Original Article

Pattern of Injuries, Its Consequences and Concepts of Injury Prevention in a Rural Community in Bangladesh

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Abstract

Background : *An epidemiological transition occurs during the turn of the 21 st century. Non- communicable diseasespredominate over the communicable diseases along with the global economic development. Among the non-communicable diseases, injuries and accidents become a major concern.* ***Objectives:*** *To identify the pattern of injuries prevailing in a rural community in Sirajganj district during 1st November 2015 to 31st January 2016,* ***Materials and Methods:*** *This cross sectional study was conducted among the people living in the rural area near to Shahjadpur Upazila Health Complex of Sirajganj. A total of 442 respondents were interviewed face-to-face using a semi-structured questionnaire. Convenience sampling technique was adopted. Collected data were cleaned and analyzed with SPSS software (version 20.0).* ***Results:*** *There were 204 cases of injuries. Fall, cut injury, road traffic accident (RTA) and burn constituted 30.4%,30.4%,15.2% and 12.3% of the injuries respectively. Among the injured cases, 73 went to any health facility to seek treatment. Majority (53.4%) of the injured cases faced loss of activity with hand, 13.2% developed loss of mobility. Among the 73 injured persons who went to any healthcare facility for obtaining treatment, 2.7% expired, 4.1% lives with disability, 15.1% had temporary disability and 78.1% recovered. Nearly half (43%) of the respondents mentioned that they did not have idea about injury prevention.* ***Conclusion:*** *This study reiterates the need to spread the knowledge of pattern of injuries and its prevention through available evidence based strategies and multiple dissemination channels in rural areas.*

Key words: *Injury, Concept, Prevention, Rural community .*

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Introduction

Injuries are the leading cause of death and disability among children and young adults around the world.[1] Injury is a physical damage to the body, resulting from various kinds of energy (mechanical, thermal, electrical, chemical or radiant) in amounts that exceed the threshold of physiological tolerance, or from the absence of essentials (such as heat or oxygen). Injury can be categorized into unintentional [i.e. road traffic injuries (RTIs) and drowning] and intentional (i.e. suicide, homicide).[2] Approximately 5.8 million people die from injuries each year, accounting for 10% of the world's deaths. Globally, the three leading causes of death from injuries are RTIs (23%), self-inflicted injuries (15%) and violence (11%). For unintentional injuries, RTIs are the leading cause of death, followed by falls and drowning.[1,3]

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The consequence of injuries is not only death. Millions of people die from injuries and substantial numbers of people are left with either temporary or permanent disabilities. An estimated 16% of all disabilities globally are caused by injuries.[1,3] The effects of injuries are both emotional and financial, impacting individual, family and friends along with the entire nation. The costs derive from the cost of treatment, non-medical expenditure and loss of productivity of the individual and family members who need to take time off from work to care for patients. For example, RTIs have been estimated to cost yearly US$ 518 billion globally, of which US$ 65 billion is accounted for by low-income countries (LICs). Approximately 1% of gross national product (GNP) in LICs, 1.5% in middle-income countries (MICs) and 2% in high-income countries (HICs) are attributed to costs of RTIs.[3,4] Injuries have been traditionally thought of as accidents or random events. This has resulted in a global neglect of this area of public health. However, injuries are preventable by changing the environment, individual behavior, product, social norms, legislation and governmental and institutional policies to reduce or eliminate risks and increase protective factors.[5] Each year 30,000 Bangladeshi children die, 13,000 children become permanently disabled. Drowning is by far the greatest danger to children in Bangladesh and is claiming 17,000 lives per year. Families grieve and their community mourns the loss. However the vast majority of these deaths and injuries are entirely preventable. Considering these information this study was conducted to find the pattern of injuries in the rural community and assess awareness regarding its prevention.

Materials and Methods

This descriptive cross sectional study was conducted among the people living in the rural area near to Shahjadpur Upazila Health Complex of Sirajganj. Data were collected during the month of February 2016. Mainly the household heads were selected for the interview. In cases of absence of the household head any adult person was selected for the interview. A total of 442 respondents were interviewed face to face using a semi-structured questionnaire. Convenience sampling technique was adopted. Collected data were checked, cleaned and analyzed with SPSS software. The frequency tables were made in Microsoft Word and the figures were made using Microsoft Excel.

Results

Table I: Socio demographic characteristics of the respondents (n=442)

Attribute	Frequency	Percent
Family type		
Nuclear family	321	72.6
Joint / Extended family	121	27.4
Religion		
Islam	401	90.7
Sanatan	41	9.3
Monthly family income		
5000	66	14.9
5001-10,000	155	35.1
10,001-15000	107	24.2
15001-20000	55	12.4
20000	59	13.3
House type		
Pucca	38	8.6
Semi-pucca	78	17.6
Tin shade	317	71.7
Mud made	9	2.0
Latrine type		
Sanitary	405	91.6
Insanitary	37	8.4
Drinking water source		
Tube well	442	100.0

Among the total 442 respondents 321 (72.6%) were from nuclear families and the rest 121 (72.6%) were from joint / extended families. Majority [401 (90.7%)] were Muslims and 42 (9.3%) were Hindus. Regarding monthly income it was seen that 155 (35.1%) had monthly income 5001- 10,000 taka, 107 (24.2%) had 5001- 10,000 and 59 (13.3%) had >20,000 taka. Majority [317 (71.7%)] had tin shade and 78 (17.6%) had semi-pucca houses. Most [405 (91.6%)] of the respondents had sanitary latrines and all (100.0%) used tube well water (Table I).

Table II: Age distribution of the household members

Age (Years)	Frequency	Percent
< 5	271	11.7
5-17	567	24.5
18-40	1008	43.6
40-60	351	15.2
> 60	117	5.1
Total	**2314**	**100.0**

In the 442 households there were 2314 members of whom 1476 were adults having age > 18 years and 838 had age < 18 years. About the distribution it was seen that 271 (11.7%) had age below 5 years, 567 (24.5%) had 5-17 years, 1008 (43.6%) were in the age group 18-40, 351 (15.2%) in 40-60 and the rest 117 (5.1%) aged more than 60 years (Table II).

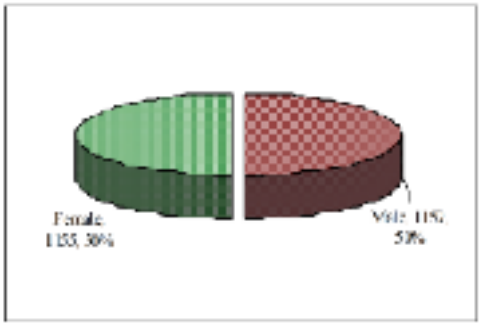

Figure 1: Distribution of the household members by sex (n=2314)

Among the 2314 household members 1159 (50.0%) were male and 1155 (50.0%) were female (Figure 1).

Table III: Distribution of the household members by occupation

Occupation	Frequency	Percent
Housewife	624	27.0
Farmer	112	4.8
Businessman	279	12.1
Service holder	150	6.5
Student	653	28.2
Rickshaw puller	37	1.6
Others	459	19.8
Total	**2314**	**100.0**

Table 3 reveals that 624 (27.0%) of the respondents were housewives, 653 (28.2%) were students, 279 (12.1%) were businessmen, 112 (4.8%) were farmers, 150 (6.5%) were service holders, 37 (1.6%) were rickshaw pullers and 459 (19.8%) were in other occupations. (Table III)

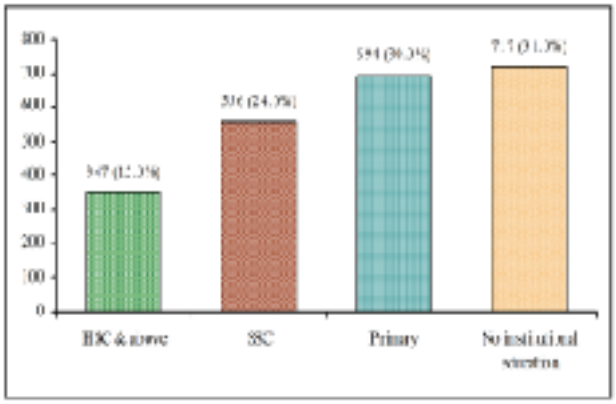

Figure 2: Distribution of the household members by education (n=2314)

Regarding education of the members of the household it was seen that 717 (31.0%) did not have any institutional education, 694 (30.0%) had primary education, 556 (24.0%) had secondary education and 347 (15.0%) had higher secondary level of education (Figure 2).

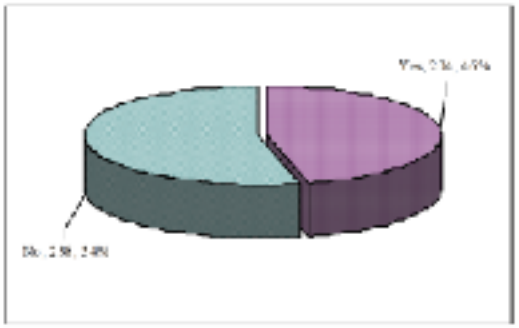

Figure 3: Distribution of the households by incidence of injury during November 2015 to January 2016 (n=442)

Among the 442 households 204 (46.6%) had any sort of injury to the household members and 238 (53.4%) households did not have any sort of injury to the household members during the months of November, December 2015 and January 2016 (Figure 3).

Table IV: Distribution of the household members by type of injury (n=204)

Injury	Frequency	Percent
Fall	62	30.4
Cut	62	30.4
Burn	25	12.3
Electrocution	7	3.4
Animal bite	9	4.4
RTA	31	15.2
Drowning	4	2.0
Machine injury	9	4.4
Violence	9	4.4

*Total relative frequencies exceed 100% due to Multiple responses of some individual respondent.

Fall, cut, road traffic accident (RTA) and burn constituted 30.4%, 30.4%, 15.2 and 12.3 of the injuries. Other injuries were animal bite (4.4%), machine injury (4.4%), violence (4.4%), electrocution (3.4%) and drowning (2.0%). Multiple responses existed (Table IV).

Table V: Distribution of the injured cases by management of injuries.

Attribute	Frequency	Percent
History of taking first aid (n=204)		
Yes	143	70.1
No	61	29.9
First aid provider (n=143) [Multiple responses]		
Family members	60	42.0
Village doctor	72	50.3
Registered doctor	32	22.4
Relatives	5	3.5
Others	3	2.1
Going to health facility (n=204)		
Yes	73	35.8
No	131	64.2
Type of health facility utilized (n=73)		
District hospital	45	61.6
Upazila Health Complex	18	24.7
Child Hospital	03	4.1
Nearby clinic	07	9.6

Among the total 204 injured cases 143 (70.1%) received first aid. First aid givers were Family members (42.0%), village doctors (50.3%) and registered doctor (22.4%). Majority [131 (64.2%)] did not have to go to any health facility. Among the 73 injured cases who went to any health facility to seek treatment, 45 (61.6%) went to district hospital, 18 (24.7%) went to upazila health complex, 3 (4.1%) went to child hospital and 7 (9.6%) went to nearby clinic (Table V).

Table VI: Distribution of the injured cases by treatment cost

Treatment cost (Taka)	Frequency	Percent
1000	35	47.9
1001-5000	22	30.1
5001-10,000	8	11.0
> 10,001	8	11.0
Total	**73**	**100.0**

Among the injured cases who had to go to any health facility, 35 (47.9%) had to spend ? 1000 taka, 22 (30.1%) spent 1001-5000 taka, 8 (11.0%) spent 5001-10,000 taka and another 8 (11.0%) spent >10,000 taka (Table VI).

Table VII: Distribution of the injured cases by loss of activity after injury

Type of activity loss	Frequency	Percentage
Loss of mobility	27	13.2
Loss of activity with hand	109	53.4
Loss of vision	3	1.5
Loss of speech	1	0.5
Loss of intellect	1	0.5
Others	10	4.9
No loss of activity	53	26.0
Total	**204**	**100.0**

Majority [109 (53.4%)] of the injured cases faced loss of activity with hand, 27 (13.2%) developed loss of mobility, 3 (1.5%) developed loss of vision, 1 (0.5%) each developed loss of speech and loss of intellect and 10 (4.9%) developed other mild loss of activity. There was no loss of activity in cases with 53 (26.0%) cases (Table VII).

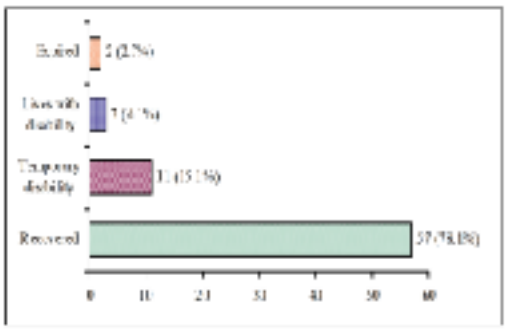

Figure 4: Distribution of the injured cases by outcome of treatment (n=73)

Among the 73 injured persons who went to any healthcare facility for obtaining treatment, 2 (2.7%) expired, 3 (4.1%) lives with disability, 11 (15.1%) had temporary disability and 57 (78.1%) recovered (Figure 4).

Table VIII: Distribution of the respondents by idea of immediate management of injury

Immediate management	Frequency	Percentage
First aid at home	166	37.6
Go to village doctor	83	18.8
Immediate hospitalization	62	14.0
Hospitalization after first aid	54	12.2
No idea	77	17.4
Total	**442**	100.0

Regarding immediate management of injury 166 (37.6%) respondents mentioned of first aid at home, 83 (18.8%) said to go to village doctors, 62 (14.0%) said immediate hospitalization, 54 (12.2%) mentioned hospitalization after first aid and the rest 77 (17.4%) said that they did not have any idea about it (Table VIII).

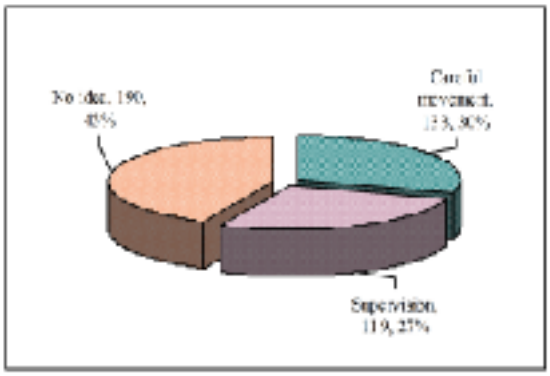

Figure 5: Distribution of the respondents by knowledge of injury prevention (n=442)

Nearly half [190 (43%)] of the respondents mentioned that they did not have idea about injury prevention, 133 (30%) said of careful movement and 119 (27%) mentioned of supervision (Figure 5).

Discussion

This study was conducted to find existing pattern of injuries, the treatment seeking behavior for injury and assess the awareness regarding its prevention in the rural community. A total of 2314 members from 442 households were evaluated. In this study among all the family members male female ratio found was 1.0 and 90.7% households were Muslims. In Bangladesh the sex ratio (M:F) was estimated to be 0.95 and as per 2011 census Muslims constitute over 90% of the population.[6,7] Members were of different occupations. But among them most were students which is about 28%, about 27% were housewives, 12% were businessman. So the literacy rate is 69.0% which corresponds with the national data (69.08%).[8] In this study 91.6% of the households were using sanitary latrines and all (100.0%) using tube well water. According to the national sanitation strategy conducted in 2013, only 33 percent of the households were found to have hygienic latrines.[9] Progress on sanitation and drinking water - 2015 update and MDG assessment showed that in Bangladesh 61% of rural population had sanitation and 87% had access to pure water.[10] Again according to the Journal of Bangladesh Academy of science (2013), 87 percent of rural people had tube well in their households.[11]

Although 46 percent of the households of that community had different types of injuries during last 3 months, most of the rural people silently accepted injuries as part of their life. Common causes of injuries among that community were cut, fall, burn, RTA, electrocution, animal bite, drowning, machine injury and violence. Although percentage of different type of injuries in the households of that community differed with other study findings but proportion of fall injury was almost similar to the findings of S.M. Chowdhury et al. in 2009.[12] Majority (53.4%) of the injured cases faced loss of activity with hand, 13.2% developed loss of mobility, 1.5% developed loss of vision, 0.5% each developed loss of speech and loss of intellect and 4.9% developed other mild loss of activity. There was no loss of activity with 26.0% cases. An Epidemiological Study of Injury in a Rural Community in Bangladesh showed among the injured only 19.2% escaped any physical consequence, 27.2% suffered from decrease in work capacity, 48.1% developed temporary disability, 3.8% developed permanent disability, and 1.2% suffered disfiguration.[13] About one third (30%) of the responded mentioned careful movement and 27% mentioned of supervision for prevention of injury. Nearly half (43%) of the respondents mentioned that they did not have idea about injury prevention.

Conclusion

As per the results of the survey report, most of the people has taken injury as part of their daily life. But the prevalence of different injuries is notable. So it is evident that there is lack of knowledge and awareness regarding pattern of injuries and its prevention. This study reiterates the need to spread the knowledge of pattern of injuries and its prevention through available evidence based strategies and multiple dissemination channels in rural areas.

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