



# AN EPIDEMIOLOGICAL STUDY ON DISABILITY PARAMETERS IN INJURY MECHANISMS IN JAMNAGAR CITY, GUJARAT

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## ABSTRACT

**Background:** Today accidental injuries constitute the major threat to our young people and those in the prime of their lives and productivity. Many of the injured are left with either temporary disability or permanent disability.

**Methods:** A cross sectional study was conducted on injuries from November-2004 to September 2005 in areas of Jamnagar city and total study subjects were 1496. Total 300 families were studied and 1496 participants.

**Aims:** To study various disability parameters in different injury mechanisms in Jamnagar city, Gujarat

**Results:** Out of total 177, only 3 (1.69%) had permanent disability. 153 (86.44%) persons had disability for 1-5 days. 1 (1.63%) was disabled due to road traffic accidents, 1 (2.12%) was disabled due to falls. 6 (3.38%) persons were dependent on others for help. Household income declined in 72 (40.44%) cases of injured subjects as a result of injury. Of 178, 9 (5.05%) sold things for treatment, 56 (34.46%) borrowed money. 9 (5.05%) had fear, 8 (4.49%) suffered from PTSD, 5 (2.80%) had family quarrels and 1 (0.56%) suffered from depression.

**Conclusions:** The study revealed many socio-economic issues and psychological effects after injuries. The after results from injuries are quite appealing and leads to many compromises in own life and other family members life.

**Key-words:** Injuries, Jamnagar, Disability, Dependent, Road traffic accidents

## INTRODUCTION

Around the world more than a billion people live with disabilities and the majority in low-income and middle-income countries. Out of all the disabilities a significant proportion of disabilities are caused by injuries including those which result from traffic crashes, falls, burns, and acts of violence such as child abuse, youth violence, intimate partner violence, and war and conflict.<sup>1</sup> The recent advances in medicine have brought the conquest of communicable diseases within sight. There has been a relative increase in the prevalence of accidental injuries and deaths. Today they constitute

the major threat to our young people and those in the prime of their lives and productivity.<sup>2</sup>

Although injuries and violence affect people of all ages, races and socio-economic status we know that the majority of the injury burden occurs among those from low income and middle income countries. Many of the injured will be left with disabling sequelae and in some cases, permanent ones<sup>3</sup>

Disability resulting from injuries represents an even more significant of public health problem, because it affects mainly young people which are

economically most productive sector of the population. The magnitude of the problem of disability can be measured and quantified in number of years lost due to premature death, and the number of years lived with disability.<sup>4, 5</sup> WHO states that injury accounts for 12-15 percent of disability adjusted life years (DALY) loss globally; 20 percent due to RTI.<sup>6</sup>

The current study was conducted to assess various disability parameters in different injury mechanisms in Jamnagar city, Gujarat

### MATERIALS AND METHODOLOGY

A cross sectional study was conducted on injuries from November-2004 to September 2005 in areas of Jamnagar city and total study subjects were 1496. The sample size came out to be 1150 which required minimum 230 families to be studied (considering each family having 5 members). We studied 300 families and the total study subjects studied were 1496. p was 8 as calculated from pilot study and L was 20% of p in  $4pq/L^2$ .

**Sampling method:** 30 cluster sampling method was used to draw samples from whole Jamnagar City.

Total 30 different geographical areas by name (cluster) from different wards were selected. In each area, 10 families were selected by a simple random sampling technique and each family member were screened and studied in detail for injury.

### RESULTS:

Out of 1496 subjects studied, we found that injury history for road traffic injuries, work related injuries, falls, burns, animal related injuries, injuries by sharps and drowning in the last one year was given by 178 persons and in different mechanisms of injury.

Out of total 177 injured persons, 3 were disabled. 1 each was disabled due to road traffic accidents, falls and by sharps. Out of total 3 persons having permanent disability, one person had difficulty using hand/arm injured in road traffic accident, one person injured in falling incident had limp and one injured by sharp object lost her eye.

Maximum cases were of road traffic accidents followed by work related injuries. 161 (93.60%) person reached hospital within 1 hr, 11 (6.39%) reached hospital in next 1-2 hrs (this is out of 172). No first aid was available at the place of injury in all the injuries. Out of total 177, only 3 (1.69%) had permanent disability. 153 (86.44%) persons had

disability for 1-5 days, followed by 12 persons who had disability for 10-15 days. Only 6 persons had disability for more than 15 days. On an average the disability days/school/work days lost was 3 days.

**Table 1: Distribution of injured subjects having permanent disability by mechanism of injury**

Mechanism of injury	Cases	Permanent disability
Road traffic accidents	61	1(1.63)
Falls	47	1(2.12)
Injury by sharp	3	1(33.33)
Total	111	3(2.70)

**Table-2: Details of transport time following injury, availability of first aid at scene and of disability days/ work, school days lost**

Duration of disability days	Frequency (%)
1-15	171(96.62)
>15 days	6(3.38)
Total	177(100.0)+

1 is excluded because of death; \*6 are excluded because they took home treatment or took no treatment

**Table 3: Distribution of injured subjects by bathing ability, toilet use and mobility**

Variables	Total (n=177+) (%)
<b>Bathing</b>	
Dependent on others for help	6(3.38)
Independent	171(96.61)
<b>Toilet Use</b>	
Dependant on others	2(1.12)
Needed some help	8(4.51)
Independent	167(94.35)
<b>Mobility</b>	
Immobile	2(1.12)
Walks with the help of at least one person	8(4.51)
Independent	167(94.35)

+ 1 is excluded because of death

171 persons (96.61%) were taking bath on their own, only 6 (3.38%) were dependent on others for help.

Household income declined in 72 (40.44%) cases of injured subjects as a result of injury. Of 178, 9 (5.05%) sold things for treatment, 56 (34.46%) borrowed money, 4 (2.24%) persons in the family took additional employment to make up loss.

There was no impact in 164 (92.13%) cases. 9 (5.05%) had fear, 8 (4.49%) suffered from PTSD, 5 (2.80%) had family quarrels and 1 (0.56%) suffered from depression.

**Table 4: Distribution of injured subjects by various economic impacts on family members**

Reasons	Economic impacts on Family members				
	Household income declined (%)	Things sold for treatment (%)	Borrowed money (%)	Additional employment (%)	Stopped work/school (%)
Yes	72(40.44)	9(5.05)	56(31.46)	4(2.24)	0(0.00)
No	106(59.55)	169(94.95)	122(68.54)	174(97.76)	178(100.0)
Total		178(100.0)	178(100.0)	178(100.0)	178(100.0)

**Table 5: Distribution of injured subjects by impact following injury**

Impact on household	Frequency (%) <sup>+</sup>
No impact	164(92.13)
Depression	1(0.56)
Post Traumatic Stress Disorder(PTSD)	8(4.49)
Family Quarrels	5(2.80)
Fear	9(5.05)

<sup>+</sup>Multiple responses

## DISCUSSION

The utilization of golden hour following injury is very crucial and is also important in preventing permanent and temporary disability which can occur as a result of blood loss to vital organs. The observation on the time gap between injury and reaching the hospital indicated that it was less than one hour in 93.60%, whereas it was one to two hours in 6.39%. Observation by Dhattarwal S.K and Singh H (2004)<sup>7</sup>, regarding the time taken to shift patients to road traffic accidents to hospital revealed that 4.2% case reached hospital within first 15 minutes, 15.4% died on the spot and were not brought to hospital.

Following injury, occurrence of permanent disability was analyzed and it was found that out of 3 injuries by sharp objects, one got injury leading to permanent blindness.1 each was afflicted with permanent disability due to falls and road traffic accidents. Of the total permanent disabilities which were seen in the present study, 1 was related to loss of vision, another 1 was related to difficulty using hand and arm and 1 was related to walking problem. As per Gururaj G (2008)<sup>8</sup>he mentioned that in the age group of 15–44 years, injuries, especially RTIs, are a major cause of disability. With a gradual decline in conditions such as polio and other infectious diseases, RTI-related disability is likely to increase in the coming years. As per a study by Vats S et.al<sup>9</sup>they mentioned that as per studies in India, majority of ocular injuries were sustained at work and home, and were blunt trauma.

Petroze RT<sup>10</sup> et al mentioned that out of total of 1,627 households (3,175 individuals); 1,185 lifetime injury-related surgical conditions were reported, with 38 % resulting in some form of perceived dis-

ability. Of the population, 27.4 % had ever had a serious injury-related condition.

Gururaj G. et al: (2000)<sup>11</sup>, nearly 100% of those with severe injuries 50% of those with moderate injuries and 10-20% of those with minor injuries carry disabilities of a physical or psychological nature requiring long term rehabilitation services.

Duration of disability days ranged from 1-60 days. Maximum number i.e. 86.44% of subjects suffered the duration of disability days between 1-5 days. None of the persons suffered disability days more than 60. In a study by Candida Moshiro et al. (2005)<sup>12</sup>, about 7.3% individuals who sustained an injury reported between 15 and 21 disability days, with only 3 reporting 22–29 days of restricted activity.

Out of 178 subjects who sustained injury, one died and 177 had days of work / school lost. It ranged from 1-60 days. Majority i.e. 86.44% had 1-5 days lost. Candida Moshiro et al (2005)<sup>12</sup>, found that injury on average, 14 days of normal activity were lost, per person because of an injury. 3.38% of the injured subjects were dependent for bathing ability and 5.68% were dependent for toilet use.

More than 1/3 i.e. 40.44% of the study subjects suffered declined in household income following injury. Gururaj G. (2002)<sup>13</sup> found that majority of household reported declined in earnings after injury.

It was found that 5.05% had to sell their family things, 31.46% had to borrow money and 2.24% undertook additional employment following injury. Gururaj G. (2002)<sup>12</sup> found that many had to borrow money from external sources for survival. The impact of injury on the household indicated that 0.56% underwent depression, 4.49% suffered and 2.80% faced family quarrels. Mayou R. et al: (1993)<sup>14</sup>, in his study found that long term psychiatric problems consisted mainly mood disorders (in around 10% of cases), phobic travel anxiety 20% and post traumatic stress disorders 11%. Phobic travels disorders was frequent among drivers and passengers. According to O'Donnell ML et al. <sup>15</sup>physical and pain consequences of injury contribute significantly to enduring disability after injury and psychiatric symptoms play a greater role.

Reville RT and Schoeni RF <sup>16</sup> have mentioned that disability has high societal and personal costs.

Studies of the economic and social consequences of disability among adults have documented the disadvantages that confront individuals with disabilities.

## CONCLUSIONS

The study revealed many socio-economic issues and psychological effects after injuries. The after results from injuries are quite appealing and leads to many compromises in own life and other family members life.

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