

# Autopsy findings of firearm fatalities at District Head Quarter hospital, Lakki Marwat, KP

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**ABSTRACT**

**Introduction:** Firearm injuries are considered one of the leading causes for both homicidal and suicidal deaths worldwide. Among different firearms, handguns are the most preferred weapon used especially for suicide. Frequency of firearm fatalities vary from place to place depending upon multiple factors like culture, literacy rate, strict execution of laws.

**Material & Methods:** This was a descriptive cross-sectional study based on secondary data of medico-legal autopsy reports of years 2013 and 2014 at the District Head Quarter (DHQ) Hospital Lakki Marwat, Khyber Pakhtunkhwa (KP), Pakistan. Informed consents were collected from respective authorities. All reports were analyzed in SPSS version 20 for descriptive statistics.

**Results:** A total of 93 autopsies of firearm fatalities including 49(52.7%) cases in 2013 and 44(47.3%) cases in 2014 were analyzed, which included 85(91.4%) males. The mean age of the deceased was 31.5±13.3 years. Majority of cases were brought from Lakki Marwat, followed by Ghazni Khel region. Multiple gunshot wounds were found in 53(57%) cases. Chest was the most affected body area involved, followed by head. Homicide accounted for 90(96.8%) and suicide for 03(3.2%) cases.

**Conclusion:** Young males were the preferred victims of fatal gunshot wounds, with majority being cases of homicide sustaining multiple wounds on upper parts of the body.

**Keywords:** Autopsy; Wounds, Gunshot; Homicide; Suicide.

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**INTRODUCTION**

Among different types of injuries, firearm wounds cause more damage to human body than most others.<sup>1</sup> Over the past many decades, firearms have become the weapon of choice for suicidal and homicidal purposes.<sup>2,3</sup> Among various firearms, handguns are most popular weapon of choice for suicide.<sup>4</sup> Firearm injury is a burning issue globally and lot of efforts have been put to minimize the damage.<sup>1</sup> About 276000 people died globally from firearm injuries in 2016; six countries (Brazil, United States, Mexico, Colombia, Venezuela, and Guatemala) accounting for 50.5% of these deaths.<sup>5</sup> As compared to other industrialized and high income nations, the United States has uniquely high mortality rate due to firearm associated homicide and suicide which remained persistent for more than a decade.<sup>2,6</sup> Firearm injuries are reported as one of the leading causes of death among young people in USA.<sup>2</sup> Similarly, this is reported as a major health issue in many parts of the world including the Kingdom of Saudi Arabia, with significant injury and/or death to the victim.<sup>7</sup> India was reported as third highest country to have firearm-related deaths in the world with 26500 deaths in 2016.<sup>5</sup> Similar observations were reported from various regions of Pakistan. For example, a study from rural areas of Peshawar documented firearms as the major cause of death in homicide.<sup>8</sup>

Keeping firearm weapons at home is associated with higher risk of suicide, homicide<sup>9</sup> and accidental injuries. The health risks of having a gun at home are greater than its benefits,<sup>10</sup> hence the access to it is a recognized risk factor for firearm related mortality.<sup>11</sup> The issue varies substantially among countries and across demographic subset of population with a difference in manner of death.<sup>2,5</sup>

While data from Peshawar are relatively well documented, little is known about the characterization of firearm injuries in other districts of KP. In this paper, we sought to analyze the manner, and associated factors of injuries due to firearms in the District Headquarter Hospital (DHQ), Lakki Marwat, KP. The results of the study, if revealing significant number of firearm fatalities, will provide a good insight into the law

enforcement agencies to strictly exercise laws to minimize firearms-related violence.

**MATERIALS & METHODS**

This was a cross sectional study based on secondary data of medico-legal autopsies conducted at District Head Quarter Hospital, Lakki Marwat, over a period of two years (2013-2014). Data were retrieved from official record book maintained for judicial purposes in the hospital, including demographic data and complete details of autopsy findings. Data were scrutinized according to defined variables, including demographic information, sex, age, referring police station, number of gunshots wounds, affected body area, and manner of causation of death. The deaths of persons due to firearm weapons by third person or oneself was considered as case definition of firearm fatalities. The reports fulfilling these criteria were included in the study irrespective of gender, living areas, or socioeconomic status. Prior to retrieving data, written permission was taken from concerned In-charge of the hospital. The data were recorded in a structured grid designed in Microsoft Excel, and were later transformed into SPSS 20 for further analysis.

**RESULTS**

A total of 93 autopsy reports of fatal firearm wounds were generated during 2013-2014, 49(52.7%) cases in year 2013 and remaining 44(47.3%) in year 2014, out of whom 08(8.6%) were being female and 85(91.4%) were male with mean age of 31.5±13.3 years indicating that most of the case were from middle age group. Most, 74(79.6%) of the dead bodies referred for autopsy were from Lakki followed by Ghazni Khel 11(11.8%), Pezu 05(5.4%), and Gambillah 03(3.2%) respectively (Figure 1).

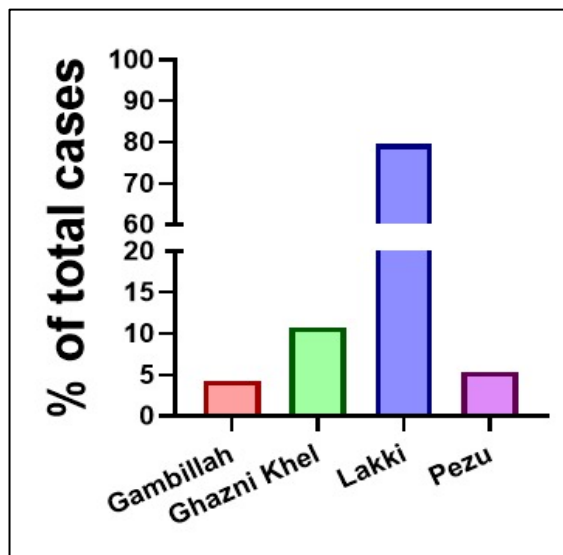


Figure 1. Distribution of autopsy cases by referring police station.

Among cases of firearm fatalities 53(57%) had Multiple Shots while 40(43%) single shot injuries, single body area was involved in majority cases 45(48.4%) while in 23(24.7%) and 25(26.9%) double and multiple body areas were involved (Table 1).

Variables	Frequency	Percent
FAI-Single Shot or Multiple Shot		
Multiple Shots	53	57.0
Single Shot	40	43.0
Number of body areas involved		
Single body area	45	48.4
Double body areas	23	24.7
Multiple body areas	25	26.9

Among the fatalities, involvement of chest alone was riskier; 22(23.7%) cases had chest injuries, 14(15.1%) injuries were found on head & neck, chest and abdomen. Head injuries alone accounted for 13(13.9%) fatalities. Chest was the most targeted single area of body accounting for 22(23.7%) cases followed by head in 13(13.9%). Among double body areas affected, chest and upper limbs were common (08, 8.6% cases), and among multiple body areas affected the mainly involved were head, neck, chest and abdomen (14, 15.1% cases). It is apparent from the results that upper part of the trunk and head were the main targeted areas and appeared to be more fatal as compared to lower parts of the trunk and extremities (Table 2).

Body areas involved	Frequency	Percent
Chest	22	23.7
Head & Neck, Chest, Abdomen	14	15.1
Head	13	14.1
Chest, Upper limb	8	8.6
Chest, Lower limb	6	6.5
Head & Neck	5	5.4
Chest, Abdomen	4	4.3
Head & Neck, Chest, Upper limb, Lower limb	4	4.3
Neck, Chest, Abdomen	4	4.3
Abdomen	4	4.3
Chest, Abdomen, Lower limb	3	3.2
Lower limb	3	3.2
Neck	3	3.2

Results regarding manner of death revealed that homicides accounted for 90(96.8%) cases while 3(3.2%) were suicidal cases (Fig 2).

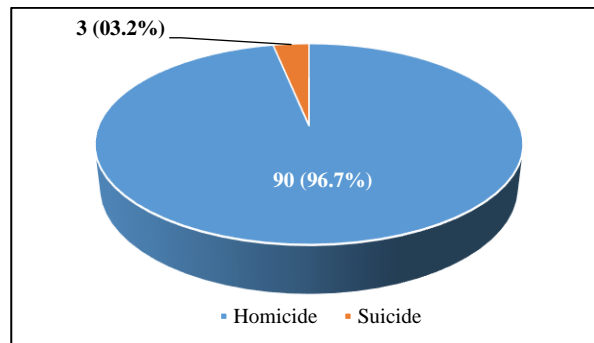


Figure 2. Manner of causation of death in firearm victims.

## DISCUSSION

Death due to firearms is reported as the leading cause of mortality based on autopsy data from Karachi,<sup>12,13</sup> Faisalabad,<sup>14,15</sup> and Lakki Marwat.<sup>16</sup>

The salient findings of the present study are: 1) Among different ages and both sexes, younger males are the most common victim of firearm fatalities 2) Most of the referrals for medico-legal autopsies were from Lakki Marwat and Ghazni Khel regions, which are nearer to the autopsy site 3) Majority of the cases had two or multiple shots injuries rather than single shots, 4) Single body regions were more affected than two or multiple regions, of which the chest was most commonly targeted, and 5) 97% of the cases were homicides.

Firearm violence affects both genders of all age groups. It is reported unanimously around the globe that young males are the more frequent victims than the elderly. The common age for firearm homicide and unintentional violence are 15 to 34 years reported in USA.<sup>17</sup>

The data from Peshawar<sup>8</sup> are consistent with this finding with reports of age group of 20 to 30 years being most affected, with 9:1 male to female ratio. Similar data are reported from other parts of Pakistan. For example, the age groups most affected are 20 to 39 year with 2.5:1 male to female ratio from Sahiwal,<sup>18</sup> 21-40 years with 4.58:1 male to female ratio from Islamabad,<sup>19</sup> and 16-30 years with male to female ratio of 18:1 from Karachi.<sup>13</sup>

It was found that most of the referral cases were from Lakki Marwat, followed by Ghazni Khel regions. Since these regions are located near the autopsy centers, it indicates that the availability of autopsy facilities in nearby hospitals is one of the promoting factors for the utilization of medico-legal services. On

the other hand, relatively fewer cases were referred from the areas with locations remote from the facilities. It is documented that regardless of any health care services, the distance from the facilities is as a significant determinant of the possible utilization of autopsy services.<sup>20</sup> This principle also applies for the autopsy based medico-legal services as validated by the present study.

Most of the cases, 53(57%) had multiple gunshot wounds, while 40(43%) had single shot wounds. Similar pattern was also reported by a study from Islamabad.<sup>19</sup>

Injuries to the upper and lower trunk were more common among assault cases than unintentional cases in USA as reported by Fowler et al.<sup>12</sup> Lung was reported as the most commonly affected area of body from Peshawar,<sup>8</sup> and Sahiwal,<sup>18</sup> similar to the present study, while it is the second most affected organ after head in studies conducted at Karachi<sup>13</sup> and Islamabad<sup>19</sup>. In the present study it was difficult to segregate such categories because multiple body parts involvement produced sub-categories. However, on the whole, upper part of the body (head, neck, chest and abdomen) were the common affected areas in present study.

Homicide is reported as the commonest manner of firearm-related death around the globe<sup>5</sup> including findings from Bangkok<sup>21</sup> and Karachi<sup>13</sup> and our present study in Peshawar, while suicide is reported differently as the most common form of fatal firearm violence in USA.<sup>2,12</sup>

## CONCLUSION

Younger males were the most common victims of firearm fatalities in Lakki Marwat district of Khyber Pakhtunkhwa, sustaining multiple gunshot wounds to the upper trunk, majority of which were homicidal in nature.

## REFERENCES

- Byard R, Payne-James J. [Editors]. Encyclopedia of forensic and legal medicine. 2<sup>nd</sup> edition. UK:Academic Press; 2015.
- Wintemute GJ. The epidemiology of firearm violence in the twenty-first century United States. Annual Review of Public Health. 2015;36:5-19.
- Levine RS, Goldzweig I, Kilbourne B, Juarez P. Firearms, youth homicide, and public health. J Health Care Poor Underserved. 2012 Feb;23(1):7-19.
- Lewiecki EM, Miller SA. Suicide, guns, and public policy. Am J Public Health. 2013 Jan;103(1):27-31.
- Naghavi M, Marczak LB, Kutz M, Shackelford KA, Arora M, Miller-Petrie M, et al. Global mortality from firearms, 1990-2016. JAMA. 2018 Aug 28;320(8):792-814.
- Richardson EG, Hemenway D. Homicide, suicide, and unintentional firearm fatality: comparing the United States with other high-income countries, 2003. J Trauma. 2011 Jan;70(1):238-43.
- Al Madni O, Kharosha MAA, Shotar AM. Firearm fatalities in Dammam, Saudi Arabia. Med Sci Law. 2008 Jul;48(3):237-40.
- Afridi H, Yousaf M, uz Zaman F. Pattern of injury to internal organs in firearm homicidal cases—on autopsy. J Med Sci. 2014;22(4):177-81.
- Dahlberg LL, Ikeda RM, Kresnow M-J. Guns in the home and risk of a violent death in the home: findings from a national study. Am J of Epidem. 2004 Nov;160(10):929-36.
- Hemenway D. Risks and benefits of a gun in the home. Am J Lifestyle Med. 2011 Feb 2;5(6):502-11.
- Anglemeyer A, Horvath T, Rutherford G. The accessibility of firearms and risk for suicide and homicide victimization among household members: a systematic review and meta-analysis. Ann Int Med. 2014 Jan 21;160(2):101-10.
- Mirza FH, Hassan Q, Naz R, Khan M. Spectrum of Medico-legal deaths in Metropolis of Karachi: An autopsy based study. Pak J Med Dent. 2013;2(04):4-9.
- Mirza C, Khan A, Malik L, Malik M, Parveen K. An autopsy based study of pattern of firearm injuries in Karachi, Pakistan. Emergency Med. 2013;3(165):2.
- Qasim AP, Ali MA, Baig A. Firearm fatalities in rural setting: Autopsy based study at Tehsil Headquarter Hospital. Med Forum; 2016;27(3):31-5.
- Qasim AP, Awan ZA, Ansari AJ. Critical appraisal of autopsy work. APMC. 2016;10(4):194-202.
- Rehman KU. Array of unnatural deaths: a study of medico-legal autopsies at District Headquarter hospital Lakki Marwat. Medical Forum Monthly. 2017;2(3):30-2.
- Fowler KA, Dahlberg LL, Haileyesus T, Annet JL. Firearm injuries in the United States. Prev Med. 2015 Oct;79:5-14.
- Nadeem S, Qasim AP, Tariq F, Qasim JA. Audit of firearm autopsy cases in District Sahiwal. APMC. 2017;11(3):187-90.
- Arshad M, Zafar H. Frequency and presentation of firearm deaths in Islamabad

- during 2014 based on autopsy reports. *Isra Med J.* 2016;8(1):52-4.
20. Buzza C, Ono SS, Turvey C, Wittrock S, Noble M, Reddy G, et al. Distance is relative: unpacking a principal barrier in rural healthcare. *J Gen Int Med.* 2011 Nov ;26(Suppl 2):648-54.
21. Myint S, Rerkamnuaychoke B, Peonim V, Riengrojpitak S, Worasuwanarak W. Fatal firearm injuries in autopsy cases at central Bangkok, Thailand: a 10-year retrospective study. *J Forensic Leg Med.* 2014 Nov;28:5-10.
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