

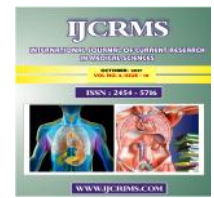


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# Profile of Medico-legal Injury Cases in a Tertiary Care Hospital in North India

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### Abstract

The objective of this study was to determine the frequency of age and sex with type of lesion and causative weapon after trauma in a medico-legal clinic and to find the impact on the commonest target organs in the study area. This study was conducted to understand the magnitude and pattern of medico-legal injuries. One year retrospective study from January to December 2016 in the Casualty / Emergency department of Government Medical College & Rajindra Hospital Patiala in Punjab state of India revealed that male to female ratio was 6.4:1 and maximum of 34.6% individuals were in age group of 20-29 years. Body area injured varied according to cause. Seasonal, Literacy and urban-rural variations are figured out.

**Keywords:** Injuries, Medico-Legal Clinic, Violence, Homicide, Fire-arms, Sharp Weapons, Sexual Assault

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### Introduction

The standard definition of an injury as used by WHO is injuries are caused by acute exposure to physical agents such as mechanical energy, heat, electricity, chemical or ionising radiation interacting with the body in amounts or at rates that exceed the threshold of human tolerance [1]. The twentieth century will be remembered as a century marked by violence. It burdens us with its legacy of mass destruction, of violence inflicted on a scale never seen and never possible before in human history. But this legacy – the result of new technology in the service of ideologies of hate – is not the only one we carry, or that we must face up

to [2]. Injuries account for 16% of the world burden of disease. In 1990, 5 million people died due to trauma and injuries. The number is expected to rise to 8.4 million by year 2020. Low and middle income countries account for 90% of the total burden of injuries with Southeast Asia and western pacific regions having the highest number of injury deaths worldwide. Road traffic accidents will be the second most common cause of disability in the developing world [3, 4]. The age group most vulnerable to receive injuries ranges from 17–25 years with male preponderance [5]. The head and face is the most

commonly involved region in trauma as it is the most accessible and exposed region in the interpersonal violence [6]. The frequency varies from place to place depending on high gun possession [7]. About 5.8 million people die each year as a result of injuries. This accounts for 10% of the world's deaths, 32% more than the number of fatalities that result from malaria, tuberculosis, and HIV/AIDS combined. The present study is an attempt to address this deficit in this zone by providing epidemiological profile of medico-legal cases.

**Materials and Methods**

This cross-sectional study was conducted in Casualty Department of Rajindra Hospital Patiala, Punjab, INDIA. It was conducted during the period from 1<sup>st</sup> Jan2016to 31st Dec 2016. Patients with physical trauma who presented for medico-legal examination in the ER were included in the

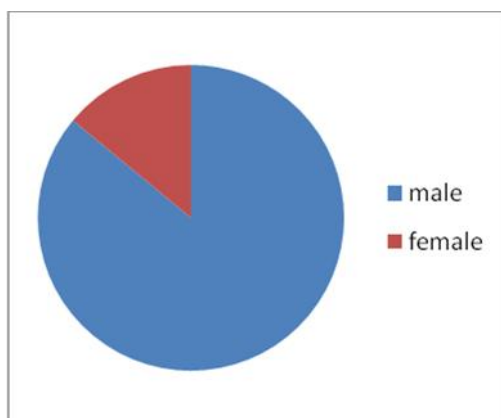
study. Patients having physical trauma but refused to have medico-legal examination were excluded from study. Household physical trauma, sexual assault victims and victims of poisoning and alcohol were not included. Patients received dead were also excluded from this study. A questionnaire was formulated and cases were grouped on basis of age, sex, type of Trauma, weapon of offence, area of body involved and time of arrival. For physical trauma 4 subgroups were formed according to type of offence, i.e., road traffic accidents, blunt, sharp and firearms. Similarly area of body damaged is classified into five regions, i.e., head and neck, chest, abdomen, upper limb and lower limb. Similarly month wise prevalence and incidence of reported cases were tabulated in a separate column. Statistical evaluation was made .During the period of the study a total of 300 cases of physical trauma examined for medico-legal certification at this centre by me.

**Results**

**Age and Gender distribution of patients of physical trauma**

Age group (in years)	Total		Male		Female	
	No.	%	No.	%	No.	%
0-9	10	3.3	8	3.1	2	4.76
10-19	63	21	56	21.7	7	16.66
20-29	104	34.66	87	33.72	17	40.47
30-39	67	22.33	55	21.31	12	28.57
40-49	24	8	21	8.13	3	7.14
50-59	13	4.33	12	4.65	1	2.38
>60	12	4	12	4.65	0	0
Total	300	100	258	100	42	100

**Male and Female distribution**



Male are 258 in number while female are 42 in number and male: female is 6.14:1

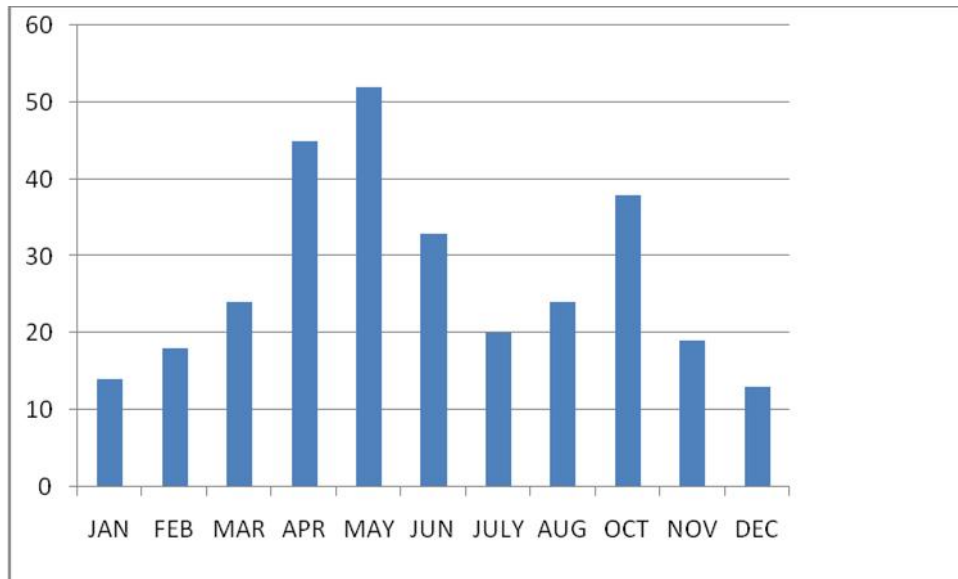
**Time of arrival**

Time of day	No. of cases
8 am to 4pm	45(15%)
4pm to midnight	223(74.33%)
Midnight to 8 am	22(7.33%)

**Regional distribution of injuries (775)**

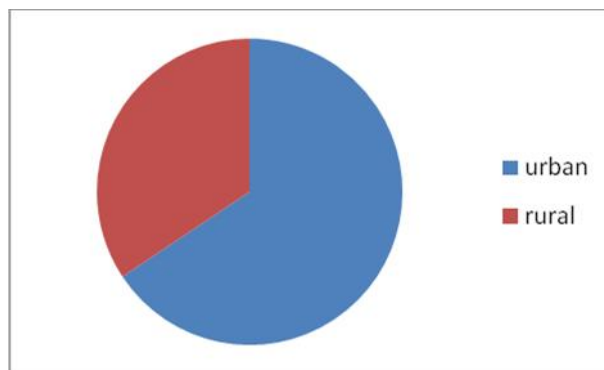
Body area	Firearm		Sharp		Blunt		RSA	
	n	%	n	%	n	%	n	%
Head & neck	1	12.5	18	22.5	300	45.18	45	36.5
Chest	2	25	6	7.5	73	11.40	3	2.43
abdomen	1	12.5	9	11.25	68	10.24	1	0.81
Upper limb	3	37.5	31	38.75	127	19.12	50	40.6
Lower limb	1	12.5	16	20	96	14.45	24	19.5
	8	1.03	80	10.32	664	85.67	123	15.87

**Monthly distribution of injuries**



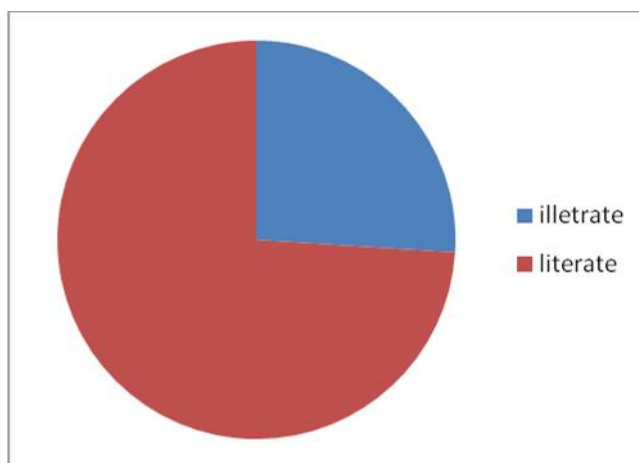
Months of April and May in summer season and October shows increase in no. of medicolegal cases.

### Rural and urban distribution of patients



Urban are 197 in no. and rural are 103 in no.

### Distribution of patients according to literacy



### Discussion

Injury incidence rate of India is 8.7/100,000. In the present study total of 300 cases taken. Male preponderance with 6.4:1 was also expected and is in line with worldwide trends [10-17]. This trend of male to female ratio depends on the role of females in society.

The findings of 66.99% of victims between 20–39 years of age is in line with other studies [9, 10, 12-14, 16, 17, 23]. This age group is the most active phase of life, physically and socially and hence outnumbers the other age groups

The most common methods of causing injury worldwide are stabbing, mechanical asphyxia, blunt weapon and firearms. In US the most frequent manner of death in cases of homicide and suicide is by use of firearms [1]. This is in line with studies in Pakistan where firearm is the

first weapon of choice in homicide followed by sharp weapon [19, 20]. This is contrary to the study conducted in UK [11, 21] where prevalence of penetrating trauma is on rise in urban areas with 86.8% and second are firearm injuries with 13.3%. The area of body most commonly involved by sharp weapon is upper limb 38.75% followed by head and neck as reported in other studies [6, 10, and 22]. The kind of weapon depends upon the intention of the assailant. Where the intention is to kill, the weapon is a firearm, but where the intention is to injure, blunt and sharp weapons are preferred over fire-arms. In our study, 85.67% injuries are due to blunt weapon followed by 15.87% by road side incident while only 1.03% are by firearm. The greater likelihood of blunt injury being on head and neck is reported in other studies [6, 10] as in our study 45.18% injuries of blunt weapon are on head and neck.

The majority of cases comprised of rural population 197 (65.66%) as compared to the urban 103 (34.34%). RTIs are one of the major causal of injury. RTIs have a yearly incidence of 15 injuries for every 1000 persons. An estimated 1.2 million people worldwide are killed as a result of road traffic injuries each year. The incidence of head and neck in RTI as the most affected areas of body is same as in other studies [8, 10, and 24].

Most of cases arrived in the evening and early night constitutes (74.33%). The higher incidence in May to July and October to December are seen may be due to occupational timings. All injuries were declared according to Indian Criminal Procedure Code as simple, grievous etc.

### Conclusion

Injuries are neglected epidemic in developing countries. Despite the weight of evidence, the importance of preventing and treating injuries in low and middle income countries has yet to be embraced by global public health community. Injury related research should be increased; and improvement in health care facilities and post-traumatic care should be worked on.

### References

- Nasrullah M, Xiang H. The epidemic of injuries in Pakistan-A neglected problem. *J Pak Med Assoc* 2008; 420-1.
- Lopez AD, Mathers CD. Measuring the global burden of disease and epidemiological transitions: 2002-2030. *Ann Trop Med Parasitol* 2006; 100: 481-9.
- World health organization. Injuries – Geneva World Health Organization 2008.
- Hofman K, Primack A, Kousch Cr, Hrynkow S. Addressing the growing burden of trauma and injury in low- and middle income countries. *Am J Public Health* 2005; 95:13-7.
- Razzak JA, Sasser Sm, Kellermann Al. Injury prevention and other international public health initiators. *Emerg Med Din North Am* 2005; 23:83-98.
- Ali T. Pattern and Characteristics of Injuries in Assault Patients. *J Surg Pak* 2002;7(4):34-6.
- Killias M. International correlations between gun ownership and rates of homicide and suicide. *Can Med Assoc J* 1993;148:1721-5
- Sultana K, Anwer MA, Faizuddin. Trend of medico-legal cases and their post mortem examination at accident and emergency department of Jinnah Postgraduate Medical Centre Karachi. *Ann Abbasi Shaheed Hosp Karachi Med Dent Coll* 1999; 4:143-5.
- Gururaj J. Injuries in India: A national perspective. NCMH background papers. Burden of disease in India. [www.whoindia.org/linkfiles/commission\\_on\\_Macroeconomic\\_and\\_Health\\_Bg\\_injury\\_in\\_india.pdf](http://www.whoindia.org/linkfiles/commission_on_Macroeconomic_and_Health_Bg_injury_in_india.pdf).pgs 326-47.
- Eid OH, Barss P, Adam SH, Torab FC, Lunsjo K, Grivna M, Abuzidan F M. *Injury* 2009; 40:703-7.
- Krug EG, Linda L, Dahlberg, James A, Mercy, Anthony B, et al. eds. World report on violence and health. Geneva: World Health Organization; 2002.p. 270.
- Salgado MSL, Colombage SM. Analysis of fatalities in road accidents. *Forensic Sci Int.* 1998; 36: 91-6.
- Sahdev P, Lacqua MJ, Singh B, Dogra TD. Road Traffic fatalities in Delhi: causes, injury patterns and incidence of preventable deaths. *Accid Ann Prev.* 1994; 26: 377-84.
- Friedman Z, Kungel C, Hiss J, Margovit K, Stein M, Shapira S. The Abbreviated injury scale – a valuable tool for forensic documentation of trauma. *Am J Forensic Med Pathol.* 1996; 17: 233-8.
- Henriksson EM, Ostrom M, Eriksson A. Preventability of vehicle-related fatalities. *Accid Ann Prev.* 2001; 33: 467-75.
- Sharma BR, Harish D, Sharma V, Vij K. Road Traffic accidents—a demographic and topographic analysis. *Med Sci Law.* 2001;41: 266-74.
- Jha N, Agrawal CS. Epidemiological Study of Road Traffic Accident Cases: A Study from Eastern Nepal. *Regional Health Forum WHO South-East Asia Region.* 2004; 8(1): 15-2211.
- Edirisinghe PAS, Kitulwatte IGD. Homicidal firearm injuries: A study from Sri Lanka *Forensic Sci Med Pathol.*

19. Shah MM, Ali U, Faseeh-uz-Zaman, Khan D, Seema N, Jan A, et al. Morbidity and Mortality of Firearm Injury In Peshawar Region. J Ayub Med Coll Abbottabad 2008; 20(2):102–4.
20. Marri MZ, Bashir MZ, Munawar AZ, Khalil ZH, Khalil IR. Analysis of homicidal deaths in Peshawar, Pakistan. J Ayub Med Coll Abbottabad 2006; 18(4):30–3.
21. Crewdson K, Lockey D, Weaver A, Davies GE. Is the prevalence of deliberate penetrating trauma increasing in London? Experiences of an urban pre-hospital trauma service. Injury 2009; 40(5):560-3.
22. Bhullar DS. Aggarwal KK. Medico legal diagnosis & pattern of injuries with sharp weapons. J Indian Acad Forensic Med 2007; 29(4); 112–4.
23. Sivarajasingam V, Morgan P, Matthews K, Shepard J, Walker R. Trends in violence in England & Wales 2000–2004, An accident and emergency perspective. Injury 2008; 40(8):820–5.
24. Khan MH, Ahmed I, Zia NU, Babar TS, Babar KS. Road traffic accidents, study of risk factors. Professional Med J 2007; 14:323–7.

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