

# Firearm Injuries - A Study of 110 Cases

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**Study Design:** It is a perspective study of 110 cases of firearm injuries presenting at accident and emergency department Jinnah Hospital Lahore. The medicolegal services or provided by the department of forensic Medicine and Toxicology, Allama Iqbal Medical College, Lahore. **Material and Method:** Consecutive 110 cases of firearm injuries were recruited in the study presenting in the Accident and Emergency Department of Jinnah Hospital Lahore during period October 1998 to September 2000. **Results:** Out of the total of 110 cases, 100 cases were males (91%). And 10 were female (9%). The age ranged from 0 to above 60 years. The maximum numbers 42 (38%) were found between 21 to 30 years. Rifled weapon was used in 96 cases (87.3%) and non rifled weapon (shot gun) in 14 (12.7%) near distance fire was in 23 (21%) and for distance fire in (79%). Body parts involved were also analyzed i.e. head face neck, chest abdomen and limbs. **Conclusion:** The gravity of situation reemphasized and suggestions made to the relevant authorities for better, healthy and peaceful society.

**Key words:** Medicolegal, firearm injuries, healthy & peaceful society

Man, being weaker than many animals, sought to create in ancient times a means of defense. The gun is the outcome of these endeavors. To fight offending forces from a distance, man in ancient times used stones, spears and slings. Then came the era of bow and arrow and the crossbow. The invention of gunpowder and the use of guns followed<sup>1</sup>

A firearm is a device to propel a projectile (shot/bullet/missile) by the expansive force of gases generated as a result of combustion of the propellant (powder) in a closed space<sup>2</sup>.

A firearm-related injury was defined as a penetrating injury of gunshot wound from a weapon that uses a powder charge to fire a projectile (e.g., hand guns, rifles, and shotguns)<sup>3</sup>.

There has been an increase in the medico legal cases due to firearm weapons in the last few decades, while blunt and sharp edged weapons injuries have decreased to considerable extent. One major cause for this increase is the easy availability of firearm weapon in our country. Television images of children clutching Kalashnikov rifles underscore the fact that in many regions weapons designed for use by trained armed forces are no longer in military hands<sup>4,5</sup>. This has been argued to contribute to social violence more generally<sup>6,7</sup>. Impulse and ready access to firearm are thought to play an important part in firearm injuries<sup>8,9</sup>. Easy handling causing grave damage by keeping oneself away from the enemy / target has made the firearm weapons most favour able choice to the people involved in enmity. Most intentional injuries arose during family disputes followed by disputes over land and people breaking up altercations<sup>10</sup>.

The presence of a gun in a household is associated within approximately fivefold increase the risk of suicide, and three fold increase in the risk of homicide for household residents<sup>11,12</sup>. For every fatal firearm injury there are 2.6 nonfatal injuries caused by firearms<sup>13</sup>. Firearms were found to be the most commonly used

weapon killing 114 persons out of 250<sup>14</sup>. Firearm was the most common mode of injury in Karachi from October 1993 to January 1996<sup>15</sup>

Abuse of firearms and resulting injuries result in major cost of life, health, and resources spent for medical care and law enforcement, and must be considered a major public health and safety concern<sup>16</sup>.

After the revamping of Medicolegal system in Punjab<sup>17</sup>. Ten police stations have been allocated to the accident and emergency department of Jinnah Hospital Lahore for Catering Medicolegal services in Lahore. There is tremendous increase in the Medicolegal work load after this notification. The Medicolegal work is conducted under the supervision of department of Forensic Medicine Allama Iqbal Medical College Lahore.

## Objectives:

This study was conducted keeping in view the following points:

1. To know the epidemiology of firearm injuries
2. To up date the Demonstrators Medicolegal Examination about the magnitude of the problem and train them in recognizing and interpreting the firearm injuries, requesting for appropriate investigations and referral of such cases to the section concerned.
3. To have some idea about the cost / expenditures regarding the management of such cases in the accident and emergency department, since these expenditures have to be born by the Government.
4. To make suggestions for public health action / remedial measures.
5. To high light the issue for those (social workers, media, authorities) who keep on striving for better and peace full community.

## Material and methods:

The study was conducted in the Accident and Emergency Department Jinnah Hospital where the medicolegal

services are catered by the Demonstrators Medicolegal examination of Forensic Medicine and Toxicology Department. A.I.M.C, Lahore The study was conducted from October 1998 to September 2000. Medico legal cases of all ages, both sexes, and minor to severe injuries were included in the study.

The data was collected from the medicolegal certificates/treatment operation notes, X-ray reports and the police papers.

A specialize Performa was designed to note down the variable. The variable were patient / victim age, sex, type of the firearm, distance between weapon and the victim and parts of the body hit by firearm.

**Results:**

Time Period October 1998 to September 2000

Total Cases 110

**Sex of the victims:-**

Male 100 91%

Female 10 9%

(As shown in figure 1.)

**Age of the victims:-**

0 to 10 years 02 1.8%

11 to 20 Years 22 20%

21 to 30 Years 42 38%

31 to 40 years 22 20%

41 to 50 years 15 13.6%

51 to 60 years 06 5.5%

More then 60 01 0.9%

(As shown in figure 2.)

**Type of weapon:-**

Rifled weapon 96 87.3%

Non rifled weapon 14 12.7%

(Shot Gun)

(As shown in figure 3.)

**Distance of Fire:-**

Near Distance 23 21%

Far Distance 87 79%

(As shown in figure 4.)

**Parts of the body involved:**

Head Face and Neck 14 12.72%

Thorax (Front and Back) 12 10.90%

Abdomen (Front and Back) 21 19.09%

Pelvis Buttocks 11 10%

Thighs, upper and 52 47.27%

Lower limbs

(As shown in figure 5.)

**Sex Distribution**

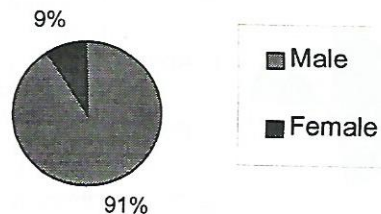


Fig. 1:

**Age Distribution**

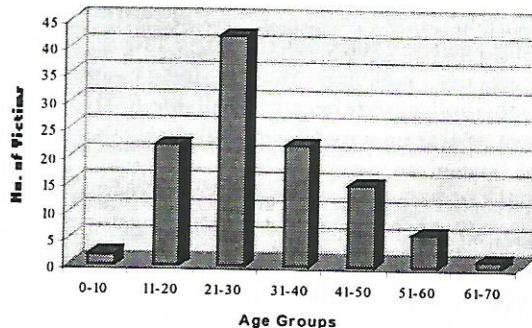


Fig.2

**Type of Weapon**



Fig. 3

**Distance of Fire**

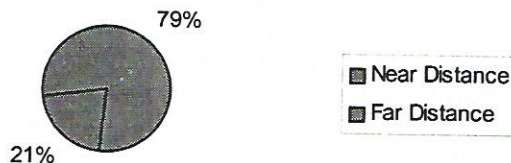


Fig. 4

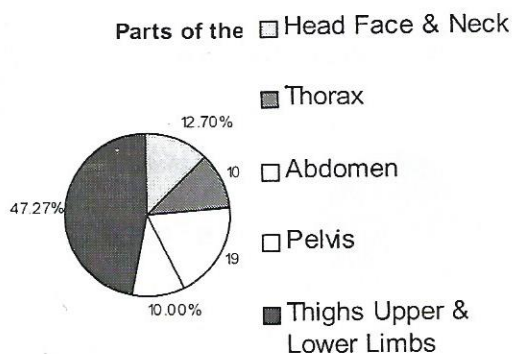


Fig. 5

**Discussion:**

Firearm weapons had been in use by the armed forces / law enforcing agencies since long. Its use in self defence and crime is also not new but in this country firearms (especially unlicensed) became available in abundance as a corollary of war against USSR in the neighboring country of Afghanistan.

This study depicts that maximum number of victims belonged to third decade of life, the age in which the individual is physically strong, full of energy and challenges on provocation, the number of victims of firearm injuries were less in first and second decades of life, similarly in fourth, fifth and sixth decades also the number of victims decreased in this study. This is consistent with another study made in Lahore<sup>18</sup>.

In study only 10% victims were females. Out numbering of female victims by the males has been established in other studies as well<sup>18,19</sup>.

It is pertinent to mention that maximum number of female victims were in the same age group as in males i.e., 21-30 years.

The recognition of firearm injuries especially in the cases of living persons needs expertise. No amount of reading will make one an expert in the interpretation of gunshot wounds. The literature can only provide guidelines. Practical experience is mandatory for gaining the expertise essential in the interpretation of gunshot wounds<sup>20</sup>. Vast majority of victims (87.7%) were hit by rifled firearms while only 12.3% by non-rifled (smooth bored) weapons. Other studies also establish this.

Firearm injuries inflicted within arm's length in this study were in 21% of the case while in vast majority of the (79%) distance of fire was from beyond arm's length. Presence of burning effect on the skin/hair, blackening due to smoke and tattooing due to powder particles was the basis to decide that injury was inflicted from within arm's length. Absence of these findings was the criteria to decide that injury was inflicted from beyond arm's length.

Firearm injuries beyond arm's length almost rule out the possibility of its being suicidal / self-inflicted. Firing away from arm's length (3 feet) gives very little chance to

the victim to counter attack or cause harm to the user of the firearm. Head Face and Neck were involved in 12.72% cases, Thorax in 10.90%, abdomen 19.09%, pelvis and buttock in 10%, and all the limbs (upper lower right and left) were involved in 47.27% of all cases. In one of the studies in USA, although 51.4% of intentionally self-inflicted nonfatal wounds were to the head or neck, 71.8% of unintentional and 45.8% of assault-related nonfatal wounds were to the extremities<sup>19</sup> in an other study the chest involvement was in 42.09% and head was involved in 33.3% of the cases<sup>21</sup>.

The emergency treatment in all the teaching (tertiary care) hospital is being provided by the Government. The emergency surgery has to be provided in many of such cases thus utilizing the Government funds. The expenditures for one laparotomy / thoracotomy run into thousands. In 1994, treatment of gunshot injuries in the United States was estimated at \$2.3 billion in lifetime medical costs, of which \$1.1 billion was paid by the federal government<sup>22</sup>. These factors emphasize the importance of firearm-related injuries as a public health concern.

The present study was conducted on a limited number of firearm cases in this centre. There is need to collect statistics from all medicolegal centers also going through the hospital and police record for a complete evaluation of the problem. This will enable us to suggest measures to prevent immense use of firearm weapons in our society thus minimizing the victims of firearm injuries.

**Conclusion:**

Firearm injury cases are real problems presenting in the accident and emergency department. Their recognition and further management is highly skilled job. The preponderance of males as victims in such a high percentage in active, energetic age group has added to the problem. It should be matter of serious concern for law makers, law enforcement agencies, social workers, psychiatrist and media.

The cost assessment in managing such cases has to be evaluated at the national level so that preventive measures are taken. If at all such cases report to the emergencies of the government hospitals, the authorities should know the financial burdens to manage such cases.

A state bases national reporting system is needed to track the incidence, detailed circumstances, characteristics of the shooter and injured person, and long-term consequences of fatal and nonfatal firearm-related injuries. These data would be useful for the design, implementation, and evaluation of prevention programs aimed at reducing the burden of firearm-related injuries.

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