

## ORIGINAL ARTICLE

**RETROSPECTIVE STUDY OF MEDICOLEGAL AUTOPSIES  
CONDUCTED AT KHAWAJA MUHAMMAD SAFDAR MEDICAL  
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**Background:** Autopsy is performed to establish the manner and cause of death, and can help the authorities to implement effective protective measures against crime. Objective of this study was to determine manner, cause, gender predominance and target age group of medico-legal autopsies in government hospitals of Sialkot. **Methods:** Data for this retrospective cross-sectional study was collected from autopsy registers of Allama Iqbal Memorial Teaching Hospital and Sardar Begum Hospital of Sialkot for the years 2018–2022. The data was entered in self-made proforma and analysed using SPSS-20. **Results:** The autopsies were done on 77.5% males and 22.5% females. The most sensitive group was 21–30 (25.6%) followed by 31–40 (20.5%). Out of 512 deaths, 290 were homicidal deaths, 105 (56.4%) were accidental, 66 (20.50%) were suicidal, 27 (12.89%) deaths with undetermined method, and 24 deaths were found to be natural. Firearm was the cause of deaths in 66.20% cases followed by blunt weapons in 11.37% cases, and penetrating injuries in 10.0% cases. Hanging was the most common cause of death among suicidal deaths (28.78%) and road traffic accident was the most common cause of accidental deaths (80.0%). **Conclusion:** Homicidal deaths are the most common deaths among unnatural deaths. Most commonly used weapon is firearm. There is male predominance. The most common target age group is 21–30 years.

**Keywords:** Autopsy, Unnatural deaths, Manner of death, Cause of death

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**INTRODUCTION**

Medico legal autopsies are conducted in cases of sudden, suspicious and unnatural deaths, the primary aim being establishment of cause and nature of death.<sup>1</sup> It caters the need of society to detect any foul play.<sup>2</sup> Autopsy is the scientific examination of bodies after death, where the whole surface of the body as well as all body cavities and organs are explored and findings recorded.<sup>3</sup>

A medico-legal autopsy is indicated for all unnatural fatalities (suicidal, homicidal and accidental), and natural deaths that occur in suspicious circumstances. The medical aspect of this investigation is performed by the forensic pathologist to determine exact cause and manner of death, establish identity of the deceased, determine time since death, collect trace evidence, reconstruction of the crime scene, correlate his findings with the circumstances surrounding the death and above all demystify the cause the death.<sup>4</sup>

Worldwide the number of medico legal cases is rising due to urbanization, poverty, unemployment, drug addiction, illiteracy, economic crisis and other factors contribute to its burden on society.<sup>5</sup> Homicides are caused by fire arm injuries, sharp edged weapons, blunt force trauma, asphyxia, and poisoning while hanging, drowning, poisoning and fire arm injury are common methods of committing suicide.<sup>6</sup> A detailed

medico legal examination of the injuries is of paramount importance to find their nature, causative weapon and manner of infliction. This information can not only help the police to link the assailant with the crime but will also provide important statistical data for research purpose. This will in turn help to develop and implement effective preventive measures at national level to reduce the burden of injuries.<sup>7</sup>

In Pakistan, audit of medico legal autopsies has been done in various cities like Multan<sup>6</sup>, Lahore<sup>8</sup>, Faisalabad<sup>9</sup>, Sukkur<sup>10</sup>, Karachi<sup>11</sup> and many others and there have been substantial published reports on this subject. However, despite high frequency of medico-legal autopsies no such study has been conducted in Sialkot. This study is, therefore, aimed at determining cause, mode, manner, target age group, gender at risk and frequencies of medico legal deaths confirmed through autopsy studies in Sialkot in order to learn about the current trends of unnatural deaths in Sialkot. This study will draw concerned authorities' attention to the crucial issue of unnatural deaths and situation of law and order in society.

**MATERIAL AND METHODS**

This retrospective cross sectional study was conducted in mortuaries of Allama Iqbal Memorial Teaching Hospital and Sardar Begum Hospital. The data was collected from autopsy registers of Allama Iqbal

memorial teaching hospital and Sardar Begum Teaching Hospital via self-made study proforma for the year 2018–2022 after obtaining ethical approval from the Ethical Committee of Khwaja Muhammad Safdar Medical College.

Cases of unnatural death, i.e., homicide, suicides and accidents were included. All those cases having partial post mortem examination, cases of exhumation and cases including putrefied bodies were excluded. The data were recorded and analysed using SPSS-20. Descriptive statistics were used to analyse the frequency and percentage of variables such as age, sex, cause and manner of death. The statistical analysis of data from this study was carried out using relevant tables in order to present information in an understandable manner.

## RESULTS

A total of 512 medico-legal autopsies were analysed out of which the highest number occurred in 2022 (25.4%) while the lowest number occurred in 2020 (16.4%). Out of total, 397 (77.5%) were males and 115 (22.5%) were females. The most sensitive age group was 21–30 years. The lowest percentage were found to be age below 10 years (6.4%) and above 60 years (9.4%) (Table-1).

Table-2 depicts that homicide was the most common manner of deaths (56.64%) followed by accidents (20.50%) and then suicides (12.89%). The manner remained undetermined in 27 cases and 24 cases turned out to be natural deaths.

Firearm, blunt trauma, penetrating trauma were found to be the commonest cause of homicidal death as 66.20%, 11.37%, 10.0% respectively as shown in Table-3. RTA caused 80.0% deaths while 28.78% of suicidal deaths were due to hanging. Other causes of death such as poisoning, burn, drug overdose were less common. Cause of death couldn't be determined in 21.1% cases.

**Table-1: Age-wise distribution of medico legal deaths**

Age group	Number	Percentage
1–10	33	6.44
21–30	131	25.5
31–40	105	20.50
41–50	71	13.86
51–60	53	10.35
61–70	32	6.25
71–80	14	2.73
81–90	1	0.19
91–100	1	0.19
<b>Total</b>	<b>512</b>	<b>100.0</b>

**Table-2: Manner-wise distribution of deaths**

Manner	Number	Percentage
<b>Homicide</b>	<b>290</b>	<b>56.64</b>
<b>Accident</b>	<b>105</b>	<b>20.50</b>
<b>Suicide</b>	<b>66</b>	<b>12.89</b>
<b>Natural</b>	<b>24</b>	<b>4.68</b>
<b>Undetermined</b>	<b>27</b>	<b>5.27</b>
<b>Total</b>	<b>512</b>	<b>100.0</b>

**Table-3: Causes of unnatural deaths with gender distribution [n (%)]**

Cause of Death	Total n (%)	Male n (%)	Female n (%)
<b>Firearm</b>	192 (37.5)	171 (49.56)	21 (17.76)
<b>Strangulation</b>	25 (4.88)	12 (3.47)	13 (11.02)
<b>Smothering</b>	3 (0.25)	0 (0.00)	3 (02.54)
<b>Blunt trauma</b>	33 (2.75)	27 (7.82)	6 (05.08)
<b>Penetrating trauma</b>	29 (5.66)	23 (6.66)	6 (05.08)
<b>Poisoning</b>	15 (2.93)	7 (2.02)	8 (06.77)
<b>Burn</b>	20 (3.90)	14 (4.05)	16 (13.55)
<b>Hanging</b>	19 (3.70)	14 (4.05)	5 (04.23)
<b>Drug overdose</b>	13 (2.54)	12 (3.47)	1 (0.84)
<b>RTA</b>	84 (16.40)	71 (20.57)	13 (11.01)
<b>Drowning</b>	18 (3.50)	11 (3.18)	7 (05.93)
<b>Medical negligence</b>	3 (0.58)	2 (0.57)	1 (0.84)
<b>Unknown causes</b>	58 (11.32)	33 (6.56)	25 (21.1)

## DISCUSSION

In the last five years, 512 autopsies were conducted in Khawaja Muhammad Safdar Medical College, Sialkot. Majority of autopsies were performed on men. The role of women in our society is dormant and they have less exposure to the outside world, but the majority of women die as a result of domestic violence or honour killings. Earlier studies in Faisalabad<sup>9</sup>, Lahore<sup>8,12</sup> and other cities also documented male victims outnumbering females. A recent study in Ethiopia also reported a male to female ratio of 3:1.<sup>13</sup> While no age group is immune to unnatural deaths, the data showed that age group 21–30 year is the largest target group, followed by 31–40 year because mostly young people are involved in medico-legal cases and criminal activities which include murders and accidents. These age groups are active, mobile, aggressive and daring. These findings are consistent with previous studies. A study conducted in Faisalabad revealed that 80.4% autopsies were of males.<sup>9</sup> In our study 6.44% of fatalities occurred within the age range of 1–10 with a significant portion being newborn females!

The leading cause of death was homicide. The same is documented by many other workers.<sup>6,8,9</sup> However, this is in contrast with studies conducted at Dhaka<sup>14</sup> which revealed accidental deaths as dominant manner in all deaths. Homicide is a global phenomenon and its causes vary from society to society. In Pakistan, the main reasons are lawlessness, poverty, personal dispute, unemployment, femicide and ethnic clashes. This is in agreement with studies conducted at national<sup>6,11,15</sup> and international level<sup>14,16</sup>.

Guns have long been part of traditional Pakistani culture, used for defence and firing ceremonial rosettes. The use of firearm is common due to their easy availability and sure result even from a distance. A study in Faisalabad reported homicide as the most common mode of death followed by accidents. Firearms accounted for 57.36% of all homicide deaths and 82.19% of accidental deaths were due to traffic

accidents<sup>9</sup>; this is consistent with our study. Bad roads, careless driving, drunk driving, disregard of traffic rules and increasing number of cars on the roads can be the reason. A similar study<sup>8</sup> conducted in Sheikh Zaid Hospital showed results almost similar to our study.

Most of the suicides are committed by hanging. This aligns with the study conducted at Poland where majority of self-inflicted death occur through this method.<sup>17</sup> This is also in accordance with study conducted at the mortuaries of two large Forensic Departments in Punjab and Sindh.<sup>18</sup> But this is in contrast with the study conducted at Multan where poisoning was the leading cause of suicidal deaths.<sup>6</sup>

The cause of death could not be determined in 11.32% cases, which increases the burden of unknown causes of death. A study from Lahore<sup>12</sup> is in agreement to our findings.

## CONCLUSION

Homicidal deaths were the most prevalent, followed by accidental, suicidal, undetermined, and natural deaths. The primary methods in homicidal, accidental, and suicidal cases were firearms, road traffic accidents, and hanging, respectively. Male gender predominance was observed, and the maximum number of cases pertained to age range of 20–30 years.

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**AQ:** Write-up, data collection, sample collection

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**AGH:** Write up, data analysis

**FA:** Sample collection, data analysis

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