Prevalence and Determinants of Domestic Accidents in a Rural Area of Kanchipuram District, Tamil Nadu

Antony Vincent*
Medical Social Worker (Tutor), Department of Community Medicine, Pondicherry Institute of Medical Sciences

KarupusamyDhamotharan
Medical Social worker, Department of Community Medicine,
Pondicherry Institute of Medical Sciences, Pondicherry

Zile Singh
Professor & Head, Department of Community Medicine, Pondicherry Institute of Medical Sciences, Pondicherry

Abstract
Accident is defined as, ''an unintentional injury which is undesirable, incidental and unplanned event that could have been prevented under circumstances leading to the accident being recognized''. Accidents are of different types and domestic accidents are a worldwide threat but have seen resurgence in rural India. The main purpose of this study was to determine the prevalence and determinants of domestic accidents in rural area of Tamil Nadu and educate the people to reduce its burden. Materials and method: A community based cross sectional study, using a pre designed and pretested questionnaire was done in a rural area of Kanchipuram district, Tamil Nadu from 4th January 2017 to 31st January 2017. Data was collected from 1560 adults of both sexes and those who were the permanent residents of the study area. History of accident/injury during the past 3 months was obtained to avoid the recall bias. Results: It was found that 11.8 %(n=184) of the total study participants had a history of some form of accident/injury during the past 3 months. Out of these 184 subjects, 56.5 %(n=104) had domestic accidents. It was found that 51 %(n=53) of the domestic accidents have occurred due to 'Fall'. Maximum numbers of the domestic accidents (42.3%) have occurred while the study subjects were working. Conclusion: Domestic accidents similar to any other disease have their own natural history and a sound knowledge about various determinants is essential to plan and administer prevention and control measures, and thereby reduce their burden especially in rural population. Increased awareness about the determinants will reduce the burden of the domestic accidents as they don't simply befall on us from fate or bad luck.
Keywords: Domestic, Accidents, Injury, Fall

1. Introduction
Accidents have causes; they don't simply befall on us from Fate or bad luck. To prevent these injuries, it is necessary to have information about the factors that contribute to their occurrences so that we understand the options for prevention. Accident is defined as " an unintentional injury which is undesirable, incidental and unplanned event that could have been prevented had circumstances leading to the accident been recognized"(1). Domestic accidents are a worldwide threat but have seen a sudden resurgence in rural India. According to a study conducted by Mysore medical college, the overall prevalence of domestic accidents in rural India was 9.4%. The most common accident reported was fall, owing to age and overcrowding. Other accidents noted were burns, scalds, electrocution Injuries and accidental poisoning. Domestic violence is a serious offence usually targeting women, children, elderly and the physically disabled or lower income groups of the society. The national crime records bureau report of India states a reported crime rate of 46 per 100,000 (2). The main purpose of this study was to determine the prevalence and determinants of domestic accidents in a rural area of Tamil Nadu and educate the people to reduce its burden.

2. Materials and Methods
1.2.1 Study Design and study setting
Community based cross sectional study was conducted. The main occupation of the people of the study area is agricultural labourers. The study was conducted in Agaram, Vanniyanallur and Kavanoor villages of Kanchipuram District, Tamil Nadu, India. This would include a total population of 2404 respondents residing in 663 families (Agaram village, 650 people with 206 families in Vanniyanallur village and 1050 people with 266 families in Kavanoor village) under the chunampet Rural Health care Centre, Pondicherry Institute of Medical Sciences (PIMS). The study area (3 villages) is 45 kms from Pondicherry Institute of Medical Sciences, Pondicherry.

3. Sample Size
The sample size was calculated as 907 based on a study done in Puducherry by GanapathyKalaiselvan et al (on

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Epidemiology of injury in rural Pondicherry. The sample size was calculated taking the prevalence of all injuries among all age groups which was 30.6% in last one year. The formula used for the sample size calculation was using the formula $4pq/d^2$ .Where p = prevalence,30.6%, q = (100 – p) = 100 – 30.6 = 69.4,d = Relative precision 10% = 3.06,Taking the attrition of 10% of the calculated sample size, the final sample size computed is 997 and further final sample size was rounded to 1000.

3.1.1 Health care facilities

Kanchipuram District is situated on the State Highway 117 and nearer to the Capital city of Chennai. In Kanchipuram District, 3 Hospitals are functioning to look after the Health and Family welfare of the people. Out of these 3 Hospitals, one is Government Primary health care centre , one is Rural Health Care Centre, PIMS and the other is Dr.Mohan's Diabetes Specialities centre where treatment for non communicable diseases like diabetes and hypertension is taken care of.

3.1.2. Characteristics of study area & target population

The selected villages in the field practice area of the Department of Community Medicine, Pondicherry Institute of Medical Sciences are situated in Chunampet, Kanchipuram district of Tamil Nadu. The following villages were under survey- Agaram, Vanniyanallur, Kavanoor. All age groups residing in randomly selected villages located under the rural health training centre of Pondicherry Institute of Medical Sciences situated in Chunampet, Tamil Nadu. Inclusion criteria - Both males and females belonging to all age groups and permanent residents of the study area who consented for the study. Exclusion criteria- Children with no adult informant.Period of study-One month (4th January 2017 to28th January 2017)

3.1.3. Key indicators for this study

To Socio demographic information, 2. Types of accidents and their prevalence E.g.: domestic accidents (fall, animal bites, accidental poisoning, injuries during the work), Determinants (risk factors) for the different types of Domestic accidents such as time of the accident, ventilation in case of domestic accidents etc,.

3.1.4. Method of Recruitment and Allocation

All the family members available at the time of interview were included in the study by house to house survey.Data collection, Issues on Measurements and tools used (Brief procedure)

The participants were recruited as specified above. Before the data collection the medical students were trained by faculty regarding the participant interviews, ethical considerations etc. Under the guidance of faculty, PG's, Interns and MSW'S, data was collected by the MBBS part-1 students. A predesigned pretested questionnaire was used to collect the information from the informants of the participants.

3.1.5. Pre –test/Pilot study

The questionnaire was administered to 25 subjects in the anumandai village to validate the questionnaire. The result of the pilot study will not be included in the main survey.

3.1.6. Data Management

Data entry and data analysis was done by Epidata and SPSS version 21 software respectively.Chi square test was used to measure statistically significant difference in proportions and p value <0.05 was considered to be statistically significant.

4. Results

Among the study participants, 22.8%were between the age of 21 and 30 while 14.7% of the people were between 1and 10 years of age. Among the participants,759(48.7%) are males and 801 (51.3%) are females. Among the study participants, 472 (30.3%) have completed high school while 454 (29.1%) are illiterate. Among the participants, 445(28.5%) are agricultural labourers, 15(1.0%) are industrial labourers, 127(8.1%) are other unskilled labourers, 154(9.9%) are skilled workers. Based on Modified BG Prasad scale (2015), most of the study participants belong to Class IV(25.9%) followed by Class III(22.2%). Majority of the participants, 869 (55.7%) were married. Majority of the study participants, 877(56.2%) live in pucca house. Among the participants, 104(6.7%) had a history of Domestic injury in the past 3 months. Out of the 104 individuals who sustained domestic injuries, the most common nature was found to be falls (51%), followed by hit against other objects (22.1%). Among the domestic injury victims 30.8% said that they had a problem in their eye sight.
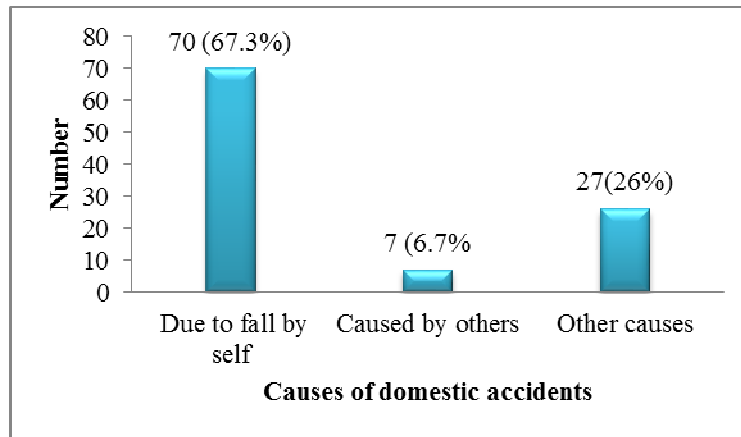
Figure no: 1   Number of causes of domestic accidents (n=104)

Out of the 104 domestic accidents, the most common cause of these accidents was due to self (67.3%) followed by other causes (26%).
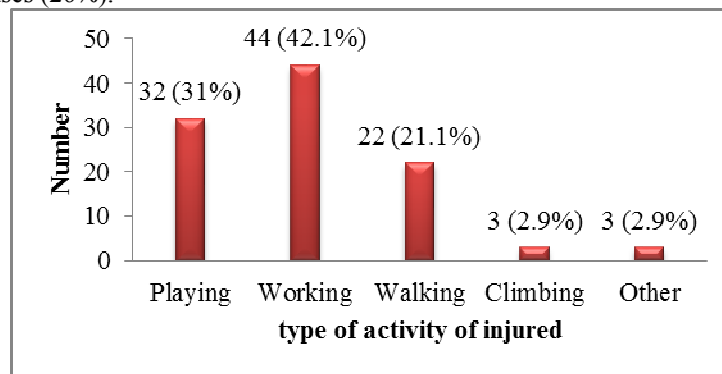

Figure no: 2 Percentage of type of activity of injured during the DomesticAccident (n=104)

The commonest cause of domestic accidents were work related(42.1%) while (31%) acquired during playing.
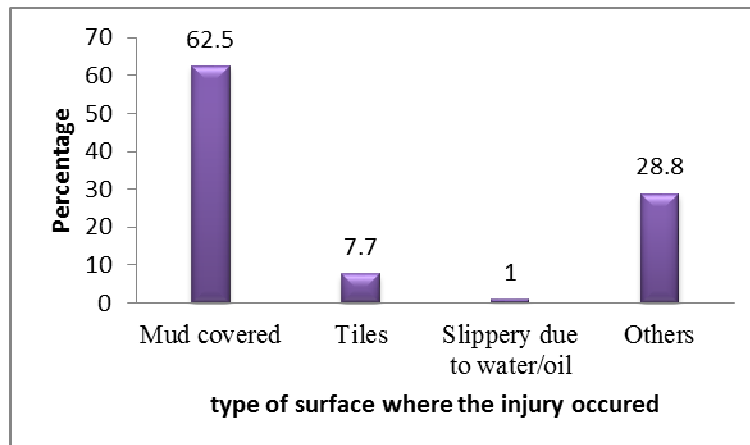

Figure no: 3 Distribution of domestic accidents victims based on the type of surface where the injury occurred (n=104)

Out of the 104 individuals who had injuries, most of the injuries occurred on the mud covered surface (62.5%).

5. Discussion

This study was done to find the prevalence and determinants of domestic accidents in the rural areas of Kanchipuram district. In this study the overall prevalence of domestic accidents was found to be 6.7% but according to the study on epidemiology of injury in rural Pondicherry, India by GanapathyKalaiselvan et al (3), the total prevalence of domestic accidents among all age groups was 30.6%.This difference was due to the variation in the recall period considered to find out the occurrence of an accident. In this study information about the accidents that happened in the past 3 months from the time of the survey was collected where as in the survey

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done by GanapathyKalaiselvan the accidents that have occurred during the past 1 year was accounted. In the present study 25.9% participants belonged to class IV and 22.2% participants belonged to class III. According to the study Netra G et al (4) about 56.3% of the participants belonged to class 4 and only 2.4% belonged to class 1 socio economic status according to Modified BG Prasad's classification. Majority of the participants (71.7%) were living in semi-puccahouses.In the present study, the distribution of accidents was 51.3% among females and 48.7% among males whereas in a study conducted by Shankar Radhakrishnan et al(5) in a rural area it was found to be 62.5% and 37.5% respectively. It was found in the both studies, domestic accidents are more common among female subjects. In the current study, accidents were more common among subjects in the age group of 21-30 years (22.8%),but according to the study by VaniMadhaviKommula et al(6) the prevalence of domestic accidents was found to be (25.2%) in 31 to 45 years age group.In this study, the most common domestic accident reported was falls (51%). This is similar to the study on domestic accidents conducted in semi urban community place by Dinesh J Bhandri et al(7), where the most common domestic accident reported was fall(71%). Their study was conducted in semi urban community.

6. Conclusion
Accidents are now recognized to have resulted from complex interaction of sociological, psychological, environmental and technological phenomena. The aim of the study is to know the determinants and prevalence of Domestic Injuries accidents among the rural population of villages in Kanchipuram district of Tamilnadu.Domestic injuries/falls was caused by hitting against other objects and falls. Also most of these injuries occurred during work and low vision of the victims also contributed to these domestic injuries.

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