

Profile of Medicolegal Autopsies in Lahore

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ABSTRACT

Background: Medico-legal autopsy is conducted not only to establish the cause and manner of death but also provide useful statistical information which is helpful to assess the prevailing criminal behaviors in the society. The study is aimed to analyze the cases subjected to medico-legal autopsy.

Material & Methods: This study was carried out on 2979 medico legal autopsies conducted at Forensic Medicine department K.E.M.U Lahore during 2006-2008. Findings were extracted from autopsy reports, police documents and hospital records. The cases were examined for various characteristics like age, sex, manner of death, cause of death, seasonal variations, kind of weapon and extent of internal damage.

Results: The results concluded that homicide is most common manner of death in both sexes (70.36%) in 3rd & 4th decade of life with M/F ratio 4.17:1. Suicidal incidence (5.21%) was higher in females. The incidences of accidental deaths 8.20%, natural deaths 12.57% and undetermined deaths 7.41% were higher in males. Firearm injuries incidence was highest 43.13 followed by blunt means 13.52%, Asphyxia 8.96%, sharp means 8.59%, . Firearm injuries in the males (44.36%) and females (38.02) were the commonest cause of death. Head & face were targeted in 30.68% cases followed by chest 28.70% and abdomen 23.46%. Natural death had higher incidence in 5th & 6th decade of life. Coronary artery disease was found in 62.54% cases and lung disease in 17.29% cases.

Conclusion: Death rate may be reduced by improving literacy rate, socioeconomic status and strict implementation of legislation.

Keywords: causes of death, manner of death, autopsy.

INTRODUCTION

One of the objectives of the medico legal autopsy is to establish the cause and manner of death but also to give important statistical data related to legal incidents in the cities and regions where the autopsies are conducted.¹ It is one of the most difficult tasks which a medical examiner often comes across. It generally includes deaths which require medico legal investigation which have been caused by un-natural means as physical violence or poisoning. All deaths occurring suddenly and under suspicious circumstances are also subjected to an autopsy.³

The immediate cause of death and its correlation with the disease process being present in the deceased is ascertained by medical autopsy.²

Conduction of medico-legal autopsy is a statutory duty of the authorized medical officer, being designated by the provincial government.⁴

Manner of death may be homicide, suicide, accidental or undetermined. This question arises in every case, where a dead body is found with marks of violence. In many cases there are circumstances in which it is possible to state whether the fatal injury was homicidal, suicidal or accidental but there are certain other situations where a definite opinion can be formed only after the most meticulous investigation of the whole of the facts relevant to the particular case, as well as of any statements of the occurrence made by the witnesses. Such facts & circumstances include, scene of crime, details of injury, details of causative weapon and circumstantial evidence.⁵

As homicides comprise a major portion of medico-legal autopsies, therefore, they get special importance in general criminal profile of the society.^{6,7} The religion of Islam also takes strong notice regarding homicide, and is condemned as a heinous crime against humanity in the following

words in the Holy Quran, “Whoever kills another person is as if he killed the whole humanity (human race)”.⁸

Homicide is a long-standing threat to a community's health, although it began to be widely recognized as a public health issue only in the 1990s. Homicide has traditionally been viewed through the lens of crime, though both criminal justice and public health approaches can be useful in efforts to reduce homicide.^{9,10,11,12,13}

Homicide rates in the United States peaked in 1993, dropped substantially, and the homicide rate in 1998 was the same as that in 1968. The United States has a much higher homicide rate than other industrialized countries. Colombia actually has the highest rate of 146.5 homicides per 100,000 males. Similar is the situation in South Africa & Nigeria. This discrepancy is likely due to the rising number of firearm related deaths in the United States. Even when compared to other countries where firearms are relatively common, homicide rates in the United States are higher. Handguns are the leading method of homicide in the United States, whereas in other countries the guns are mostly rifles and shotguns.^{14,15,16,17}

Data on homicidal patterns from a few cities of Pakistan has started to appear in medical journals.¹⁸⁻²⁷ Suicide and homicide are both violent forms of death, albeit with a clear difference: the latter directs violence outwards to others while the former directs it inward towards oneself.^{28,29} The human costs of both suicide & homicide are severe & they are compelling public health & legal issues in any country.²⁸

Accidental deaths mostly include road traffic injuries. In 2002, road-traffic injuries ranked as the 11th leading cause of death in the world. The aggregate rates of road traffic fatality per 100,000 population were lowest in high-income countries in the European region (11.0), whereas the highest rates were reported in the low-income and middle-

income countries in Eastern Mediterranean (26.4) and African regions (28.3).³⁰

OBJECTIVE

Medico-legal autopsy is conducted not only to establish the cause and manner of death but also provide useful statistical information which is helpful to assess the prevailing criminal behaviors in the society. The study is aimed to analyze the various cases subjected to medico-legal autopsy.

MATERIALS AND METHODS

This study included 2979 cases of medico legal autopsies conducted at Forensic Medicine department K.E.M.U Lahore during 2006- 2008. Various variables like age, sex, seasonal variations, cause of death, manner of death, causative weapon, and situation of fatal injuries on the body were studied. Findings were extracted from the autopsy reports, police documents and hospital record. In suspected cases of poisoning viscera were also sent to Chemical Examiner to Govt. of Punjab for the detection of drug/poison and to the Bacteriologist/Pathologist for the detection of any disease/pathology.

RESULTS

Homicidal incidence was 70.36%, suicidal 3.42%, accidental 7.42%, undetermined 7.15% and natural deaths 11.65%. Homicidal incidence was highest 75.81% in 2006, Suicidal (4.47%), accidental (8.22%) and natural deaths (14.21%) incidence were highest in 2007. (Table No. 1)

Gender based distribution shows males preponderance (80.66) over females (19.34%) with M/F ratio 4.17:1. Both males and females had higher incidence 30.71% and 30.03% respectively in 3rd decade of life. (Table No. 2)

Table No. 1: Distribution of cases with reference to manner of death (n=2979)

Manner of death	2006	%	2007	%	2008	%	Total cases	%age
Homicidal	771	75.81	632	64.16	693	70.93	2096	70.36
Suicidal	22	2.16	44	4.47	36	3.69	102	3.42
Accidental	75	7.38	81	8.22	65	6.65	221	7.42
Un-ascertained	62	6.10	88	8.93	63	6.45	213	7.15
Natural	87	8.55	140	14.22	120	12.28	347	11.65
Total	1017	100.00	985	100.00	977	100.00	2979	100.00

Table No. 2: Age & sex distribution of cases (n=2979)

Age	Male	%age	Female	%age	Total	%age
New born – 11 months	30	1.25	15	2.60	45	1.51
1 – 10 years	35	1.46	28	4.86	63	2.12
11 – 20 years	200	8.32	124	21.53	324	10.88
21 – 30 years	738	30.71	173	30.03	911	30.58
31 – 40 years	620	25.80	110	19.10	730	24.51
41 – 50 years	382	15.90	60	10.42	442	14.84
51 – 60 years	213	8.86	22	3.82	235	7.89
61 – onwards	185	7.70	44	7.64	229	7.67
Total	2403	80.66	576	19.34	2979	100.00

Table No. 3: Manner of death & sex distribution (n=2979)

Manner	Male	%age	Female	%age	M/F ratio
Homicidal	1654	68.83	442	76.74	3.74:1
Suicidal	72	3.00	30	5.21	2.40:1
Accidental	197	8.20	24	4.17	8.21:1
Un-determined	178	7.41	35	6.08	5.09:1
Natural	302	12.57	45	7.81	6.71:1
Total	2403	100	576	19.34	

Table No. 4: Distribution of causative agents.

	Male (n=2403)	%age	Female (n=576)	%age	Total (n=2979)	%age
Blunt means	346	14.40	57	13.52	403	13.52
Sharp means	180	7.49	76	8.59	256	8.59
Firearm	1066	44.36	219	38.02	1285	43.14
Poisoning	48	2.00	26	4.51	74	2.48
Burn	26	1.08	24	4.17	50	1.68
Throttling	29	1.21	23	3.99	52	1.75
Ligature strangulation	43	1.79	21	3.65	64	2.15
Hanging	72	3.00	32	5.56	104	3.49
Suffocation	17	0.71	13	2.26	30	1.01
Electrocution	15	0.62	4	0.69	19	0.64
Drowning	16	0.67	1	0.17	17	0.57
Bomb blasts (explosives)	65	2.70	00	00	65	2.18
Natural	302	12.57	45	7.81	347	11.65
Un-determined	178	7.41	35	6.02	213	7.15
Total	2403		576		2979	100.00

Table No. 5: Area of damage

	Male	Female	Total
Head & Face	748	166	914
Neck	312	144	456
Chest	736	119	855
Abdomen	599	100	699
Upper Limb	342	71	413
Lower Limb	231	38	269

Table No. 6: Area of disease

Disease	Cases	%age
Lung disease	60	17.29
Coronary artery disease	217	62.54
Liver	49	14.12
Kidney	21	6.05
Total	347	100.00

Females had higher homicidal & suicidal incidence 76.74% & 5.21 than males 68.83% and 3% respectively. Males had higher accidental, natural and undetermined incidence 8.20%, 12.57% and 7.41% than females 4.17%, 7.81% and 6.08% respectively. (Table No. 3)

Amongst the unnatural deaths the incidence of fire arm is highest (43.14%)out of which male victims were (44.36%) and females were (38.02%).It was followed by sharp means showing second highest (13.53%).Males were (14.40%) and females (9.90%).No case of explosive was reported in females.

Natural deaths incidence was 11.65% out of which males showed 12.57% and females 7.81%. The incidence for undetermined deaths was 7.15%. Males had 7.41% and females had 6.02% incidences. (Table No. 4)

Head & face were targeted in maximum number of cases (914) . It was followed by chest and abdomen 855 and 699 cases respectively. Males had higher incidence for all areas of damage than females. (Table No. 5)

There were 484 cases who were hospitalized (383 males & 101 females).

The incidence of coronary artery disease or diseases of CVS was 62.54% followed by lung diseases 17.29% and liver diseases 14.12%. (Table No.6)

DISCUSSION

Incidence of manner of death: The homicidal incidence in our study (70.36%) is comparable with other previous studies (68%,68.73%)^{18,19} in Lahore. It was higher(55.2)²⁰. in 91-95.Other cities of Pakistan showed much higher incidence as Faisalabad(79.66%)²²,Peshawar (82.67%,78.55%,77.7%)^{23,24,25}, D.I.Khan(76%)²⁶, Bahawalpur (80.3%)²⁷ . Ambade has quoted 4.2% homicide in India³¹ & Akang 20.7% homicide in Nigeria during 1994-2000.³²

During 2006, homicide rate in Lahore was 75.81% which declined to 64.16% in 2007 but again increased to 70.93% in 2008. These figures

reflect alarming law and order situation, which is not only in Lahore but also in other parts of the country. The rising trend could be due to a rapid increase in population, un-employment, low literacy rate, poor socio economic conditions, political instability, terrorism, insurgence and frustration in daily life.

The homicide rates of 61.10, 39.50 & 17.70 per 100,000 populations per year in Columbia, South Africa and Nigeria respectively are among the highest rates reported in the world. This could be because of the high rate of gun possession in the area under study especially automatic weapons. Another reason could be a lack of confidence in the judicial system with people tending to take the law into their own hands for settling differences and disputes. This rate of homicide is very very high when compared with countries like, Singapore (0.39), Japan (0.50), Egypt (0.59), China (2.20) and England(2.60). The higher rates in Angola (36), Jamaica (33.70) and Columbia(61.10) highlight poor law & order situation.¹⁶⁻¹⁷

The suicidal incidence in our study (3.42%) is higher than previous studies 0.62% in Lahore¹⁸, 2% &0.58% in D.I Khan^{21,26} , 1.26% in Peshawar²⁵ , 0.4% in Nigeria³² but lower than 19.50 % in India and western countries.³¹ Other studies within the Region of Eastern Mediterranean have shown that the rates of suicide vary from one country to another. For instance, the suicide rate within Kuwait is close to zero i.e. 0.1 per 100,000, while in Saudi Arabia it is 1.1 per 100 000, in Jordan 2.1 per 100 000 and in the Islamic Republic of Iran 6 per 100 000.³³

Our study revealed accidental incidence (7.42%) which is lower than (26.8 %) ²¹, (17.13 %) ²⁶ D.I Khan, Peshawar(17.7%)²⁵.This figure is much lower than 51% in Nigeria.³⁴ However a study from Karachi conducted in the year 2002 indicates that firearm injuries and road traffic accidents together form the common causes of medico legal autopsies; this may merely indicate the pattern of a busy city faced with an increasing traffic load.³⁵

In fact accidental deaths are not un-common within the society but mostly such cases are not subjected to autopsy examination. In 2002, road-traffic injuries ranked as the 11th leading cause of death in the world. The aggregate rates of road traffic fatality per 100 000 population were lowest in high-income countries in the European region (11-0), whereas the highest rates were reported in the low-income and middle-income countries in

Eastern Mediterranean (26.4) and African regions (28.3) as reported in W.H.O. World report.³⁰

The natural death incidence in our study (11.65 %) is comparable with (13%)¹⁸ in Lahore and (11.6 %) ³⁴ in Nigeria.

Undeterminable incidence 7.15% equals with 8% in Lahore¹⁸, 7.6% in Nigeria³⁴ but higher than 0.87% in D.I Khan²⁶, 1.42 % in Peshawar.²⁵ This is due to both natural and acquired limitations.

Age & Sex distribution: In our study, male & female had almost equal and highest incidence in 3rd decade. M/F ratio was 4.26:1. These findings are consistent with (38%)³⁶, (36.8%)²⁰, (35.9%)¹⁹, (28.19%)²². The high incidence in this age group may be because of freedom and escape from parental society and maximum emotional instability at this age. Other factors may include unemployment, drugs abuse and poor socio economic status.

M/ F ratio is almost similar to other studies as 6.22:1²⁴, 3.47 :1²², 3:1¹⁹, 4:1³⁶, 3:1²⁰, 5.75:1²⁵, 4.5:1³⁴ in Nigeria, 4.9:1¹ in Turkey. This is because of male dominating society where the females are usually confined to their homes and not exposed to violence. Sahito quoted 52.5% of females involved in Sindh reflecting different life styles in which both males and females are victimized equally or females are targeted particularly in Sindh due to the tradition of Karoo Kari.³⁷

Incidence of causative agents in un-natural deaths: Un-natural deaths were caused mostly by fire-arm 43.14%. The highest rates reported in Pakistan for fire arm fatalities are 92%²⁵, 85.96%²⁴, 60.8 % in Peshawar²¹. Our figures are lower than 56.6%¹⁹, 58.3%²⁰ in Lahore, 49.4%²² in Faisalabad, 64.9%²¹, 59.75 %²⁶ in D.I Khan, 61.8%³⁷ in Sindh, 46%³⁶ in Larkana, 57.5%³⁸ in Abbotabad. The vast illegal use of fire-arm might be due to its easy availability and the fact that the assailant could kill other person by keeping himself hidden or at some distance.

In the United States, firearms are used in more than 60% of all homicides, over 25% of all assaults, more than 35% of all robberies and almost half of all suicides.

Another recent introduction of causative weapon is bomb blasts which constituted 2.18% of total autopsies & is equal to 2.12 % in Peshawar²⁴ but is lower than 32.96% in D.I.Khan.³⁹ A study from Sri Lanka showed that 39% of deaths were related to terrorist acts & explosives & were

recorded as the second highest (28%) homicidal cause.⁴⁰

Death and injuries from explosive substances or devices occur in both civil and military circumstances, though the later now includes a considerable proportion because of terrorist activities rather than conventional wars, as in Afghanistan, Iraq, Pakistan, and Sri Lanka.^{41, 42.}

In Pakistan terrorism started since 1989 with the Soviet Union intervention in Afghanistan and retaliation with the help of USA in Pakistan till withdrawal of Soviet Union and in the 2nd phase till date by occupation of Afghanistan by USA and NATO forces. From 2002 to 2008 more than 141 suicide bombers and more than 100 remote control and car bombs have struck Pakistan.⁴³

Incidence of causative diseases in natural deaths: Natural death had been caused by cardio vascular diseases 62.54% followed by lung diseases 17.29% and liver diseases 14.12%. It is contrary to Parveen¹⁸ but consistent with Shiparo³ that coronary artery disease due to atherosclerosis is one of the leading causes of death throughout the world. Lung disease showed mostly advanced pulmonary tuberculosis especially in the young who were addict. In North Central Nigeria Children made up 11% of all sudden natural deaths. Males outnumbered females in cardiovascular deaths in a ratio of 6:1 and 46% cases of them died of hypertensive heart failure, 32% had cerebrovascular accidents, pulmonary embolism in 13.6% and myocardial infarction in 9%. One case of myocardial infarction died during intercourse.³⁴

Area of damage: Like our study the head, chest and abdomen were the primary target areas for homicide caused by firearm and blunt means^{19, 20, 22} Neck was involved mostly in Asphyxia. Limb, head, chest & abdomen were involved mostly in accidents. Head was targeted in 49.5%²¹, 32.8%²⁶, 31.8%²², 29.13%²⁴ cases. It is less involved (15.62%) in bomb blasts.³⁹ Chest was involved in 37.25%²⁴, 34.10%²², 25.9%²⁵, 8.34% cases³⁹. Abdomen was damaged in 18.96%⁴⁷, 23.25%²², 15.4%²⁶ and 18.1% cases²¹.

Conclusion & Recommendations: The present study indicates that the incidence of homicide is higher especially in male, in young age group, caused by firearm targeting head & chest as primary target organs. The increased tendency of cases of firearms put the society at a greater risk.

There are needs to analyze and improve the provoking factors like poor socio economic conditions, low literacy rate, political instability, psychological instability and lack of strict implementations of legislation by law enforcing authorities.

Suicidal incidence is although low but still it is related with factors like rejection, depression and deprived ness. Accidental causes need improvement in traffic rules and regulations, control over expansion of population and incompatible vehicle & road facilities.

Natural causes are related with the improvement in life style, eating habits, lack of exercise and drug abuse.

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