EPIDEMIOLOGIC PATTERNS OF DOMESTIC ACCIDENTS AND PREVENTIVE MEASURES

Khalida Naz Memon, Nudrat Zeba*, Shazia Rahman Shaikh, Gulzar Usman, Khalida Shaikh, Adil Ali Shaikh**

Liaquat University of Medical and Health Sciences (LUMHS) Jamshoro Pakistan, *Isra University Hyderabad Pakistan, **Provincial Health Development Centre (PHDC) Jamshore Pakistan

ABSTRACT

Objective: To determine the patterns of domestic accidents in community and to assess the awareness of participants regarding their prevention.
Study Design: Cross-sectional survey.
Place and Duration of study: Household survey of Hyderabad Pakistan, from Jan to Nov 2015.
Material and Methods: A total of 690 participants were included in the study. The information was collected on standard questionnaire. Information with regards to domestic accidents among the family members in the last one year from the date of study was acquired by interviewing the family head or responsible adult. The association of patterns of domestic accidents with demographic characters of the study participants, preventive measures was also assessed. The data were analyzed using SPSS software. All the data were in categorical format therefore using descriptive statistics frequency and percentages were measured for type of domestic accidents, pattern of domestic accidents and Pearson's chi-squared test ($\chi 2$) was used to see association between these variables.
Results: With 78.4% response rate, the prevalence of domestic accidents was found as 55.1%. Domestic accidents were more common in extremes age groups (62.4%), females (55.3%) and in rural population (61.3%). Injuries due to falls were the among commonly reported accidents (34.2%). Death as a consequence of domestic accidents was almost equally recorded among males and females (22.3% males against 23.8% females). Domestic accidents were less reported among those who were already aware about remedies against accidents in households.
Conclusions: Accidents and unintentional injuries in household environment are the neglected issue of public health importance. Extremes of ages, female gender and rural residence are the major risk factors for these events. These can be prevented by raising the level of awareness among at risk population.

Keywords: Awareness, Domestic accidents, Patterns, Prevention.

INTRODUCTION

Domestic accidents are the world wide health related events after road traffic accidents and occupationally acquired accidents and are more prevalent in developing countries[1]. In developing countries, even there is dearth of data regarding the risk factors for such happenings[2]. In some of the developed regions of the world the unintentional injuries are addressed on a wide scope[3], however, many of these countries very rarely report home accident[4]. Majority of the reported unintentional injuries consist of falls, mechanical trauma and burns[5-7]. Children and women are found most vulnerable to burns and falls in domestic environment[8]. In reality, the cultural home environment determines the type of injuries inflicted[9]. Asian countries reveal a huge data on incidences of burns in domestic atmosphere[10]. The studies on domestic accidents are virtually non-existant in Pakistan. The scanty data that is available is mostly hospital based and it only addresses the epidemiology of a particular type of injury. A study recommended that in developing countries like Pakistan household accidents require probing at the community levels[11]. In spite of high magnitude and their preventability, these are not being addressed in an organized and problem solving way.

Correspondence: Dr Nudrat Zeba, Asst Prof, Dept of Community Medicine, Isra University Hyderabad Pakistan
Email:drnudratzeba@gmail.com
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Therefore, there is dire need to explore this issue of public health importance. The rationale of this study was to determine the frequency of domestic accidents in community, to determine epidemiologic patterns of domestic accidents and to assess the community need for preventive strategies for such accidents.

prevalence as 29% with relative precision of 3% at 95% confidence interval. The sample size came out to be 879. The respondents were approached for the survey on the basis of one person interviewed (head of house or responsible person) per household. The subjects residing in rural and urban areas of Hyderabad met

Table-I: Socio-demographic features of affected and unaffected persons.

Those who encountered domestic accidents		**Frequency (%)**	**Those who did not encounter domestic accidents**		**Frequency (%)**
Age			Age		
Infant	**Upto 1-year**	**85 (22.36%)**	**Infant**	**Upto 1 year**	**12 (3.87%)**
Young Children	1-3 years	116(30.52%)	Young Children	1-3 years	24 (7.74%)
Children	3-15 years	45 (11.84%)	Children	3-15 years	49 (15.80%)
Adolescents	15-19 years	38 (10.00%)	Adolescents	15-19 years	135 (43.55%)
Adults	20-60 years	28 (7.63%)	Adults	20-60 years	77 (24.83%)
Old	>60 years	68 (17.89%)	Old	>60 years	13(4.19%)
Total		380	Total		310
Gender			**Gender**		
Males		170 (44.74%)	Males		206 (66.45%)
Females		210 (55.26%)	Females		104 (33.55%)
Total		380	Total		310
Residence			**Residence**		
Urban		147(38.68%)	Urban		260 (83.87%)
Rural		233 (61.32%)	Rural		50 (16.13%)
Total		380	Total		310
Thought of preventive strategy		266 (38.6%)	Thought of preventive strategy		424 (61.4%)
Total		266	Total		424
Temporary impairment		174 (45.8%)			
Fully recovered		86 (22.6%)			
Death		83 (21.8%)			
Permanent impairment		37 (9.7%)			
Total		380			

Table-II: Respondents' awareness for preventive strategy in future against domestic accidents.

Residence		**Thought About Remdy**		***p*-value**	**Total**
		No	Yes		
	Rural	156	77		233
	Urban	97	50	0.84	147
Total		253	127		380

MATERIAL AND METHODS

A community based cross sectional study was conducted between January and November 2015. A Pilot study was conducted on 200 subjects (100 rural, 100 urban) to calculate the sample size, the prevalence of domestic accidents was found to be 58 (29%) which give us the

inclusion criteria were enrolled by simple random technique. EPI district Micro-plan was used to develop household sampling frame and subsequently the subjects were enrolled using computer software based random selection; among total sample six hundred and ninety were able to complete questionnaire (78.4% response rate).

The standard structured questionnaire[12] was used to collect data. Information with regards to domestic accidents among the family members in the last one year from the date of study was acquired by interviewing the family head or responsible adult. The data were collected by trained researcher from Liaquat Medical University of Pakistan.

The tool was adopted from similar study in India by Sudhiret al[12]. The tool was pre-tested in local settings prior to start of the study and subsequently few changes were made to the surveys language and style to enhance its comprehensibility.

The questions comprised of three sections. The first section inquired about socio demographic characteristics of participants that included age, gender, residence status etc.

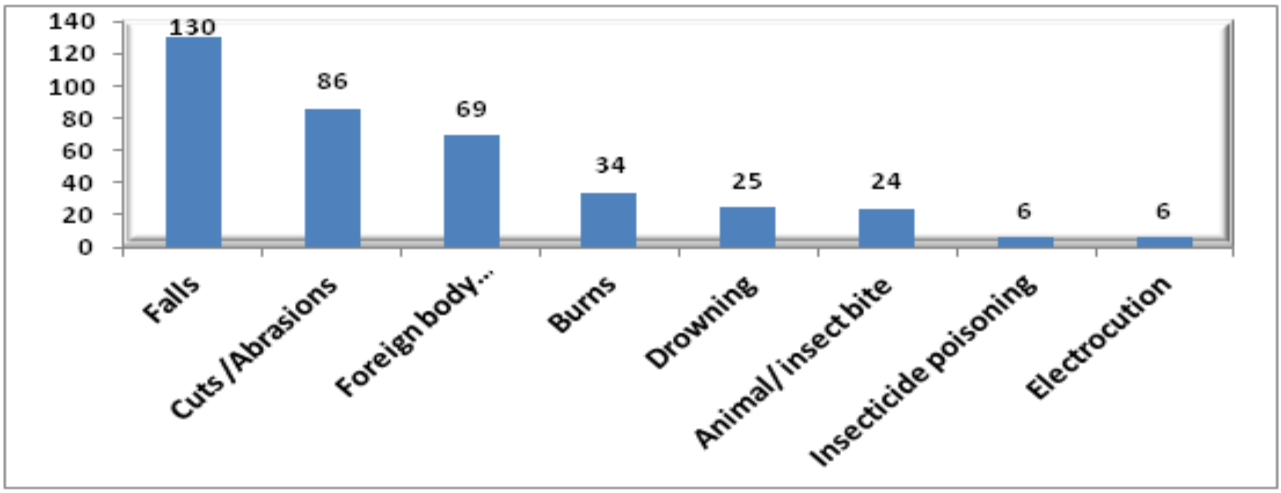

Figure-1: Pattern of domestic accidents.

The second section inquired about the frequency of domestic accidents, type and gender distribution of domestic accidents. In the third section the data was collected regarding outcome of domestic accidents such as death, temporary impairment, permanent impairment and full recovery. All the responses were in categorical format.

The data were entered and analysed using SPSS version 20 software. Cross-tabulation was done to calculate frequencies and percentages. Pearson's chi-square test ($\chi 2$) was used to see the linear association between categorical variables. *P*-values less than 0.05 was considered as significant.

RESULTS

Six hundred ninety respondents were able to complete the questionnaire, the study response rate was 78.4%. The prevalence of domestic accidents was 55.1%. Injuries due to falls were the most commonly reported accidents (34.2%) followed by cut and abrasions (22.6%) (fig-1).

Among affected participants, females were the most affected group compared to males (55.3% vs 44. 7%). Young children were the most affected (62.4%; p=0.001) (table-I).

Falls were reported most commonly among males while cuts abrasions were recorded more among females. Electrocution and insecticide poisoning were the least recorded accidents in both gender groups (fig-2).

Domestic accidents were reported at almost twice higher frequency among rural population as compared to urban population (61.3% vs 38.7%) and have strong statistical association (p=0.000). The household accidents were reported at almost twice higher frequency among rural population as compared to urban population (61.3% vs 38.7%) and there was strong statistical association (p=0.000). The respondents awareness to adopt preventive strategy in future

against domestic accidents were however not related to their residential status (p=0.84), as shown in table-II.

Regarding outcomes of accidents, females were most commonly recorded as being temporarily impaired for 1-2 weeks. Death as a consequence of domestic accidents were almost equally reported among both genders (males; 22.3% vs females; 23.8%) (fig-3).

DISCUSSION

There has been a record rise in non-communicable diseases during the last few decades; accidents are one of these events. The occurrence of such events may not be underestimated in any sphere of life. The prevalence found in our study (55.1%) is quite higher than from an Indian study where it was reported as ninety four percent[12]. This however may not be the true representative of the real situation as the related data on household accidents are either under reported or over reported. The 55.1% frequency of these events reveals the higher report rate in current study. The current study collected data on the subjects encountering domestic accident even just for one time; we could have found low prevalence for such events if data collection was restricted to recording repeated occurrence of accidents only.

Overall, the mean age of affected males was 20.67 ± 2.57 years; while among females, it was 17.28 ± 2.34 years. Referring to the group ages of the affected subjects, infants & young children were most commonly seen to be affected by household accidents (62.4%). The children were the worst affected part of population as revealed by other researchers' also[12,13]. The outcome of accident however did not show statistically significant association with age of the victim p=0.10). According to World Health Report 2008, the children especially of younger age are 3.4 times more prone to have unintentional injuries, this figure rises to threefold in case of under privileged communities of low income countries[14]. The head injuries inflicted in our study were 10.2% of the total childhood injuries which in consistent with study in USA[15].

We found more females affected by unintentional domestic injuries (55.3%) including cuts & abrasions as well as burns. This could be due to the fact that we had covered both rural & urban population. Other reason may be that in rural areas, females spent more time in homes & have more participation in the household work. Similar females' preponderance was revealed in an Iranian study also[16]. Burns were reported in only 8.94% of subjects but majority of them were females. In an exclusive research of epidemiology of burns, house hold was found to be the commonest site of burn i.e. in 68% of cases[17]. Due to scarcity of research on burns, the data remains

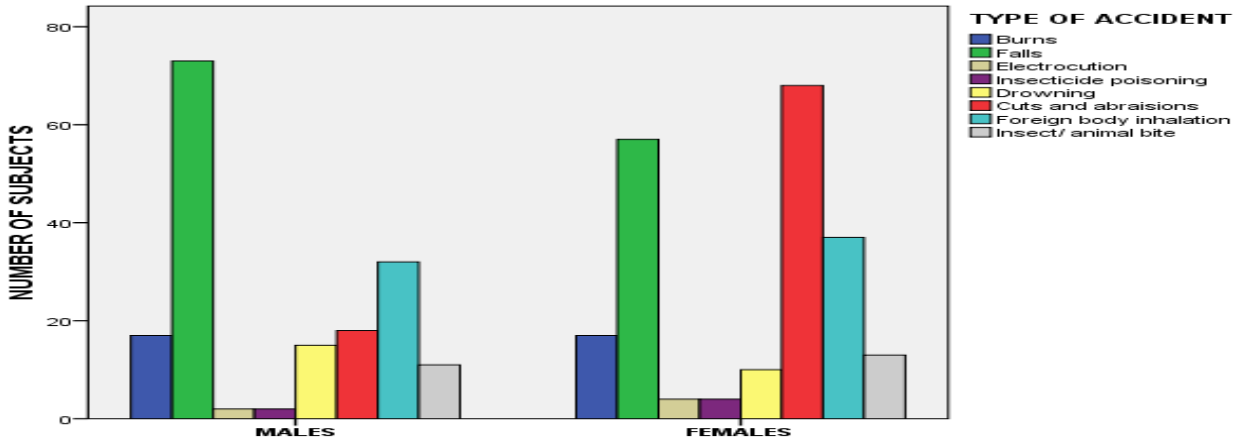

Figure-2: Gender wise distribution of domestic accidents.

incomplete but in one of the rare studies, we find majority of the cases of burns among women[18].

Regarding patterns of household injuries, we found falls & head injuries (34.2%) as the commonest injury followed by cuts and abrasions (26.8%). The highest number of household non-intentional injuries included cuts and piercing injuries as revealed in a research conducted in Pakistan[19].

We found that more than seventy percent accidents were repeated twice or more times. The association of gender to repetitiveness of accidents was not significant (p=0.17); however, its association to younger age was strongly significant (p=0.01). The frequency of household accidents in same person should be dealt with extra attention as it is more contributing factor towards morbidity and mortality in community[20]. We found domestic accidents reported at almost twice higher frequency among rural population as compared to urban population (61.3% compared to 38.7%) with a strong statistical association (p=0.000). These findings were also endorsed by other studies with the same objectives[21,22].

In our study 21.8% of the domestic accidents resulted in deaths of victims; 45.8% of the subjects were temporarily disabled while 9.7% were permanently disabled . Due to such morbidity, 33.4% subjects thought about some remedial strategy to avoid occurrence of such event next time in life; the need for future preventive strategy were however not related to the subjects' residential status (p=0.84). Surprisingly, when asked about need for any guideline on prevention, more than 75% subjects replied in affirmation; this highlights the in depth need for such steps in the community surveyed. Similar were the findings in a study which aimed at need assessment of counselling & training of masses on the subject of domestic accidents[23]. Connoret all found that such injuries would have been averted by good parental supervision skills[15]. The simple health promotive and injury preventive messages play a vital part in safety of community from household accidents.

CONCLUSION

Domestic accidents and injuries are the neglected public health issues & they need concrete focused attention of the related primary health care providers. Extremes of ages, female gender & rural residence are the major risk factors for these events. These can be prevented by raising the level of awareness among at risk population, by development of comprehensive national health policy for their reporting and prevention.

Funding Source

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Compliance with Ethical Standards

All the authors declare that there is no conflict of interest. The ethical approval was sort from institutional ethical committee prior to start of the study. Our study is interview based survey, hence does not involve any procedure or intervention which could discomfort/harm participants in anyway. Additionally, our data does not contain any identifiable or personal data such as address, name of place person or any other sensitive information. The respondents were explained about the purpose of the study and participation in the survey was considered voluntarily, those who consented verbally were further sort written consent. Moreover, all procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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