

ECONOMIC BURDEN DUE TO INJURY AND VIOLENCE IN NEPAL

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Nepal

2

Economy:

- **GDP:** \$12.6 billion (2008 est.)
- **GDP:** purchasing power parity - \$31.09 billion (2008 est.)
- **GDP - real growth rate:** 5.6% (2008 est.)
- **GDP - per capita:** purchasing power parity - \$1,100 (2008 est.)
- **Population below poverty line:** 33% (2007)

http://en.wikipedia.org/wiki/Economy_of_Nepal

In Nepal

3

Study in a post mortem centre in Nepal found that out of 4383 reports:

- ▣ 32% post mortem cases were injury related (More than half of which were road traffic accidents)
- ▣ 25% cases were suicides
- ▣ 9% cases were homicides

Sharma G, Shrestha PK, Wasti H, et al. A review of violent and traumatic deaths in Kathmandu, Nepal. International Journal of Injury Control and Safety Promotion. 2006;13(3):197 – 9

In Nepal

4

- There are altogether 120 articles published on injury and violence in Nepal
- Twenty three articles studied incidence and their effects

Joshi SK, Shrestha S. A Study of Injuries and Violence Related Articles in Nepal. J Nepal Med Assoc 2009;48(175):209-216

In Nepal

5

- The economically active population was mostly involved in injuries.
- Road traffic injuries were the most common form of injuries, most of which (42.5%) involved motorcycles.
- Pedestrians (48.6%) were the most vulnerable group of population.
- Falls (48.9%) were the most common cause of neurotrauma.

Joshi SK, Shrestha S. A Study of Injuries and Violence Related Articles in Nepal. J Nepal Med Assoc 2009;48(175):209-216

Why This Study ?

6

- The problem in Nepal is there is no proper injury surveillance system. Hence, there is no reliable data.
- There is no previous study on economic loss due to injury
- Thus, this study attempts to assess the incidence, severity and crude socioeconomic burden of injuries

Methods

7

- Cross sectional descriptive study (A pre tested data collection format adopted from WHO Work Plan NEP INJ 001)
- Conducted in two of the major cities of the country; Kathmandu and Bhaktapur
- Three referral health centres (not for profit) in each of the cities
- All injured patients seeking medical care in emergency departments of those health centres were enrolled in the study.

Methods

8

- Details of the injury – circumstances of injury, cause of injury, bodily location of injury, involvement of vehicles, emergency treatment details, expenses of the treatment at emergency department and later, economic loss due to inability to work
- Data recorded for a month (17 Aug to 16 Sept '08)

Results

9

- A total of 505 injury cases with 367 males and 138 females

Severe injuries: 53 (10.5%)

Mod. severe injuries: 264
(52.5%)

Minor injuries: 176 (34.9%)

Nature of injury	Frequency	%
Cut, bite, open wound	245	40.2
Fracture	130	21.3
Bruise	102	16.7
Sprain	56	9.2
Concussion	24	3.9
Internal organs injury	11	1.8
Burn	8	1.4
Others	33	5.5

Age groups of the injury cases

10

Age groups	Sex of the patients		Total (%)
	Male (%)	Female (%)	
Preschool children	14 (3.8)	11 (7.9)	25 (4.9)
School children	123 (33.5)	36 (26.1)	159 (31.5)
Economically active group	218 (59.4)	85 (61.6)	303 (60.0)
Elderly population	12 (3.3)	6 (4.4)	18 (3.6)
Total	367 (100)	138 (100)	505 (100)

Activity during injury

11

Activity during injury	Total (%)
Working	93 (18.5)
Playing Sport	76 (15.1)
Travelling by vehicle	134 (26.6)
Walking on street	80 (15.9)
Household chores	105 (20.8)

Expenditure at the health centres

12

Expenses	Number	Mean Expenditure (US\$)	Total Expenditure (US\$)
X rays	310	3.6	1098.1
Blood and urine investigations	106	6.8	375.5
CT scanning	40	26.7	1011.9
ECG	15	0.6	7
Medicines	356	5.8	2053.7
Hospital expenditures	419	1.1	446.5
Total	1246	44.6	4992.7

§ All the calculations are done at 1 US\$ = NRS 80

Economic loss due to inability to go to work

13

Loss due to	Minimum loss (US\$)§	Maximum loss (US\$)	Mean loss (US\$)	Sum (US\$)
Lost of income from work for the survivor	2.5	625	49.9	4996.8
Lost income from work for family members	1.25	250	31.7	2975.3
Total	3.75	875	81.6	7972.1

§ All the calculations are done at 1 US\$ = NRS 80

Total loss per injury case (mean)

14

- Thus, a single injury case cost 1 26.2 US\$ including all the expenses at the hospital and the loss due to inability to work
- Economic loss due to loss of production is not included

How much loss at the National Level: a crude estimation

15

- Total number of injuries recorded in 11 referral level regional hospitals in Nepal from mid July to mid June 2009 was 37,973.

Epidemiological study on injury and violence in Nepal. Nepal Health Research Council, 2009

How much loss at the National Level: a crude estimation

16

- Total number of injury cases per month: $37,973/11 = 3,452$
- Total number of injury cases per day: 115
- Total number of injury cases per day per hospital: $115/11 = 10$

How much loss at the National Level: a crude estimation

17

- Total number of referral level hospitals in Nepal: 37
(Ministry of Health and Population, Nepal)
- Total number of injury cases per day in Nepal: $37 \times 10 = 370$
- Total number of injury cases per year in Nepal: $370 \times 365 = 135,050$

It is a huge underestimate as the minor injury cases and all other injury cases will not attend the referral hospitals

How much loss at the National Level: a crude estimation

18

- Thus, the mean annual cost due to injury in Nepal (medical expenditure and loss of salaries only):

$$\text{US\$}126.2 \times 135,050 = \text{US\$}17,043,310$$

i.e. 0.135% of Gross Domestic Product – GDP

It is just a crude estimate. The reality may be different.

Conclusions

19

- High incidence of road traffic injuries
- Huge economic burden which is difficult for our nation to support
- It is a crude estimation, so we need a systematic longitudinal data collection, at least at the district hospital level, as well at the community level if possible

Reference and Acknowledgement

20

- Joshi SK, Shrestha S: Economic and social burden due to injuries and violence in Nepal: a cross-sectional study. Kathmandu Univ Med J (KUMJ); 2009 Oct-Dec;7(28):344-50 (PMID:20502072)
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THANK YOU