Prevalence, Patterns And Severity of Reported Household Accidents In A District of Manipur

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Abstarction

Introduction : *Recent progress in industrialisation and increasing number of people living in crowded & unsafe settlements contribute to the higher health burden of injury in the developing regions of the world. These changes have resulted in an unprecedented upsurge of non-communicable diseases and injuries. Household accidents cause detrimental physical and mental health effects to the concerned victims and his/her family members. It also contributes to loss of earning capacity and productivity. This study was conducted to determine the prevalence of household accidents and to assess the relationship between household accidents and socio demographic variables of interest*

Materials and method: *A cross sectional study was conducted during June and July, 2017 among the individuals residing in Imphal West district, Manipur. Sample size was calculated and multistage cluster sampling was done. Data were collected using a semi-structured questionnaire and analyzed using IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY. Descriptive statistics like percentage, mean and standard deviation were used. Chi-square test was employed to assess the association between household accidents and socio-demographic characteristics.*

Results: *The total numbers of participants included in the study was 1115. The minimum age was 15 days and maximum age was 87 years with mean age of 34.04±20.34 yrs. Males consisted 50.2% of the participants. Married people consisted of 55.5% of the participants. Overcrowding was present in 21% of the households. The prevalence of household accidents in the last one year was 10.9%. Falls was the most common domestic accident. Children and elderly were more likely to suffer from household accidents. Majority of the accidents occurred in morning and most common site of injury was hand.*

Conclusion: *Falls was the most common domestic accident seen in the study. Some important risk groups for domestic accidents were children and elderly. Most of the accidents occurred in morning. Most common site of injury were hands.*

Keywords :*Falls, Household accidents, Prevalence, Urban.*

I.   Introduction

As the tide of infectious disease is receding in most of the developing countries, the threat to life and health from non-infectious disease has increased. Among the non-infectious causes of ill health one of the main contributors is accidents. Developing countries are passing through a major epidemiological transition, socio demographic change & technological revolution during the past two decades [1]. Recent progress in industrialisation & increased number of people living in crowded & unsafe settlements, coupled with inaccessible & unaffordable emergency health services also contribute to the higher health burden of injury in the developing regions of the world. These changes have resulted in an unprecedented upsurge of non-communicable diseases and injuries [2]. The public health experts have coined the term "Modern Day Epidemic" for accidents [3]. Domestic accidents in particular pose a potential threat in the public health sector. Domestic accident is an accident that takes place at home, or in its surroundings, and more generally, all accidents not connected with traffic, vehicles or sport. Domestic accidents cause detrimental physical and mental health effects to the concerned victims and his/her family members. It also contributes to loss of earning capacity and productivity.

Children, women and elderly people are found most vulnerable to burns, cuts and falls in domestic environment [4]. As such, awareness about these factors can help in decreasing the burden of this problem. It is

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known that hospital data show only a fraction of the complete picture of physical injuries in a community [2,5,6,7]. Also most of the research, especially hospital based research, has focused on major & fatal injuries [8]. Population based estimates of the burden of common injuries such as falls, burns and farm/field related injuries are still uncommon. With this background, the study was conducted to estimate the burden of common household accidents and their associated factors in an urban community.

II. Materials And Methods

A cross sectional study was conducted during the months of June and July 2017 in Imphal West district, Manipur. This district has 13 constituencies with a population of 517992 (Census 2011). The study population were the individuals residing in this district. Sample size was calculated using the formula, $n=4PQ/L^2$ where P (prevalence) = 10% from a previous study [9]. Taking absolute allowable error of 3%, the sample size was calculated to be 400. Adding 10% non response rate and a design effect of 2 the final sample size was 880. A multistage cluster sampling method was adopted to get the desired sample size. A total of 9 constituencies were selected by simple random sampling. Assuming each household to have at least 5 family members, 20 households were included from each constituency. This gave a total of 180 households with an estimated population of 900. In each constituency, the first house was identified by standing in front of the local club and spinning a bottle. The house just in front of the mouth of the bottle was identified as the first house and from that house, the rest were selected consecutively along the right side of the road. A pre-designed, semi-structured interview schedule was used to collect data. Data were collected by interviewing either the head of the family or a responsible adult. Those who refused to participate, those houses which were locked on the day of visit and guest/ visitors who were not a permanent member of the house were excluded.

Operational Definition
1. **Domestic accident:** An accident that takes place at home or in its immediate surroundings and not connected with traffic, vehicles or sports [1].
2. **Household**: A group of persons who commonly live together and would take their meals from a common kitchen unless the exigencies of work prevented any of them from doing so**.** (1971 Census)
3. **Kutcha house**: A house made from mud, thatch, or other low-quality materials. (Open Government Data Platform India)
4. **Pucca house**: A house made with high quality materials throughout, including the floor, roof, and exterior walls. (Open Government Data Platform India)
5. **Overcrowding:**[State of Housing in India: A statistical compendium(2013)]
     a.   1 room > 2 persons
     b.   2 rooms > 3 persons
     c.   3 rooms >5 persons
     d.   4 rooms >7 persons
     e.   5 or more rooms >10 persons (additional 2 for each further room)
6. **Severity of accident**:
     a.   **Trivial**: Examined but no treatment given
     b.   **Minor:** Treated and no more treatment required/Referred to general practitioner/Admitted for <1 day
     c.   **Severe:** Admitted for 1-3 days
     d.   **Very severe**: Admitted for >3 days/ Transferred to a specialist
     e.   **Fatal:** All deaths due to accident

The data collected was checked for consistency and completeness. The data was then entered and analysed in IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY. Descriptive statistics like percentage, mean and standard deviation was used. Chi-square test was used to assess the association between occurrence of household accidents and different socio-demographic variables. A probability value of < 0.05 was taken as significant. Ethical approval was obtained from the Research Ethics Board, Regional Institute of Medical Sciences, Imphal. Informed verbal consent was taken from the participants before data collection.

III. Results

The total numbers of participants studied were 1115. The minimum age was 15 days and maximum age was 87 years with a mean age of 34.04 ± 20.34 years. Males constituted 50.2% of the participants. Majority of the participants were married (55.5%) as shown in Table 1. Around 59% were living in pucca houses and 56.6% were living in a nuclear family. Overcrowding was present in 21% of the households. (Table 2)

The total number of participants who had household accidents in the last one year was 122 giving a prevalence of 10.9%.

Table 3 showed that majority of participants had only 1 injury 108(88.5%) and only 13 (10.7%) had 2 in the last one year. Table 4 showed that most of the accidents 62 (45.3%) occurred in the morning and only 13 (9.4%) occurred at night. In the evening, 43 (31.4%) accidents occurred. Table 5 showed that most of the injuries were due to fall at level (44.5%) followed by exposure to inanimate mechanical forces (21.8%). Figure 1 showed that the most common site of injury was at the hands (31.4%) followed by knee (10.22%) and feet (10.95%). Majority of the accidents occurred at the courtyard (45.9%) followed by kitchen (23.6%) and living room (15.3%). Other places were stairs, corridor, bathroom and bedroom. Severe and very severe injury occurred in 16% of the participants. 43% had only minor injury followed by trivial injury (41%). Of the total 137 domestic accidents, 81 required treatment. It was also observed that 16% of them were admitted for at least 1 day in a hospital.

Table 6 showed that household accidents were not affected by gender, type of house, type of family, occupation, family income and overcrowding status. However, there was a significant association with education level and age. Household accidents were least common 18 (6.5%) among participants 20-33 years of age and least common 31 (7.1%) among participants who studied up to graduate (Table 6). Household accidents were also more common among those participants who lived in overcrowded and kutcha houses. However the finding was not statistically significant.

Table 1: Socio-demographic characteristics of the participants (N= 1115)

Sl. No.	Characterictics		N(%)
1.	Age quartiles in years	≤ 19	293(26.3)
		20-33	275(24.7)
		34-48	281(25.2)
		>48	266(23.9)
2.	Education level	Illiterate	93 (8.5)
		Elementary(nursery to 7th passed)	194 (17.8)
		8th passed	52 (4.8)
		12th passed	310 (28.6)
		Graduate	439 (40.3)
3	Gender	Male	560 (50.2)
		Female	555 (49.8)
4	Marital status	Married	619 (55.5)
		Unmarried	475 (42.6)
		Others	21 (1.9)

Table 2: Characteristics of the house (N= 189)

Type of family	Nuclear	107(56.6)
	Joint	82(43.4)
Type of house	Pucca	112(59.3)
	Kutcha	77(40.7)
Overcrowding	Present	40(21)
	Absent	149(79)

Table 3: Distribution of participants by number of injuries (N= 122)

No. of injuries in the past one year	No. of participants, n (%)
1	108(88.5)
2	13(10.7)
3	1(0.8)

Table 4: Distribution of household accidents by time of occurrence (137)

Time	No of accidents, n (%)
Morning	62(45.3)
Afternoon	19(13.9)
Evening	43(31.4)
Night	13(9.4)

Table 5: Distribution of household accidents by type of injury (n=137)

Types of injury	N (%)
Fall at level	61(44.53)
Exposure to inanimate mechanical forces	30(21.89)
Contact with heat and hot substances	19(13.87)
Exposure to fire, smoke and flame	8(5.84)
Fall from height	7(5.11)

Exposure to electric, radiation and extreme air temperature and pressure	7(5.11)
Exposure to animate mechanical force	4(2.92)
Over exertion	1(0.72)

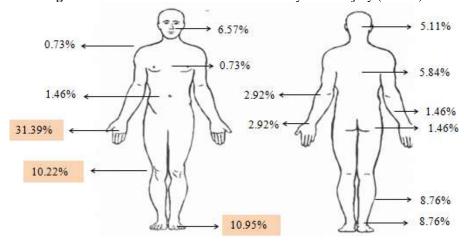**Figure1**: Distribution of household accidents by site of injury (N=137)

Table 6: Association between household accidents and socio-demographic characteristics (N=1115)

Characteristics		Any household accident in the last one year		P-value
		Yes, n(%)	No, n(%)	
Age groups in years* (n=1115)	≤19	29(9.9)	264(90.1)	0.004
	20-33	18(6.5)	257(93.5)	
	34-48	32(11.4)	249(88.6)	
	≥49	43(16.2)	223(83.8)	
Gender (n=1115)	Male	57(10.2)	503(89.8)	0.502
	Female	65(11.7)	490(88.3)	
Type of family (n=1115)	Nuclear	57(12.3)	405(87.7)	0.209
	Joint	65(10.0)	588(90.0)	
Educational level (n=1088)	Illiterate	9(9.7)	84(90.3)	0.004
	< 10th passed	33(13.4)	213(86.6)	
	10th passed	46(14.8)	264(85.2)	
	Graduate	31(7.1)	408(92.9)	
Overcrowding (n=189)	Yes	21(52.5)	19(47.5)	0.486
	No	69(46.3)	80(53.7)	
Family income per month* (n=189)	<15000	24(53.3)	21(46.7)	0.793
	15000-37499	26(53.1)	23(23.2)	
	37500-64749	22(46.8)	25(53.2)	
	>64750	27(57.4)	20(42.6)	
Type of house (n=189)	Pucca	48(42.9)	64(57.1)	0.114
	Kutcha	42(54.5)	35(45.5)	

*Grouped with quartile value

IV. Discussion

Out of 1115 participants studied, 122 have suffered household accidents in the past 1 year. The overall prevalence of domestic accident in this study is 10.9%. Ramesh Masthi *et al*. also reported a prevalence of 9.6% in his study which was conducted in 2012[9], which is similar to this study. Similarly another study conducted by Sudhir et al. in 2014 [10] showed a prevalence of 9.4%. In another study conducted by Bhanderi et al. in a semi-urban area of Gujarat, the prevalence was very low (1.7%) [11]. This difference in the prevalence may be because the duration of study was only 6 months, whereas the present study was for a period of 1year. In this study, falls is the most common domestic accident and similar results were found in studies conducted by Ramesh Masthi et al. [9], Sudhir et al. [10], and Bhanderi et al [11]. Where as in other studies conducted by Avsarogullari et al. [12], Marsh et al. [13] and Neghab et al. [14], burns was the most common domestic accident. This variation may be due to difference in socio cultural practices and level of awareness. In the present study courtyard and kitchen were the common places for domestic accidents which was similar to the findings of Shawon et al.[15], Sudhir et al.[10] and Agarwal et al.[8]. This may be because most of the courtyards were unsafe with mostly kacha in type & even though pucca with uneven brick floor at different

levels. Morning was the commonest time period for the domestic accidents in this study which was similar to the results of Bhandari et al.[10] and Sudhir et al.[11]

V. Conclusion

One-tenth of the study population have suffered from household accidents in the last one year. It is one of the common causes of morbidity in the study population as nearly one-fifth of them needed hospitalization for at least one day because of household accidents. Falls was the most common domestic accident. Most of the accidents occurred in morning and hands were the most common site of injury. Some important risk groups for domestic accidents were children and elderly. Therefore, in order to prevent and control the domestic accidents, promotion of household safety measures, and creation of awareness among the community using IEC interventions have to be undertaken.

VI. Acknowledgements

VII.   References

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