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Exploring Traumatic Causes of Homicide: A 15 - Year Retrospective Study in South Kerala

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Abstract: ***This study aimed to understand the pattern, distribution and trends of traumatic homicidal death in south Kerala. It is a retrospective forensic autopsy - based study and the setting was the Department of Forensic Medicine, Government Medical College (GMC), Thiruvananthapuram. All cases of autopsies with an alleged history of traumatic homicide, between 2002 and 2016, done at Mortuary of GMC, Thiruvananthapuram, were included in the study.940 cases were analyzed. It is observed that the annual incidence of homicide is declining after 2012. Head injury was the most common cause of death (43.68%). The head was the most common area to be affected in fatal blunt force injuries (49%) while the chest was involved commonly in fatal sharp force injuries (36%). Defense wounds were seen in 37.83% of the total cases. Our study showed certain definite trends in Homicides in our population. Some of the variables are comparable even in other countries while some are not. The better understanding of the statistical analysis of such trends would pave way for a higher understanding of similar cases in the future.***

Keywords: homicide, death, murder, Kerala, traumatic injuries

1. Introduction

Homicide is killing of a human being by another human being. Homicide though being rare, is a high - impact event and captivates many including the victim, the offender, the kith and kin of both parties as well as the media. Murder was first defined in the 'Offences Against the Person Act of 1861' by the Parliament of UK as follows (1)

"Murder is when a person of sound memory and discretion unlawfully killeth any reasonable creature in being under the King's peace with a malice, a forethought either or implied, the death following within a year".

It is dependent on multiple factors that interact at the time of occurrence to bring about the final result, the dead body. The corpse, the finest of all evidence make it categorical and countable. Considering the circumstances of occurrence, it is absolutely clear that it is the end effect of multiple factors that interact and explode at the very moment. India, the country ranked 133 by UNODC (2) has shown a steady decline in the murder rate over the past two decades National Crime Research Bureau (NCRB 2016). India established the National Crime Records Bureau (NCRB) in 1986, a national system for collecting and collating crime statistics. The latest National Crime Records Bureau (NCRB) data shows that a total of 28, 522 murders were reported in 2022, with a marginal decline of 2.6% over 2021. Disputes was the motive in highest number of cases during 2022 followed by personal vendetta or enmity. Based on the NCRB data, Uttar Pradesh recorded the most murders followed by Bihar and Maharashtra. Kerala was placed sixth from the bottom. (3)

Cognisable crimes in India rose 9.67 times between 1953 and 2023, from about 0.6 million to about 5.8 million, while the population grew 3.82 times during the same period. Notably, the crime rate more than doubled during this period, from 160 in 1953 to 422.2 in 2023. Data for the years between 1972 and 2023 reveals that while India's population increased by 2.45 times, the volume of crime increased by 3.62 times and the crime rate by 1.47 times. The crime rates for the decades between 1953 and 1993 appear stable. However, the years between the 1993 - 2003 and 2003 - 2013 periods show a sharp rise in the crime rate, with the two decades appearing as the most crime - infested in the country. The situation seems to have improved between 2013 and 2023, with a drop in the crime rate, from a high of 540.4 in 2013 to 422.2 in 2023. (4) Even though several studies had taken place in southern India, the results obtained where criticized. In Kerala, only few studies have been published but the findings are not in tune with the recent trends. Kerala has shown an exponential rise during the last decade and variegation in the pattern. This point of difference with the previous analytical data calls for the need of further studies (5). Advancement of science and the easy accessibility of the resources could do a definite justice for a new study in our population. There has never been a study on homicide in Kerala based on forensic medicine, the last statistical study was about a decade ago (5) and this wide research gap could bring about dramatic variability when analyzed. Thus, it can pave way for a better understanding about the typology, pattern, culpability, disability and many more of the underlying questions.

2. Methodology

It is a descriptive retrospective study including all cases of autopsies with alleged history of traumatic homicide, between

the year of2002 and 2016, done at Mortuary wing of Government Medical College, Thiruvananthapuram after obtaining ethical committee clearance from the institute. The sample include cases mainly from Thiruvananthapuram, Kollam districts and from adjacent parts of districts of Pathanamthitta. This came to a total of 940 cases. All details of the cases were collected from the record department in the department of forensic medicine. The record included post - mortem certificates, the requisition forms (KPF - 102), the clinical case sheets in cases of treated patients (through the IP number available in the PM certificate), details of the viscera sent for chemical examination and others like histopathology, and the post - mortem certificate itself. Further doubts regarding any of the details in the pro - forma was cleared accordingly in the respective police stations. The details obtained were entered in the pro - forma. These included the sociodemographic data like sex, age, socioeconomic status and other personal information. The minute details of the homicide like various aspects of injuries, relationship of the accused, the fatality of the injuries, the time period of survival, the efficiency of the treatment given were collected. All these data were entered sequentially in Microsoft Excel spreadsheet and analyzed using Statistical Package for the social Science (SPSS) version 16.0.

3. Results and Discussion

a) Nature of cause of death

Considering the nature of cause of death of the victims, 907 cases (96.48%) were due to traumatic and few among the total (3.51%) suffered from both traumatic and non - traumatic injuries. Of all the autopsies conducted (46232) between 2012 to 2016, 940 were homicides (2.03%). The cases showed a gradual increase till the year 2012 which showed the maximum incidence then followed by a steady decline till date. Sachidanda Mohanty et al (2013) (6), Falzon et al (7) has shown similar results on studying the Southern Indian population and American population respectively. This could be attributed to the development of the human society due to the developing lifestyle changes through the years. According to global summit on homicide (2013) by the UN, levels of homicide are usually higher in countries with low socio - economic status (2) and have been showing a decline in the 21st century.

b) Pattern of traumatic injury

Out of the 940 traumatic cases, 350 cases (37.2%) were caused by sharp force, 493 cases (52.4%) were caused by blunt forces. The least proportion was by burns combined with sharp or blunt force and burns 6 cases (0.63%). All together blunt force was found applied in 578 cases (60.83%) among the cases of traumatic death. Blunt force injuries commonly affected head region (49%), followed by neck (25%) in the present study. Sharp force was commonly sustained to chest (36%). The difference was found statistically significant ('p' value <0.001). Head being the vital center and blunt force being the commonest mode used as a spontaneous mode of impact; head injury would be the expected most fatal output. Every other human knows any injury to head is fatal. Considering this, the accused might have thought of using that to be the injury to knock out his enemy.

Category	Frequency	Percentage
Blunt force	493	52.4
Sharp force	350	37.2
Sharp and blunt forces	71	7.6
Burns	20	2.1
Sharp and blunt forces and burns	6	0.63

c) Type of Injury

Majority of the injuries were abrasions among traumatic cases, in 65.53% of the cases followed by contusions in 54.9% of the cases and lacerated wounds in 36.81% cases. The least was contributed by burns (2.8%).

Type of Injury	Frequency	Percentage
Abrasion	616	65.53
Contusion	516	54.9
Lacerated wound	346	36.81
Incised wound	313	33.3
Incised stab wound/ amputating wound	257	27.34
Abraded contusion	161	17.12
Sutured wounds	113	12.02
Pressure abrasion	50	5.31
Burns	26	2.8

d) Defense Wounds

Defense wounds were seen in 37.83% of the total cases. This was commonly seen in right forearm (43.9%). This was followed by right hand (32.6%) and right arm (29.8%) showing the predominance of right handedness in the population.

e) Hesitation Cuts

Among the 940 cases of traumatic injuries, only 149 cases (15.85%) victims showed hesitation cuts.

f) Type of Weapon

Among the traumatic cases, the commonest weapon used was sharp weapons (46.6%) followed by blunt object (27.7%). The sharp weapons included 227 single edged weapons, 41 double edged weapons, 98 heavy cutting weapons, 52 swords, 15 other sharp weapons, 7 rubber taper's knives and 6 cases of scissors. Firearms consisted of 0.96 % of cases (9 cases). The decreasing order of frequency of these weapons is directly dependent on the availability. However, 4.14 %of victims were also murdered by ligature strangulation.

Type of Weapon	Frequency	Percentage
Sharp weapon	446	46.6
Blunt object	260	27.7
Ligature material	39	4.14
Firearms	9	0.96
Explosives	7	0.74

g) Regions of the Body Involved

Considering all the traumatic cases, head and face were the region which sustained maximum injuries (55.32%) followed by chest injuries (51.6 %), neck injuries (32.45%), abdominal injuries (22.87%), upper limbs (14.68 %) and lower limbs (14.68 %) in descending order.

- Skull fractures: Skull fractures were present in 45% of homicidal cases. Among the total of 418 head injury cases with skull fracture, temporal bone was the most commonly involved in (26.07%) followed by frontal in (19.85%) and

middle cranial fossa (16.26%) in the decreasing order. The least was contributed by posterior cranial fossa in (2.6% of cases.

Skull Bones	Frequency	Percentage
Temporal	109	26.07
Frontal	83	19.85
MCF	68	16.26
ACF	59	14.11
Parietal	48	11.48
Occipital	35	8.3
PCF	11	2.6

- Intracranial bleed: Considering total head injury cases with all having intracranial hemorrhages, 36.38% were associated with subarachnoid hemorrhages (SAH) followed by subdural hemorrhages (SDH) (30.11%) and the least was extradural hemorrhage (EDH) in (2.02%) of the cases.

Intracranial Bleed	Frequency	Percentage
SAH	342	36.38
SDH	283	30.11
EDH	19	2.02

h) Organs Injured

Internal organs most commonly seen injured was brain in 428 cases (45.53%) followed by lungs 183 cases (19.47%) while in comparison pancreas, spleen and adrenal were least injured. This could be because the commonest region affected was head and hence brain would have been playing the pivotal part in the cause of death. This have been found similar in other studies as head contributed to the cause of death to a maximum. Brain even though the master of all is easily knocked out. Head is the most exposed too to receive all the impact of the accused.

Organs	Frequency	Percentage
Brain	428	45.53
Lungs	183	19.47
Small Intestine	70	7.44
Mesentery	68	7.23
Heart	65	6.9
Large Intestine	46	4.89
Liver	38	4.04
Stomach	19	2.02
Spleen	9	0.96
Kidneys	7	0.45
Pancreas	3	0.31
Adrenals	1	0.001

4. Conclusion

Homicide is very rare when compared with other crimes. According to Crime Statistics, homicide comprises <0.1% of all crimes globally (2), but this rarity doesn't imply that its of less significance. The impact that it has on the victim as well as the accused is lifetime. The effect on the kith and kin of both parties, the social disruption it makes, the exploitation of the legal rights - everything summed up, it dismantles the whole equilibrium. Our study showed certain definite trends in Homicides in our population. Some of the variables are comparable even in other countries while some are not. The better understanding of the statistical analysis of such trends would pave way for a higher understanding of similar cases in the future. The analysis of the characteristics which were associated with the homicides during the study period was generally in agreement with the existing forensic literature. The findings although not unique to the region, encourages examining the motives of homicide and potential sociocultural factors affecting the victims and possibly the assailants. We also identified a significant number of murder suicide cases in the region. The causes and the pattern of murder–suicide in our cases were slightly different from the western literature. These require a deeper understanding and subsequent specific investigation of individual cases.

According to the Global summit on homicide this understanding would help the Government to take adequate measures to adopt best policies to bring down such instances and thus protecting everyone's right to living. Apart from that, results would also help in fully understanding the nature of the cases and to reduce such incidents in the society.

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