

# Autopsy Based Study at Tehsil Headquarter Hospital

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## ABSTRACT

**Objectives:** Present study was conducted to find out the incidence, pattern and demographic characteristics of the victims died of firearm injuries brought for Medico legal Autopsy at Tehsil Headquarter Hospital located in the suburbs of Punjab, Pakistan and to study the parameters of age, gender, number and site of injuries on the body of those victims.

**Study Design:** Descriptive study

**Place and Duration of Study:** This study was carried out at Tehsil Headquarter Hospital Gojra, District Toba Tek Singh, Punjab Pakistan during the period of two years i.e. 1<sup>st</sup> January 2009 to 31<sup>st</sup> December, 2010.

**Materials and Methods:** All the victims of unnatural deaths brought for Medico legal Autopsy to Government Eye-cum General Hospital (Tehsil Headquarter Hospital) Gojra District Toba Tek Singh were studied in detail. The finding were tabulated, analyzed & compared with those of other studies conducted in different areas of Pakistan as well as other countries.

**Results:** Out of the total 110 unnatural deaths, 83 (75.45%) were males and 27 (24.55%) females. Sixty five victims of age range 21-40 years constituted 59.09% of the death toll followed by 14 (12.73%) and 13 (11.82%) cases belonging to 2<sup>nd</sup> & 5<sup>th</sup> decades of life respectively. Firearms remained the most common modality to kill 52 (47.27%) victims including 42 (80.77%) males and 10 (19.23%) females giving a male to female ratio of 4:1. Out of the total 52 victims of firearms, 67.30% belonged to rural areas while 32.70% were residents of suburbs. Thirty four victims of firearms, with the age range of 21-40 years constituted the death toll of 65.38%. The most common site of injury was neck & chest involving 57.70% victims. The fatal firearm injuries on the head were noted in 17.30% dead bodies whereas extremities were involved only in 7.70% cases.

**Conclusion:** The young males aged between 21-40 years were commonly involved in the fatalities resulting from firearms in rural setting belonging to Tehsil Gojra of Punjab. The situation is alarming & eye opener for the law enforcing agencies. To prevent such killings, there should be combined effort from all sections of the society. Appropriate steps should be taken for control of the extremism, socio-economical development of the area & proper employment facility for the youth. Concrete efforts for prevention need to be initiated through implementation of the rule of law, strict control on the firearms, as well as education and awareness among rural / urban population.

**Key Words:** Medico legal Autopsy, Firearm Fatalities, Homicide, Postmortem Examination

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## INTRODUCTION

The violent crimes with Firearms have become increasingly more common, reflecting the deterioration of law and order in our society. Firearms cause hundreds of thousands of deaths and more than one million injuries each year, as well as permanent physical and psychological damage, the destruction of families, lost productivity and the diversion of resources from basic health services<sup>1</sup>.

According to a report of World Health Organization (WHO), approximately 100,000 deaths per year occurred due to gun violence; the suicide rate due to

the guns are responsible for most of homicides (about 75% and 90%, respectively), with the United States and Brazil both having alarmingly high rates of homicide<sup>2</sup>. Firearms are the leading means of homicide in some areas of high gun violence (80% of the total homicidal deaths in Colombia & 66% in South Africa). Guns are the major cause of all fatal injuries, much higher than traffic accidents<sup>3</sup>. Besides high death toll, firearm injuries cause significant morbidity, long-term disability for individuals, families, communities, and societies<sup>4</sup>.

Although invention of the fire brought about a turning point to human civilization but on the other hand, invention of the firearm became a curse to this world. The primitive Matchlock system of firearm has been improved day by day leading to the semi automatic and automatic weapons which have become the dreadful killing tool used by human being<sup>5</sup>. Firearms are the main source of state power, as has been very aptly

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firearms is higher (about 70%) in high income countries, whereas in middle and low income countries,

epitomized by none other than Mao-Tung, the Great evolutionary leader of modern China as the "Political power flow from the barrel of the gun"<sup>6</sup>. The number of deaths caused by firearms has increased tremendously all over the World<sup>7</sup>. The death toll due to Guns violence is high in the United States but the condition is also not better in Europe, as far as the homicidal firearm deaths are concerned. The availability of firearms has been described as a cancer spreading across the developing world<sup>8</sup>. The Firearm injuries are frequently encountered and severely affect the criminal justice and healthcare systems. Studies from the United States and other developed countries reported that firearms are used in more than 60% of all homicides, over 25% of all assaults, more than 35% of all robberies, and almost 50% of all suicides<sup>9</sup>.

In the United States the most frequent method of killing in cases of homicide and suicide is by firearms. More than 30,000 people die every year in the United States by firearm injuries<sup>10</sup>. The most frequent firearm used in England & Wales, are shotguns both in case of homicide and suicide, but firearm as a whole is less frequent method of killing than in many other countries<sup>11</sup>. The higher death toll due to firearms has also been documented by few authors in Italy<sup>12</sup> and Turkey<sup>13</sup>. Firearm fatalities in South Africa outnumber deaths from car accidents; and shootings are the leading cause of non-natural deaths in the general population<sup>14</sup>. The killings due to Firearms in Brazil is approximately four times higher than the rate in United States<sup>15,16,17</sup>.

Guns took the lives of 31,076 Americans in homicidal, suicidal and unintentional shootings during 2010. This is the equivalent to more than 85 deaths each day and more than three deaths each hour<sup>18</sup>.

Firearms related violence is commonly seen in poor urban areas in conjunction with gang violence, usually involving juveniles or young adults<sup>19,20</sup>. The situation in the developing world, including Pakistan, is worse where poverty, social inequality, unemployment and access to illegal weapons are common<sup>21</sup>. The use of locally made illegal firearms is very common in the developing countries due to the reason that these weapons are very cheap and readily available to the criminals<sup>22</sup>. These are manufactured without any fixed standards and the material used is of low quality<sup>23</sup>.

Gunshot wounds are the most common cause of death, followed by stab wounds, blunt trauma and asphyxia<sup>24</sup>. Fatalities due to firearms have been on the rise in developing countries like ours, mainly due to waves of terrorism, surge of sectarian / religious clashes, unsafe borders with the neighboring countries, political violence & armed robberies<sup>25</sup>. The easy availability of highly sophisticated weapons, have also contributed to increase the rate of deaths by firearms. There is powerful correlation between the acquisition of guns and their use in suicides, murders, assaults, and unintentional deaths. As a result of the invention of

more advanced guns and availability at the global level, there has been dramatic increase in the death rates because of firearm injuries<sup>9</sup>.

The number of violent deaths resulting due to firearms in Pakistan is not different from other low income countries. A few researchers in Pakistan documented the firearms as weapon of choice for killing the human being. A study from Dera Ismail Khan District has reported that out of the total 341 medico legal autopsies conducted over a period of two years 2007 & 2008, firearms were responsible for 59% of the homicidal deaths; while another study documented 86% firearm fatalities of the total autopsies conducted in Peshawar<sup>26,27</sup>. The risk factors associated with firearms are amendable; and if promptly documented and addressed could decrease the burden of violent deaths<sup>28</sup>.

This study was aimed to know the incidence / pattern of firearm fatalities & to study the demographic profile of those victims autopsied at the rural settings of Punjab i.e. Govt. Eye-Cum General Hospital, (Tehsil Headquarter Hospital, Gojra) located in the suburbs of District Toba Tek Singh in Punjab.

## MATERIALS AND METHODS

The current study was conducted by examination of the autopsy record of Tehsil Headquarter Hospital, Gojra District Toba Tek Singh for a period of two years from January, 2009 to December, 2010. Demographic profile of all the victims of unnatural deaths brought for medico legal autopsies were studied in general; whereas the cases of firearm fatalities particularly studied in detail. The reports were classified according to the manner of death while special emphasis was given to the homicidal deaths.

Among the autopsy reports of alleged homicide only those reports were selected which involved firearm as a means to homicide. These victims were classified according to age group, gender & body areas involved whereas; the incomplete reports were eliminated from study. Resulting data was tabulated and descriptive analysis was done.

## RESULTS

Out of the total 110 autopsies conducted during the period of two years i.e. 1<sup>st</sup> January, 2009 to 31<sup>st</sup> December 2010, majority 83 (75.45%) were males and 27 (24.55%) Females (Table-1).

Sixty five victims of age range 21-40 years constituted (59.09%) of the death toll followed by Fourteen (12.73%) and Thirteen (11.82%) cases belonging to 2<sup>nd</sup> & 5<sup>th</sup> decades of life respectively. Whereas, 5 (4.54 %) victims belong to the ages of less than 10 years. (Table-2).

Firearms remained the most common modality to kill 52 (47.27%) victims. Nineteen (17.27%) persons became the victims of fast moving vehicles while

Fourteen (12.73%) were killed by sharp edged weapons. Blunt injuries were responsible for the death of Seven (6.36%) persons, Two (1.82%) were the victim of asphyxial death and only one out of total 110 cases died due to poisoning. In Eight (7.27%) cases, exact cause of death could not be determined (Table-3).

**Table No.1: Gender Distribution in Victims. (n=110)**

Gender	No. of Victims	Percentage
Male	83	75.45%
Female	27	24.55%

**Table No.2: Age Distribution in Victims. (n=110)**

Age Group (Years)	No. of Victims	Percentage
Up to 10	5	4.54 %
11-20	14	12.73 %
21-30	45	40.91 %
31-40	20	18.18 %
41-50	13	11.82 %
51-60	10	9.09 %
61 & above	3	2.73 %
<b>Total</b>	<b>110</b>	<b>100 %</b>

**Table No.3: Weapons / Modalities involved in Medico- legal Deaths. (n=110)**

Type of Weapon / Modalities	No. of Victims	Percentage
Firearm	52	47.27%
Blunt Weapon	7	6.36%
Sharp Edged Weapon	14	12.73%
Strangulation / Asphyxia	2	1.82%
Poisoning	1	0.91%
Burns / Suffocation	7	6.36%
Road Traffic Accidents	19	17.27%
Undetermined	8	7.27%
<b>Total</b>	<b>110</b>	<b>100 %</b>

Out of the total 52 victims of firearms, brought for medico legal autopsy during the two years study period (1<sup>st</sup> January, 2009 to 31<sup>st</sup> December, 2010), majority 42 (80.77%) were males and 10 (19.23%) females, giving a male to female ratio of four : one (Table-4).

Thirty five (67.30%) victims of firearms were inhabitants of rural area while seventeen (32.70%) persons belonged to the urban communities (Table-5).

Thirty four victims of age range 21-40 years constituted (65.38%) of the death toll resulting due to firearms followed by 8 (15.39%) and 4 (7.70%) cases belonging to 2<sup>nd</sup> & 5<sup>th</sup> decades of life respectively. Whereas, age of one (1.92%) victim of firearm was less than 10 year. Table-6.

**Table No.4: Gender distribution in Victims of Firearm Fatalities. (n=52)**

Gender	No. of Victims	Percentage
Male	42	80.77%

Female	10	19.23%
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**Table No.5: Community Character of the victims of fatal Firearm injuries. (n=52)**

Residential Background	No. of Victims	Percentage
Rural	35	67.30%
Urban	17	32.70%

The regional distributions of injuries in firearm victims are given in Table-7. The most common site of injury was neck & chest, found over the body of thirty (57.70%) victims. The fatal firearm injuries were observed on head of 9 (17.30%) dead bodies & on abdomen of 6 (11.54%) victims whereas, upper / lower extremities were involved in 4 (7.70%) cases and injuries over the multiple regions were observed on the bodies of 3 (5.77%) victims of firearms.

**Table No.6: Age distribution in Victims of firearms. (n=52)**

Age Group (Years)	No. of Victims	Percentage
Up to 10	1	1.92%
11-20	8	15.39%
21-30	19	36.54%
31-40	15	28.84%
41-50	4	7.70%
51-60	3	5.77%
61-70	2	3.84%
<b>Total</b>	<b>52</b>	<b>100 %</b>

**Table No.7: Regional distribution of the fatal firearm injuries on various body parts of victims (n=52)**

Body Areas Involved	Frequency	Percentage
Head	9	17.30%
Neck & Chest	30	57.70%
Abdomen	6	11.53%
Extremities	4	7.70%
Multiple areas	3	5.77%
<b>Total</b>	<b>52</b>	<b>100%</b>

## DISCUSSION

Injuries from gunshots are major problems that severely affect the victims, families, social setup, health care system and criminal justice. Such injuries are also common in urban as well as rural areas of Pakistan. Despite the magnitude of this problem, little is known about the epidemiologic characteristics of these injuries. The observations of this study are almost consistent with the study conducted at Dera Ismail Khan by Mujahid M et al<sup>26</sup>, documented that firearms were responsible for killing 58.8% of victims out of the total homicides.

As the study was aimed to know the various epidemiological aspects related to the victims died of the fatal firearm injuries, the males were 4 times more likely to become victims of firearms as compared to females. Similar male predisposition of dying with firearms has been reported in almost all parts of the world<sup>29,30</sup>.

The degree of this preponderance varies with the level of development of the region and the proactive role of males. The ratio is wider in countries like Pakistan, India, Turkey and Saudi Arabia,<sup>31,32</sup> but becomes somewhat narrower in the western parts of the hemisphere in places like Greece<sup>33</sup>.

The age most prone to death by homicidal firearm weapon was 21-30 years (39.4 %). Studies in Turkey and India show a similar age of predilection<sup>31,34</sup>. This was in accordance with the studies by Pradip K et al,<sup>35</sup> Sachidananda et al<sup>36</sup> and Avneesh et al<sup>37</sup>. The high incidence of fatalities in above age group may be explained by the fact that they are more often required to deal with the outer world to pursuit their work.

The predisposition of rural society to violence can be explained by the generally low levels of education in this group, whereby they tend to breed enmity amongst themselves and their emotions tend to flare-up more rapidly.

Another explanation can be given that these groups of people are shorter tempered as compared to the both extreme age groups. However, studies in Africa, USA and Brazil showed an earlier age group most prone to such deaths.<sup>19, 20</sup>. Other studies conducted by some researchers in different parts of the world indicate that males between the ages of 15-30 years are the primary victims of homicide due to rifled weapons<sup>38-40</sup>. Both rural as well as urban populations have been documented more prone to be victims of firearms in different parts of the world depending on the socio demographic setup of the concerned populations. Thirty five (67.30%) of deaths in our study belonged to rural areas as compared to 17 (32.70%) cases of the urban citizens. This trend has been reported in few studies conducted in different areas of the United States.<sup>41-43</sup>

## CONCLUSION

The victims of firearms in rural setting belonging to Tehsil Gojra of District Toba Tek Singh were commonly young people aged between 21-40 years. Concrete efforts for prevention need to be initiated by law enforcing agencies through strict control on the firearms, rule of law as well as education and awareness among rural / urban population. Strict checking for the illegal firearms should be done by law enforcement agencies and a system of surveillance for control of violence and street crimes may help in reducing the burden of deaths from firearms especially in the rural areas in order to prevent the young adults / only bread

winners belonging to the low and middle income classes of the community.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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