The data is presented in the form of tables and graphs wherever necessary. The difference in proportion is considered statistically significant whenever  $P \leq 0.05$ .

### Results

**Table 1:** Age and sex wise distribution of study population

Age (in years)	Males	Females	Total
<1	22 (0.9)	29 (1.1)	51.0 (0.9)
1-4	224 (8.2)	218 (8.2)	442 (8.2)
5-14	471 (17.1)	453 (16.9)	924 (17.1)
15-24	610 (22.2)	600 (22.5)	1210 (22.3)
25-34	537 (19.5)	503 (18.8)	1040 (19.2)
35-44	331 (12.1)	327 (12.2)	658 (12.1)
45-54	257 (9.3)	247 (9.2)	504 (9.3)
55-64	164 (5.9)	166 (6.3)	330 (6.1)
65-74	92 (3.3)	97 (3.6)	189 (3.4)
$\geq 75$	40 (1.5)	31 (1.2)	71 (1.4)
Total	2748 (100.0)	2671 (100.0)	5419 (100.0)

In the present study it was observed that out of 5419 study population, 2748(50.9%) were males and 2671 (49.1%) were females. Majority 1210(22.3%) were in the age group of 15-24 years, next highest was 1040 (19.2%) who were in the age group of 25-34 years. The least 51 (0.9%) were in the age group of <1 years. Similarly majority 610 (22.2%) and 600 (22.5%) were in the age group of 15-24 years in both males and females respectively.

The median age of males was 25 years with age ranging from < 1 year to 90 years. The median age of females was 24 years with age ranging from <1 year to 105 years.

**Table 2:** Distribution of study population according to religion

Religion	Study population	Percentages
Hindus	4618	85.2
Muslims	742	13.7
Christians	59	1.1
Total	5419	100.0

In the present study out of 5419 study population, majority 85.2% of the study population were Hindus, 13.7% were Muslims and 1.1% is Christians.

**Table 3:** Age wise distribution of prevalence of domestic accident cases

Age (in years)	Study population	Number of domestic accident Cases	Percentages
<1	51	-	-
1-4	442	96	21.8
5-14	924	108	11.6
15-24	1210	94	7.7
25-34	1040	75	7.2
35-44	658	56	8.5
45-54	504	42	8.3
55-64	330	32	9.6
65-74	189	17	8.9
≥75	71	2	2.8
Total	5419	522	9.6

In the present study majority 21.8% of the domestic accident cases were observed in the age group 1-4 years and least 2.8% was observed in the age group ≥75 years. The overall prevalence of domestic accidents was found to be 9.6%.

**Table 4:** Sex wise distribution of prevalence of domestic accident cases

Sex	Study population	Number of domestic accident cases	Z value	P value
Male	2748	166 (6.1)	9.09	< 0.0077
Female	2671	356 (13.3)		
Total	5419	522 (9.6)		

The prevalence of domestic accidents was found to be more in females compared to males and was found to be statistically significant with P value =0.0077 (Z value = 9.09).

**Table 5:** Prevalence of domestic accident cases according to education

Educational status	Study population	Number of domestic accident cases	Percentages
Not applicable (children <1year)	51	-	-
Preschool children (1-4 years)	442	96	21.8
Illiterate	1284	127	9.9
Primary school	1420	154	10.9
High school	1557	99	6.4
PUC	411	33	8.1
Graduate	226	11	4.9
Post graduate	28	2	7.2
Total	5419	522	9.6

In the present study majority 96 (21.8%) of the domestic accident cases were observed in the preschool children and least 11 (4.9%) was observed in graduates.

**Table 6:** Prevalence of domestic accident cases according to occupation

Occupation	Study population (n=4002*)	Number of domestic accident cases (n=308)	Percentages
Professional	33	1	3.1
Service	155	3	1.9
Business	66	2	3.1
Self-employment	297	8	2.7
Agriculture	322	15	4.6
Labourer	1091	43	3.9
House wife	1199	205	17.1
Others**	839	31	3.7

In the present study prevalence of domestic accidents is

more common among house wife’s 17.1%, followed by agriculture 4.6%, labourers 3.9%, business 3.1%, professional 3.1%, self-employment 2.7%, service 1.9% and others 3.7%.

**Table 7:** Prevalence of domestic accident cases according to type of family

Type of family	Study population	Number of domestic accident cases
Nuclear	2371	254 (10.8)
Joint	1626	134 (8.2)
Three generation	1422	134 (9.5)
Total	5419	522 (9.6)

Prevalence of domestic accident cases in nuclear families is 10.8%, 8.2% in joint families and 9.5% in three generation families.

**Distribution of domestic accident cases according to SLI**

Out of the 522 domestic accident cases, prevalence of domestic accidents was 59.2% in low socio economic status, 38.5% belonged to medium socio economic status and the remaining 2.3% individuals belonged to high socio economic status.

**Distribution of domestic accident cases according to marital status**

In the present study, it was observed that out of 522 domestic accident cases 251(48.1%) were married persons, 243 (46.5%) were unmarried and 28 (5.4%) widow/Widower had domestic accidents.

**Table 8:** Distribution of cases according to type of domestic accidents

Type of domestic accidents	Number of domestic accident Cases	Percentages
Falls	225	43.2
Injuries from sharp or pointed instruments	141	27.0
Burns	93	17.8
Dog bite	13	2.5
Electrical injury	6	1.1
Multiple accidents	37	7.0
Others*	7	1.4
Total	522	100

In the present study it was observed that falls (43.2%) was the most common type of domestic accidents followed by injuries from sharp or pointed instruments (27.0%), burns (17.8%), dog bite (2.5%), electrical injury (1.1%), multiple accidents (7%) and others (1.4%).

**Table 9:** Sex wise distribution of types of domestic accident cases

Type of domestic accidents	Male	Female	Percentages
Falls	122 (73.5)	103 (28.9)	225 (43.2)
Injuries from sharp or pointed instruments	8 (4.8)	133 (37.4)	141 (27.0)
Burns	15 (9.1)	78 (21.9)	93 (17.8)
Dog bite	7 (4.2)	6 (1.7)	13 (2.5)
Electrical injury	3 (1.8)	3 (0.8)	6 (1.1)
Multiple accidents	9 (5.4)	28 (7.9)	37 (7.0)
Others*	2 (1.2)	5 (1.4)	7 (1.4)
Total	166 (100.0)	356 (100.0)	522 (100.0)

In the present study falls 122 (73.5%) was the common domestic accidents in males. Injuries from sharp or pointed instruments 133 (37.4%), falls 103 (28.9%) and burns 78 (21.9%) were the common type of domestic accidents in females.

**Table 10:** Age & sex wise distribution of falls

Age (in years)	Male	Female	Total
≤14	101 (82.8)	58 (56.4)	159 (70.7)
15-29	3 (2.4)	11 (10.6)	14 (6.2)
30-44	4 (3.3)	8 (7.8)	12 (5.4)
45-59	9 (7.4)	10 (9.7)	19 (8.4)
≥60	5 (4.1)	16 (15.5)	21 (9.3)
Total	122 (100.0)	103 (100.0)	225 (100.0)

In the present study falls was more common in children below ≤14 years i.e. maximum 159 (70.7%) and minimum in the age group of 30-44 years 12 (5.4%).

**Table 11:** Distribution of domestic accident cases according to type of injury

Type of injury	Number of domestic accident cases	Percentages
Abrasion	257	49.2
Laceration	171	32.8
Contusion	25	4.7
Fracture	15	2.9
Crush injury	11	2.1
Multiple injuries	43	8.3
Total	522	100.0

In the present study most frequent type of injury in domestic accident victims was abrasion 49.2%, laceration 32.8%, contusion 4.7%, fracture 2.9%, crush injury 2.1% and 8.3% victims had multiple injuries.

**Table 12:** Distribution of domestic accident cases according to time of occurrence

Time	Number of domestic accident cases	Percentages
Morning	230	44.1
Afternoon	90	17.2
Evening	170	32.6
Night	32	6.1
Total	522	100.0

Considering the time of domestic accidents, 230 (44.1%) accidents occurred during the morning hours, 170 (32.6%) in the evening, 90 (17.2%) in the afternoon and 32 (6.1%) during the night.

**Table 13:** Distribution of domestic accident cases according to place of treatment

Place of treatment	Number of domestic accident Cases (n=478*)	Percentages
Home care	256	53.6
OPD care	207	43.3
Inpatient care	15	3.1

Majority 53.6% of domestic accident victims were treated at home, followed by 43.3% treated at OPD and 3.1% of victims treated as inpatients.

**Table 14:** Distribution of domestic accident cases according to system of medicine received

System of medicine	Number of domestic accident cases (n=478*)	Percentages
Allopathy	358	74.9
Home remedies	98	20.5
Homeopathy	17	3.6
Ayurveda	5	1.0

In the present study majority 74.9% of domestic accident victims had taken allopathic treatment and least 1.0% victims had taken ayurveda treatment.

## Discussion

### Prevalence of domestic accidents

In the present study prevalence of domestic accidents in a rural community for the period of one-year for all age groups was found to be 9.6%. However, Haniff J *et al.* observed in their study, the prevalence of self-reported home injury for all age groups was 2.5% for one-year [8]. Thein MM *et al.* observed that the overall injury prevalence rate was 19.5% [11] and Backett EM. Had estimated about 5%-10% of the population were affected by home injury each year. For each fatal home accident, there are probably 150 "significant" non-fatal ones [1].

### Age wise distribution of domestic accidents

Prevalence of domestic accidents was found to be more common in the age group 1-4 years (21.8%). This may be attributed to the fact that they spend more time in the home. It was in accordance with a study by Neghab M *et al.* which showed that more than 25% of accidents occurred among children aged under 4 years [2].

### Sex wise distribution of domestic accidents

In the present study it was observed that prevalence of domestic accidents was more among females. This may be due to the fact that females spend more time in the home. This was in accordance with the findings of Haniff J *et al.* where the prevalence in females was reported higher (2.7%) than males (2.3%) [8]. Bhanderi DJ *et al.* in their study mentioned that female gender was found to be a significant predictor of domestic accidents [7].

### Types of domestic accidents

In the present study falls (43.2%) was found to be the commonest type of domestic accidents followed by sharp cut injuries (27.0%) and burns (17.8%). This is consistent with findings of Bhanderi DJ *et al.* where the most common accidents reported was fall, other accidents noted were burns, scalds, electrocution, injuries and accidental poisoning [7] and also Chaurasia R *et al.* observed a higher proportion of falls, burns and scalds in their study [12].

### Place of occurrence of domestic accidents

In the present study kitchen was found to be the commonest place of domestic accidents (46.5%). This can probably be attributed to the fact that when they are in the kitchen they may be exposed to different tools which may cause injuries. But in a study conducted by Alptekin F *et al.* 30% of the injuries occurred in the living room. The kitchen was the second most common place for injuries (26.7%), and the bathroom or the toilet was the third (22.1%) [5]. Thein MM *et al.* in his study observed that, the commonest place at home where injuries occurred was the living room (54.7%), followed by kitchen (17.7%), bedroom (13.7%) and bathroom (9.5%) [11].

### Time of occurrence of domestic accidents

In the present study, domestic accidents occurred more commonly during the morning hours. This may be due to increased work load in the morning. It is in accordance with the findings of the study conducted by Bhanderi DJ *et al.* where it was reported that majority of domestic accidents occurred during the morning and evening hours [7].

### Site of injury in domestic accident cases

In the present study it was observed that, most frequently body parts injured in domestic accidents is upper limbs (70.2%), followed by lower limbs (34.1%). This is consistent with the findings of Rossi G *et al.* in their study mentioned that most frequent lesions were those of the upper and lower extremities [13].

### Treatment of domestic accident cases

In the present study it was observed that, home was the place where majority of domestic accidents were managed (53.6%) followed by treatment on outpatient basis (43.3%). Among those who have received treatment, majority (74.9%) have received allopathic treatment, followed by home remedies (20.5%). This is consistent with the findings of Thein MM *et al.* where majority of injuries were self-treated (78% to 85%) [11].

### Outcome of domestic accident cases

In the present study it was found that most of the victims of domestic accident have recovered completely (91.9%), some were in the recovery phase (6.1%) and few victims have recovered with disability (2%). No deaths were reported due to domestic accidents. This is consistent with the results of a study by Bhanderi DJ *et al.* where full recovery was observed in 82.6% cases of domestic accidents, while permanent disability was found in only 2.9% subjects, while 14.5% reported chronic pain after the accident [7].

### Conclusion

The prevalence of domestic accidents in the rural community was 9.6%. Domestic accidents were most commonly seen in children 1-4 years of age. Falls was the most common type of domestic accidents. Kitchen was the commonest place for occurrence of domestic accidents. Majority of domestic accidents occurred in the morning hours. Most of the domestic accident cases were treated at home. Majority of the domestic accident cases had recovered completely.

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### Conflict of Interest

None.

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