



Unintentional Domestic injuries in a rural community in Punjab, India - Social and Economic Costs

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ABSTRACT

Introduction: Domestic injuries, like all diseases, result from multiple causes and affect individuals in different ways. Globally, DALY's are lost due to Falls, Poisoning, Fires, Drowning and other home accidents. Most of these injuries go unreported being minor injuries and are locally treated. The aim of this study was to find out the social and economic impact of domestic injury in the rural community.

Methodology: It was a descriptive epidemiological study carried out in a rural area of Punjab. Frequency of domestic accidents was studied as per category of accident and place of taking treatment. Also the social and economic costs of domestic injuries was studied.

Results: A total of 295 Domestic injuries occurred in a period of six months in the 2634 individuals studied. The average money spent on treatment was Rs. 558.40 per injury case while Rs.220.0 were spent on transport for going to the place of treatment. The average number of work-days lost were 11.95 days while the average school-days lost were 7.53 days.

Conclusion: Impact of Domestic injuries can be reduced by safety awareness drives in the rural community.

Key words: Domestic injuries, category of injury, social cost, economic cost

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INTRODUCTION

Unintentional Domestic injuries are a major public health problem worldwide. Member-countries of South-East Asia Region (SEAR) are passing through a major epidemiological transition, socio-demographic change & technological revolution during the past two decades.⁽¹⁾ In the developing regions of the world, increasing number of people living in crowded & unsafe housing settlements contribute to the higher health burden of injury.

Unintentional domestic injuries are a special group in themselves reflecting the character & way of living of people. Quite a new pattern of injury attributable to home injuries emerges with each technical or cultural change. It is known that hospital data show only a fraction of the complete picture of physical injuries in a community.^(2, 3, 4, 5) Population-based estimates of the burden of common injuries such as falls, burns and farm/field related injuries are still uncommon.⁽⁷⁾

Also, very few studies have been carried out to find out the social and economic costs of home injuries. A few studies have been carried out in the western world, but knowledge in this field is limited. On literature search, no such studies have been found in India to study the costs of domestic injuries. Hence, this population-based study was conducted to estimate the social and economic cost of domestic injuries in a rural area of Punjab, India.

METHODS

This was a descriptive epidemiological community-based study carried out in a village of the rural field practice area under the Department of Community Medicine. The entire population of the village consisting of 2634 individuals was studied for six months from January to June 2014. The entire population of the rural area was closely monitored by female health workers who provided home-based comprehensive healthcare. During her visit, the health worker made a specific regular enquiry about the occurrence of any accident in the family. A pretested proforma incorporating the particulars of the family and its housing was completed (House-hold characteristics). A second proforma incorporating the details about the domestic injury was filled up (Individual injury event). The proforma covered all injuries occurring in the house such as falls, electric current injuries, cuts and burns during kitchen practice, injuries while playing in the house and any mishap by taking

poisons / household products like kerosene oil / medicines / pesticides and any other type of accidents. These parameters were as per International statistical classification of disease and related health Problems (ICD-10).⁽⁷⁾

Domestic injury in this study included any unforeseen untoward happening in the house, its compound, up to and including the steps leading to the house. Injuries occurring outside the home i.e. at the place of work, school and road traffic accidents were excluded from the study. Guests/visitors who were not the permanent members of the family were not considered in this study.

The severity of accidents was classified as below:⁽⁸⁾

Trivial: Examined but no treatment given.

Minor: Treated and no more treatment required / Referred to G.P / Admitted for < 1 day.

Serious: Admitted for 1 to 3 days.

Very serious: Admitted for >3 days / Transferred to a specialist.

Fatal: All deaths due to accidents.

The data so collected was tabulated and analyzed. Simple descriptives & frequencies were used.

RESULTS

The population under study comprised of 2634 persons, out of which 1415 were males & 1219 were females. A total of 295 injuries occurred in the total population, of which 33.5% were trivial, 38.6% were Minor, 16.3% were Serious and 11.2% were Very Serious injuries. One Fatal injury was reported which was due to accidental 'Fall' in an elderly woman. (Table 1). Table 2 shows that most of the cases who met with trivial and minor injuries took home-based indigenous treatment, while serious injury cases opted for treatment from a qualified doctor and hospital. Table 3 shows that 180 accident cases spent money on treatment. The average money spent in the treatment of an accident case was Rs 558.40. The variation in the expenditure is very high as obvious from the associated range (Rs.2-14000) with standard deviation of 1838.61. The median amount of money spent on treatment was Rs 50.00.

42 cases spent money on transport to the place of treatment. On Transport, the average money spent was Rs 220.00.

38 cases lost the workdays and 30 students lost a school-day. Average number of school days lost in this category was 7.53.

Table 1: Distribution of accident cases as per the category of injury

Category of Injury	Total number of injuries (N=295) (%)
Trivial	99 (33.5)
Minor	114 (38.6)
Serious	48 (16.3)
V. Serious	33 (11.2)
Fatal	1 (0.3)
Total	295 (100.0)

Table 2: Distribution of accident cases as per the category of injury and place of taking the treatment

Place of treatment	Category of injury				Total*	%
	Trivial	Minor	Serious	Very Serious		
Home treatment	91	67	15	5	178	59.3
Unqualified person / Quack	2	11	14	15	42	14.0
Chemist	11	31	5	2	49	16.3
Doctor	-	22	30	28	80	26.7
Hospital	-	2	2	9	13	4.3
Total	104	133	66	59	362	

* Total exceeds because of multiple sources of treatment

Table 3: Cost of domestic accidents (money spent, work days lost & school days lost)

	Money spent on treatment (Rs) (n=180)	Money spent on transport (Rs) (n=42)	Work days lost (n=38)	School days lost (n=30)
Mean	558.40	220.00	11.95	7.53
Median	50.00	100.00	4.5	2.00
Range	2 - 14000	5 - 2000	1 - 50	1 - 60
Standard deviation	1838.61	425.64	15.08	14.68

DISCUSSION

Domestic injury as a research problem has been largely ignored in the developing countries. Hospital based data incompletely reflects the occurrence of injury in the population as many injured patients might not seek or manage to obtain hospital care. Unsafe method of cooking, heating and lighting take a huge toll of lives. In India, if one can expect electricity hazards from new appliances i.e. mixer and grinder, room heater, refrigerator and television in urban population, then one can also notice the fire accident from open fire, chullah, angithi or stove, hazards due to cattle, falls from trees in the courtyards, and accidents due to home mechanical devices like fodder-cutter in rural population.

This study recorded all injuries regardless of severity, as against other studies in which only injuries that led to treatment in the hospital or loss of at least a day's work were recorded. Lost quality

of life results from pain, loss of motor or cognitive functioning, and primitive death attributed to injury, and is valued in non-monetary terms as quality adjusted life years⁽⁹⁾.

It was observed in this study that home-based indigenous treatment (eg. mustard oil, turmeric and ointments) was taken by maximum number of injury cases (59.3%). Most of them had met with a trivial or minor injury. Treatment was sought from a qualified Doctor by 26.7% cases. As the severity of injury increased, more and more cases opted for treatment from a Doctor or a hospital. Surprisingly, 15 very serious cases went to an unqualified person for treatment. Also 16.3% cases opted for treatment by the village chemist. (Table 2)

A study carried out in slum children in at Chandigarh (2000) also reported local wound applications like spirit, Dettol, turmeric and mustard oil.⁽¹⁰⁾ 37.0% accident cases were treated by an allopathic doctor in the study carried out in

Belgaum in Karnataka⁽¹¹⁾ as compared to 26.7% in the present study. The Home Accident Surveillance System in UK 1973-74 estimated that two-third home injuries were treated in hospitals and one-third by general practitioners.⁽¹²⁾

Economic costs of injuries are high. In terms of drain on social services, the cost of domestic accidents is difficult to measure. In the present study, attempt was made to ascertain the Direct (monetary) and Indirect (period of retarded activity) cost of home injuries. 180 injury cases spent money on treatment (average expenditure Rs. 558.40) while 120 did not spend any money. This may be because either these 120 had met with a trivial injury which did not require treatment or they took home based treatment like mustard oil or turmeric etc. The average money spent on transportation to the place of treatment was Rs 220.00. 38 cases lost some workday while 30 students lost school days because of this unintentional home injury. A study conducted in Allahabad among central government employees concluded the average period of retarded activity to be 2.5 days per person affected because of domestic accidents.⁽¹³⁾

For the 57 million people injured in the United States, the total costs of injuries was estimated at \$ 158 billion, with direct costs accounting for 29% of that amount.⁽¹⁴⁾ The Royal Society for Prevention of Accidents in United Kingdom recently carried out a valuation research to find out the cost of home injuries. It says that the 'cost to society of UK home injuries has been estimated at 45.63 billion pounds annually'.⁽¹⁵⁾

A study carried out in New Zealand estimated that unintentional home injuries in New Zealand impose an annual social cost of about \$NZ 13 billion (about \$US 9 billion), which is about 3.5 times the annual social cost of road injury.⁽¹⁶⁾ Economic impact of injuries was studied in a World health Organization Safe Community in Sweden. It was found that home injuries accounted for the largest share of community costs (29%).⁽¹⁷⁾

Mock et.al. (1995) reported that many developing nations can afford to spend only \$2-\$3 per capita per year for health, compared with \$2500 spent by the US.⁽¹⁸⁾ According to a US study conducted by Home Safety Council, employers are spending \$280 per employee for injuries suffered at home, which equates to \$38 billion a year total.⁽¹⁹⁾ Beyond the problem of medical care, social policy and economics, the domestic accidents have other repercussions. They are felt in terms of grief, separation and pain, the plight of the family and in terms of chronic handicap and deformity.

CONCLUSION

Beyond their financial toll, injuries also affect the quality of life of families. There is ample scope of decreasing the injuries in the domestic environment by initiating 'Community safety awareness programmes' for the rural and urban community. Data from different areas can provide important information for comparison and planning injury prevention work.

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