

## PATTERN AND DEMOGRAPHIC OF FIREARM DEATHS IN RAWALPINDI AND ISLAMABAD, AN AUTOPSY BASED STUDY

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### ABSTRACT

**Objective:** To find out the pattern of firearm deaths including its manner and demographical aspects in Islamabad and to see institutions, administrations and planning authorities are taking remedial steps to reduce firearm deaths comprising of the most of the unnatural deaths in a society.

**Study Design:** Cross-sectional study.

**Place and Duration of Study:** Federal Government Polyclinic Hospital Islamabad, Pakistan Institute of Medical Sciences Hospital Islamabad and District Headquarter Hospital, Rawalpindi, from Sep 2018 to Mar 2019.

**Methodology:** The data was collected from the autopsy records of the mortuaries of the above mentioned hospitals of total 248 autopsies, which were conducted during the study period<sup>1</sup>. Data was collected from the records on a pre-designed Performa.

**Results:** Out of 248 autopsies, firearms deaths comprised of 92 (37%) and the remaining causes of the other unnatural deaths were 155 (63%). Total firearm homicides, firearm suicides and firearm accidental deaths due were 72 (29%), 14 (5.6%) and 7 (2.8%) respectively of the total sample. Age group 18-40 years were effected the most comprising of 39 (16%) of the total sample followed by age group 41-60 years comprising of 19 (7.8%) of the total sample. Firearm male and female deaths were 81 (32%) and 12 (4.8%) respectively. Firearm deaths in urban areas and rural areas were 65 (26.2%) and 21 (8.3%) respectively of the total sample.

**Conclusions:** Firearms deaths were most common cause of the unnatural deaths out of total unnatural deaths in Rawalpindi and Islamabad. Firearm homicide was the most common manner of death followed by firearm accidental and firearm suicidal deaths.

**Keywords:** Autopsy, Cause of death, Homicide, Suicide, Unnatural deaths.

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### INTRODUCTION

Death on account of any trauma to the body, any unforeseen incidence, poison, or via any other violent act, is called unnatural death. The status of peace and harmony of a region is represented by the unnatural deaths. Higher it is, poor is the law and order situation, firearms are major contributors to violence. According to World Health Organization globally two third of total homicides and one fifth of suicides are committed by firearms<sup>2</sup>. Firearms are associated with 42% of global homicides<sup>3</sup>. Violence is a strong preventable precursor of death prior to its destined time. A lot of effort is needed to be been done on part of public health and security policy makers to

render violence for ensuring stability and peace in a region. It is pivotal to identify firearms and other determinants as major elements in execution of violence to cater to the situation. Substantial data by researchers, support forming policies and strategies in attaining the target to control it<sup>4</sup>. Conveniently accessible ammunition, its smuggling into the country, compromised and ineffective legal framework and security system all sum up to contribute to high prevalence of firearm violence in a society. Strict check should be kept on global procurement of weapons. To execute a crime firearm are the weapon of choice as enough chance is available by offender to escape from the crime scene<sup>5</sup>.

Globally firearm homicides per 100,000 population in USA is 3.2, Canada has 0.51, Australia has 0.14, and UK has 0.07, On the contrary, Japan

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is a land with zero tolerance for firearm violence. It has lowest gun homicide in the world with one tenth in million. Almost no one possesses a gun or a sword with a few exceptions<sup>6</sup>. Under Japan's astringent firearm laws, only short gun and air gun for research or competition purposes are permitted. Prior to issue of gun license a battery of written, mental, drug test and background scrutiny is conducted. Beside annual inspection and reporting storage of weapon and ammunition is mandatory<sup>7</sup>. Half of all global gunrelated deaths in 2016 occurred in six nations Brazil, USA, Mexico, Venezuela, Colombia and Guatemala. Pakistan rank's 17th position for total fire-arm death with 1.5% per 100000 death in 2016<sup>1</sup>. Despite the execution of capital punishment for homicide in our country, it's not been able to control. It is the youth which is mostly involved in criminal activities, as they are more volatile and emotionally charged with sentiments and rage compared to aged ones.

In developed countries psychiatric and psychological conditions adds to high mortality due to use of firearm suicidal deaths<sup>8</sup>. Generally, weapons are associated with killing on mass level, ban on semiautomatic and automatic assault weapons, comprehensive and stiffening licensing and ownership laws supports in lessening mass shooting mortalities. USA also leads the world when it comes to mass murder. As witnessed in Australia with no firearm associated mass shooting reported since 1996<sup>7</sup>.

Various parameters like demographic, economical, psychiatric, emotional and religion are involved in firearm deaths. Accessing these parameters and extend of firearm violence is vital to understand the nature and reason behind such deaths and for to design policies and take adequate measures to elevate the situation. Though a fall in prevalence of firearm mortalities is observed since 1990 in certain regions of the world but still situation varies in other regions<sup>9</sup>. Such deaths have increased due to steep rise in the crime rate that in turn is due to unrest in society, terrorism, inflation, illiteracy, social and geo-political instability, social inequalities and unjust procurement

of money in a community. Mental issues, disturbed interpersonal relations, enmities, hostility and honor killing are some of important determinants firearm mortalities<sup>2</sup>.

Autopsy is vital to find out the cause, manner and other associated information behind an unnatural death, it assist to reach guilty and in prevalence of justices through its data<sup>10</sup>. This study based upon autopsy data would help to improve the situation offered in this area because the available data on firearm death is scanty. It will help in identifying the target population and devising policies. The primary objective of this study was a comprehensive assessment of patterns of firearm mortality by medico legal and demographical aspects.

## METHODOLOGY

A cross sectional study was conducted at Federal Government Polyclinic Hospital Islamabad, Pakistan Institute of Medical Sciences Hospital Islamabad and District Headquater Hospital Rawalpindi, from Sep 2018 to Mar 2019. Permission of the respective institutional authorities was taken prior to data collection. Ethical clearance was attained from the ethics committee of the above mentioned hospitals with the serial number FGP/C. 1/12/2020, PF.-1/2020/Data collection (Admin-IH) and 4343/DHQ Hospital, Rawalpindi respectively. With the sample size of 248 autopsies, all of them conducted during the study period at the mentioned hospitals were included and their postmortem reports were studied<sup>1</sup>. The required data on a predesigned proforma, regarding firearm deaths prevalence, manner of fire-arm deaths, along with demographical characteristics including age, gender, and residential status were collected. All the autopsies on unnatural cause were included and those due to natural causes were excluded. The data was analyzed in SPSS version 23. Frequency and percentage were calculated for the variables<sup>5</sup> (regarding statistical tests to be applied and level of significance are not applicable in our study as only percentages were calculated as well no comparison

was made between the variables in our study. References are given for this methodology).

## RESULTS

Out of total 248 autopsies, firearm was the most common cause of unnatural deaths being 92 (37%) of the total sample. Maximum firearm deaths were homicides followed by suicides and accidental deaths. Demographical characteristics including age, gender, and residential status were studied, pupil in second to fourth decade of life were effected the most. Urban areas had far more firearm mortalities than in rural areas.

Homicides, suicides and accidental deaths due to firearm are given in table-I.

Percentage of males and females died of firearm out of the total sample is shown as in below table-II.

Most frequently effected age group was between 18-40 years as given in figure.

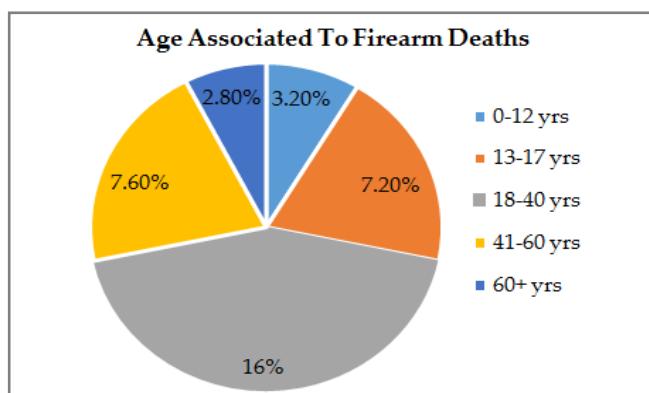


Figure: Age groups effected by firearm deaths.

Region wise distribution of firearm deaths in urban and rural areas presented in table-III.

## DISCUSSION

Similar to the results exhibited in our study firearm being a major cause of homicidal death, many high income and middle to low income countries presented with same trends. One of the major reason behind high prevalence of firearm homicidal killings is global weak gun law, and its reforms are directly associated to its occurrence<sup>7</sup>.

In our study homicides for Rawalpindi and Islamabad were 0.41 per 100,000 of which firearm related mortalities has the max frequency 0.31 per 100,000. (these figures are from ou this study thus doesn't have reference) Our results on firearm mortality also agrees with other studies from various cities of Pakistan having firearm as a leading cause of homicidal deaths. Incidences of firearm deaths were way too high in Peshawar, 80% out of which 91% were homicides and male to female ratio of ratio 9:1.6. In another study in Peshawar 87% were firearm deaths<sup>11</sup>. Possession of weapons are a part of local culture in latter

**Table-I: Manner of Firearm Deaths.**

Manner of Deaths	Firearm Associated Manner of Deaths n (%)
Firearm Homicides	72 (29)
Firearm Suicides	13 (5.2)
Firearm Accidents	7 (2.8)
Remaining manner of deaths	156 (63)
Total	248 (100)

**Table-II: Firearm deaths and gender.**

Gender	Firearm deaths n (%)	Unnatural deaths due to other cause n (%)
Male	80 (32)	127 (51.4)
Female	12 (5)	29 (11.6)

**Table-III: Firearm Deaths And Residence.**

Location	Firearm deaths n (%)	Deaths due to other cause n (%)
Rural	21 (8.3)	37 (15.2)
Urban	65 (26.2)	110 (44.3)
Unknown	6 (2.4)	9 (3.6)

study which increases the chances of it been misused. Beside in Pakistan easy availability of assault firearm and ammunition across the border leads to influx of illegal weapon, causing prevalence of high firearm mortalities especial in areas near the borders. Beside personal enmities and self-revenge, taking law in one own hands adds to it, which reflects poor and delayed provision of justices along with temperament and aggression in the people. Likewise in Quetta firearm deaths were 70%, out of which 81% were homicide, most effected age group was 20-29 yrs with 92% males

and 9% females deaths<sup>12</sup>. Education and financial constraints plays a vital role in this aspect and as we see general public in Baluchistan are at large weakly compliant to both.

There are much greater chances for men to be affected by firearm fatalities as they are more involved with it either as a child while playing with it or using it for the purpose of homicide in their youth or later in life using it as a mean for taking their own lives. Nevertheless, it's the male gender that uses it for committing the crime against women or in mostly in interpersonal relations and enmities. In our study region, females have low prevalence of firearm deaths being more domestic and less exposed to external world are much likely to be protected from fatal consequences of firearm exposure other than domestic violence and honor killing. Thus, a logical low prevalence of firearm female mortality was observed as well in both the later studies<sup>6,12</sup>. In Karachi, the firearm mortality rate is 4.22/100,000 population<sup>13</sup>. In Karachi firearm deaths are 1406 cases/year, 117 cases/month and 1 case/day. This deflects much poor security system and law and order situation as compared to our study population<sup>14</sup>.

Similar trends regarding firearm deaths in our study were also observed in Lahore and Faisalabad with values of 43% and 42% respectively<sup>5,15,16</sup>. In Bannu, Rawalpindi, Sialkot and Abbottabad collective study concurred firearm deaths to be 60%<sup>17</sup>.

An unusual finding in Sweden was noticed of total 30% firearm homicides, only 4% were females and 96% were male victims. Women in west are much more exposed and engaged with external world then being domestic as seen in our study population despite this fact in latter study females in west exhibited such low prevalence of firearm deaths, which indeed is an interesting finding. From this it's evident the difference in women involvement in perusal of social activities significantly varies from men in the developed world<sup>18</sup>. In developed world high suicides prevalence are on account of mental health problem,

psychiatric and psychological issues and to execute this purpose mostly firearms are used<sup>8,19,20</sup>. Likewise, mental aliments are strong precursor of suicides in USA responsible for over half of US firearms associated deaths<sup>20</sup>. In Sweden less than 42% of all suicides victims had mental health problem<sup>18</sup>. Firearms are mostly used for committing suicide in developed world. Unlike in our study only 5.6% were firearm suicides (table-I).

We believe in developed world suicides for which firearm are mainly used could be on account of global economic regression, use of substance and poor support system with weak family bonding, loneliness and old age dependency. These all acts as major precursor of mental aliments especially with depression, psychological and psychiatric manifestations that increases the risk of such alarming prevalence of suicide in west absolutely on contrary to our study results. These factors are at large found lesser in eastern world except the financial stresses. But never the less trends are progressively drifting towards western trends. Beside our study, population belongs to an eastern culture with strong family ties and support system which protects an individual from such extreme actions and play a vital role in reducing suicide. The difference in firearm suicidal prevalence in both the developed world and our study population is base principally upon religion, Islam which forbids suicide; also it provides with hope and pulls an individual out of depression and despair. As well in Pakistan, legally suicide and attempt of suicide are crime which in turn discourages its occurrence. Never the less this fact can't be denied that suicide is a social stigma in our society. Moreover should be borne in mind that the heirs mainly the parents avoid any medico-legal interference in case of suicides and avoid the autopsies. Due to which the statistics are effected with under estimation of actual figures of suicide in our study population. At the same time in our study region unlike developed world, firearm homicides and especially suicides happening are on account of mostly due to lack of smooth system for the provision of law enforcement personnel, medical professionals

assistance, victim advocates and mental health professionals especially psychiatric and psychologist contacting the perpetrators and victim in a crime or in case of attempted suicides.

Marked fall of 13.6% per annum in firearm homicides in South Africa was observed<sup>21</sup>. In Greece mostly firearms suicide accounted for 55% deaths<sup>22</sup>. Firearm homicide in Iran had much lower prevalence of 2.8% due to less easily available. Guns<sup>23</sup> Likewise in Saudi Arabia only 6% firearm deaths were observed<sup>24</sup>. Which reflects astringent compliances to law against crimes discouraging fatal consequences. On contrary reason behind high prevalence of firearm, homicidal deaths in our study in particular could be due to economic instability and disturbed law and order situation, which especially has caused street crimes increase significantly, thus accelerating a constant rise in homicidal deaths.

In USA, approximately two thirds of murder victims are killed with a gun. Firearm homicidal and suicidal mortalities were 25 and 10 times respectively greater than the world's 23 rich countries<sup>8</sup>. In USA gun homicidal rates is very high amongst young adults, 43 times those of the other developed countries. Reflecting tremendous aggression and high prevalence of crime rate, quite similar trends were witnessed in our study<sup>25</sup>.

## CONCLUSION

Firearms deaths were most common cause of the unnatural deaths, majority of them been homicidal in nature. Victims were at large young and middle age males belonging to the urban areas. The situation is alarming and an eye opener. Compliant gun law and its implementation, control on firearm ownership, enforcing law & order, provision of speedy justices, elevating financial constraints, addressing psychological and psychiatric condition of public could be beneficial. Along with it multidisciplinary, inter professional collaboration is critical to bring meaningful changes to elevate the situation. Collective efforts by social scientists, policy makers, law reforms and enforcers, planner, educationist and religious scholars are needed.

## CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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