

## PHYSICAL TRAUMA –A LEADING CAUSE OF MEDICO LEGAL CASES AT DHQ HOSPITAL ABBOTTABAD

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**Background:** Trauma is one of leading cause of suffering to mankind. No study has yet been done to see the incidence, pattern of injury, outcome and declaration according to *Qisas* and *Diyat* in the city of Abbottabad. The objectives of the study were 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. **Methods:** This cross-sectional study was conducted at District Headquarter Hospital, Abbottabad between 1<sup>st</sup> January 2004 and 31<sup>st</sup> December 2004. Cases presenting for medico legal examination in Medico-legal Department of DHQ Hospital Abbottabad. Patients were selected on basis of purposive sampling technique. Physical trauma group was sub-divided into firearms, sharp, blunt and road traffic accident. This group was further classified according to age, sex, area of body involved, type of weapon, seasonal prevalence, and whether injuries were declared according to *Qisas* and *Diyat* ordinance. **Results:** A total of 759 cases of physical trauma reported for medico-legal examination. Out of 759 cases of physical trauma, 3.4% cases of firearm weapon, 7.9% cases of sharp weapon, 16.2% of road traffic accidents, and 72.5% of blunt weapon presented in the medico-legal clinic. Male preponderance with 97% was noted. Two-third of victims were between 10 and 39 years of age. The months of May–July and October–December showed slightly elevated number of cases. The head and neck was the most commonly involved area. No case was certified according to *Qisas* and *Diyat* Ordinance. **Conclusion:** Physical trauma constitutes the leading cause to the mankind which makes about 91.6% of cases. Males between 10 to 39 years of age are most likely to be victims. The face and head is the most affected area.

**Keywords:** Injury, Blunt trauma, road traffic accidents, *Qisas* and *Diyat*

### 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. In some cases (e.g., frost bite and drowning), injuries result from sudden lack of essential agents such as oxygen or heat.<sup>1</sup> 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.<sup>2</sup> 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 world wide. Road traffic accidents will be the second most common cause of disability in the developing world.<sup>3,4</sup> The age group most vulnerable to receive injuries ranges from 17–25 years with male preponderance.<sup>5</sup> 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.<sup>6</sup> The frequency varies from place to place depending on high gun possession.<sup>7</sup>

Very few studies on the extent and pattern of injuries have been conducted in Pakistan.<sup>8,9</sup> This knowledge is imperative to calculate the economic

impact of injuries and to devise preventive strategies. Hence the aim of my study to analyse the types of injuries documented at DHQ Hospital Abbottabad, the characteristics of the victims and to know whether documentation was being done according to the current guidelines for certification of these injuries and to emphasise the need for developing prevention plans at national level.

### MATERIAL AND METHODS

This cross-sectional study was conducted in Casualty Department of DHQ Teaching Hospital Abbottabad, NWFP, Pakistan. It was conducted during the period from 1<sup>st</sup> Jan to 31<sup>st</sup> Dec 2004. The sampling technique used was purposive. 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. The exclusion criteria were formed to control the confounders in the study, thus controlling bias in study results. A questionnaire was formulated and cases were grouped on basis of age, sex, type of trauma, weapon of offence, area of body involved and whether certification was done according to

*Qisas and Diyat Ordinance.* For physical trauma 4 subgroups were formed according to type of offence, i.e., blunt, road traffic accidents, 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 by entering data in SPSS-11.0. Data analysis for quantitative variables like age groups and gender were computed using Chi-square test. A *p*-value of <0.05 was considered to be of statistical significance.

**RESULTS**

During the period of the study a total of 759 cases of physical trauma were reported for medico-legal certification at this centre. With Abbottabad population of 1.01 million in 2004, this comes out to be 75/100,000 population. The age and sex distribution of the victims of physical trauma is given in Table-1. Over two third of the victims were between 10 and 39 years of age with 37.02% in the third decade of life. There was a decreasing incidence with age beyond 39 years of age. Physical trauma was inflicted primarily to males with a male to female ratio of 38:1.

**Table-1: Age and gender distribution of victims of physical trauma**

Age group (Yr)	Overall		Male		Female	
	No.	%	No	%	No	%
0-9	27	3.6	24	3.2	3	15.8
10-19	144	19.0	140	18.9	4	21.1
20-29	279	36.8	274	37.0	5	26.3
30-39	164	21.6	163	22.0	1	5.3
40-49	73	9.6	71	9.6	2	10.5
50-59	40	5.3	38	5.1	2	10.5
≥60	32	4.2	30	4.1	2	10.5
<b>Total</b>	<b>759</b>	<b>100.0</b>	<b>740</b>	<b>100.0</b>	<b>19</b>	<b>100.0</b>

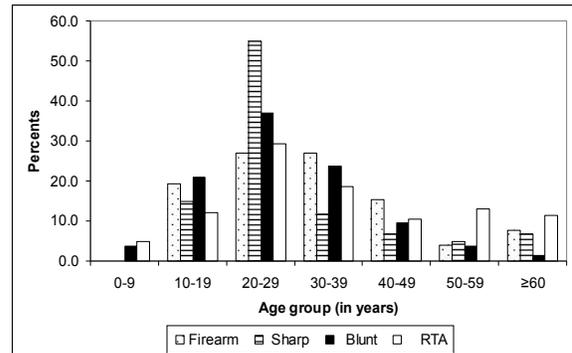
Of the total cases of physical injuries, 72.5% were caused by blunt means followed by 16.20% by road traffic accident, 7.9% by sharp weapons and 3.4% by firearms as shown in Figure-1. Road traffic accidents accounted for 16.2% of all blunt injuries with a male to female ratio of 11.3:1. The age of predilection again was the third decade of life 29.26%. In cases of blunt trauma other than RTA, there was a huge preponderance of male victims, with female constituting only 1.6% of the total cases. No female in our study was injured by a sharp weapon or by a firearm.

The head and neck were the areas most commonly injured in cases of blunt trauma 53.8% while the upper and lower limbs were more likely to be involved in an injury from sharp weapons 58.3% and a firearm 65% respectively as shown in Table-2.

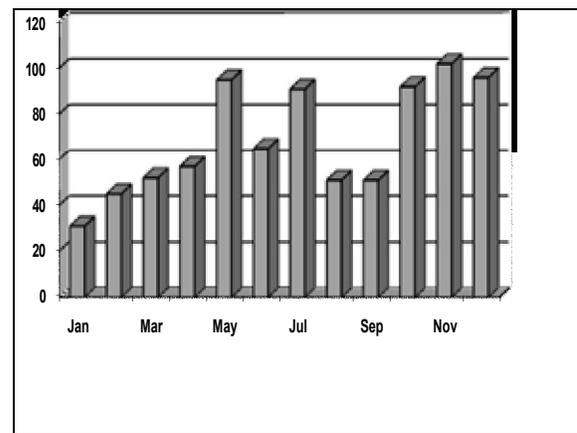
**Table-2: Regional distribution of injuries (759)**

Body area	Firearm (n=26)		Sharp (n=60)		Blunt (n=550)		RTA (n=123)	
	n	%	n	%	n	%	n	%
Head & Neck	3	11.5	17	28.3	296	53.8	45	36.5
Chest	4	15.3	2	3.3	24	4.36	3	2.43
Abdomen	2	7.6	6	10	12	2.18	1	0.81
Upper limb	11	42.3	27	45	140	25.4	50	40.6
Lower limb	6	23.0	8	13.3	78	14.1	24	19.5

The months of May to July and October to December showed slightly elevated number of cases presenting for examination as medico-legal cases as shown in Figure-2.



**Figure-1: Trauma according to age group**



**Figure-2: Month-wise distribution of cases**

**DISCUSSION**

In our study physical trauma accounted for 91.6% of all cases. The injury incidence rate of 7.5./100,000 is similar to that reported in India<sup>10</sup> where rates of 8.7/100,000 have been reported. In the first national injury survey in Pakistan, the yearly overall incidence of injury was found to be 41 injuries for every 1,000 persons.<sup>1</sup> This is contrary to the low incidence in England & Wales where injury rate is 6.4/100,000 residents.<sup>11</sup> This difference probably accounts because of the fact that UK is a developed and educated country and has a stable socio-economic status than South-Asian countries where poverty and

deprivation of basic necessities lead to commission of various crimes. The pattern of trauma is similar to that reported in some other studies in Pakistan<sup>8</sup> where 92–98% cases have been due to physical trauma. This is also the case in other regions of country.<sup>9</sup>

A male preponderance was also expected and is in line with worldwide trends.<sup>12–13</sup> This trend of male to female ratio depends on the role of females in society. The more active their role, the more they are exposed to trauma, especially that outside the home. In more conservative societies like Abbottabad females are less exposed to trauma which explains the ratio of almost 39:1 for physical trauma.

The findings of 75% of victims between 10–39 years of age is in line with the generally reported worldwide trends.<sup>10–12</sup> and a similar age pre-dilection has been reported in other cities of Pakistan.<sup>8,14</sup>

The most common methods of homicide world wide are stabbing, mechanical asphyxia, blunt head injury and firearms. In US the most frequent manner of death in cases of homicide and suicide is by use of firearms.<sup>15</sup> This is in line with other studies in Pakistan where firearm is the first weapon of choice in homicide followed by sharp weapon.<sup>16,17</sup> This is contrary to the study conducted in UK<sup>13,18</sup> where prevalence of penetrating trauma is on rise in urban areas with 86.8% and second are firearm injuries with 13.3%. In case of injuries by sharp weapon the age most prone is 20–29 years which is in line with other studies in Pakistan as well as India.<sup>17,19,20</sup> The area of body most commonly involved by sharp weapon is upper limb 45% followed by head and neck as reported in other studies.<sup>6,12,19</sup> This could be explained by 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 firearms. The greater like hood of blunt injury being on head and neck is reported in other studies.<sup>6,12</sup>

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 world wide are killed as a result of road traffic injuries each year. In WHO report released on 2004 RTA kill 5000 and injure 12000 person in Pakistan every year.<sup>21</sup> Age group 10–39 yrs were highly affected which is in line with other studies in Pakistan.<sup>21,22</sup> The incidence of head and neck as the most affected areas of body is same as in other studies.<sup>10,12,21</sup> Bishai *et al* have calculated that the per capita yearly expenditures on road safety are US\$ 0.07 in Pakistan.<sup>23</sup> To reduce injury incidence and severity in road traffic accidents the risk factors identified are, 1) Absence of safety norms, 2) Bad roads –poor visibility, inappropriate design and maintenance of roads, 3) Non-use of helmet, 4) Lack of safe walking spaces, crossing

facilities and visibility factors, 5) lack of observance of speed limits, 6) High alcohol consumption during driving, 7) Deteriorating Law enforcement agencies, 8) Lack of road user education, and 9) Availability of limited trauma cares facilities especially in rural areas of Pakistan. Emergency medical services comprising of ambulances and trained paramedics are available only in 5% of the urban areas.<sup>24</sup> To reduce injury incidence and severity in road traffic accidents following steps be taken: i) effective legislation against non-observance of speed limit and issuance of driving licence, ii) education of masses, iii) seat belts by all occupants of vehicles and helmet by motorcyclists be made mandatory. Air bags be used in vehicles, iv) traffic engineering be ensured for pedestrians, v) condition of roads, lightening facilities be improved, and vi) health care facilities be improved at appropriate distances on motorways.

The higher incidence in may to July and October to December are most likely due to the increase in the number of inhabitants during this period as Abbottabad is a tourist resort and a large number of tourists and seasonal workers come into this area during the summer and winter months.

No injury was declared according to *Qisas and Diyat Ordinance*. All injuries were declared according to Pakistan 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. *Qisas and Diyat Ordinance* be enforced with full authority so that punishments be given in the light of teachings of Quran and Sunnah in Islamic Republic of Pakistan.

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