

## Original Research article

### **Assessment of medico-legal autopsies at a medical college in Haryana: a retrospective study over five years.**

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**Received: Oct 18, 2023; Received in revised Form; Nov 23, 2023, Accepted: Nov 28, 2023,**

**Available Online: Jan 01, 2024**

#### **ABSTRACT**

Medico-legal autopsies are a cornerstone of forensic investigations, providing insight into the causes and circumstances of unnatural deaths.

**Objective:** This study aims to delineate the patterns of unnatural deaths, focusing on suicides and accidental deaths over a five-year period.

**Methods:** We conducted a retrospective analysis of 1,461 medico-legal autopsies performed from 2018 to 2022 at a medical college in Haryana. The data were examined for trends in the cause and manner of death.

**Results:** The retrospective analysis revealed that suicides were the most common manner of death among the cases studied, surpassing accidental deaths. Poisoning was identified as the leading cause of mortality, followed closely by fatalities resulting from road traffic accidents. The demographic data indicated a higher prevalence of these incidents among males aged 31-40 years.

**Conclusion:** The study provides a detailed examination of the predominant causes of unnatural deaths in Haryana, highlighting the critical need for preventive measures against suicides and accidental deaths, particularly those resulting from poisoning and road traffic accidents.

**Keywords:** Medicolegal autopsy, Suicides, Accidental Deaths, Poisoning, Road Traffic Accidents, Forensic Analysis.

## INTRODUCTION

The Greek word "autopsia," derived from "autos" (meaning "oneself") and "opsis" (meaning "to see"), is the origin of the term "autopsy." Essentially, it refers to the practice of self-observation.<sup>1</sup> Today, medico-legal autopsies are crucial in criminal investigations. These procedures ensure a thorough examination of the deceased's body when the circumstances of death are questionable. By carefully evaluating the evidence, pathologists can detect any signs of foul play and determine the cause of death.

India has experienced a sharp increase in suicide rates over the past few decades. In 2021, it had the highest suicide rate globally, with 12 suicides per 100,000 people. This increase is particularly notable among young people and adolescents. Poisoning and hanging are among the most commonly chosen methods. Suicides are driven by a range of risk factors, including mental health issues, dysfunctional families, academic stress, exposure to violence, financial hardship, and relationship stress.<sup>2</sup>

The increasing number of traffic accidents highlights several concerning factors. There has been a rise in the number of individuals driving recklessly without a license. Additionally, the prevalence of high-speed vehicles, drunk driving, and insufficient education about traffic laws all contribute to this trend.<sup>3</sup>

Homicides, including unlawful killings resulting from domestic disputes, interpersonal violence, conflicts over land resources, and other violent incidents, remain prevalent. The

motives behind homicides vary, with disputes being the most common cause, followed by personal vendettas and gains. Factors such as increased intolerance, drug addiction, poverty, and behavioural changes contribute to these tragic outcomes.<sup>4</sup> Additionally, natural deaths, sudden deaths, and undiagnosed chronic diseases significantly impact mortality rates.

To address these challenges effectively, it is crucial to understand the profile of medico-legal autopsy cases. Authorities can tailor their responses by analysing mortality rates from non-natural causes in specific areas. Demographic strategies should align with the region's unique mortality statistics. Additionally, researching the actual crime rate in the area is essential for preventing avoidable casualties in the future.

## MATERIAL AND METHODS

The study was conducted in the Department of Forensic Medicine and Toxicology, B.P.S. Government Medical College for Women, Khanpur Kalan, Sonipat. This study is a descriptive retrospective analysis that involved gathering data from post-mortem records of all instances of cases of unnatural deaths brought to the mortuary of B.P.S. Government Medical College for Women, Khanpur Kalan, Sonipat between January 2018 and December 2022.

A standardized proforma created specifically for this purpose was utilized to gather details about each case from the postmortem records and the police papers after taking due approvals. Details pertaining to age, marital status, occupation, cause of death and manner of death were gathered from each case.

### **Inclusion criteria:**

All the cases brought to mortuary of BPS Government Medical College for Women, Khanpur Kalan, Sonipat for post mortem examination.

### **Exclusion criteria:**

Cases of negative and obscure autopsies were excluded.

## RESULTS

Of the 1,461 autopsies conducted, 503 (34.42%) were due to poisoning, 309 (21.14%) were related to road traffic accidents, 222 (15.19%) were attributed to disease, and 149 (10.19%) were caused by drowning.

The majority of cases involved males, with 1,151 (78.78%) being male and 310 (21.21%) being female.

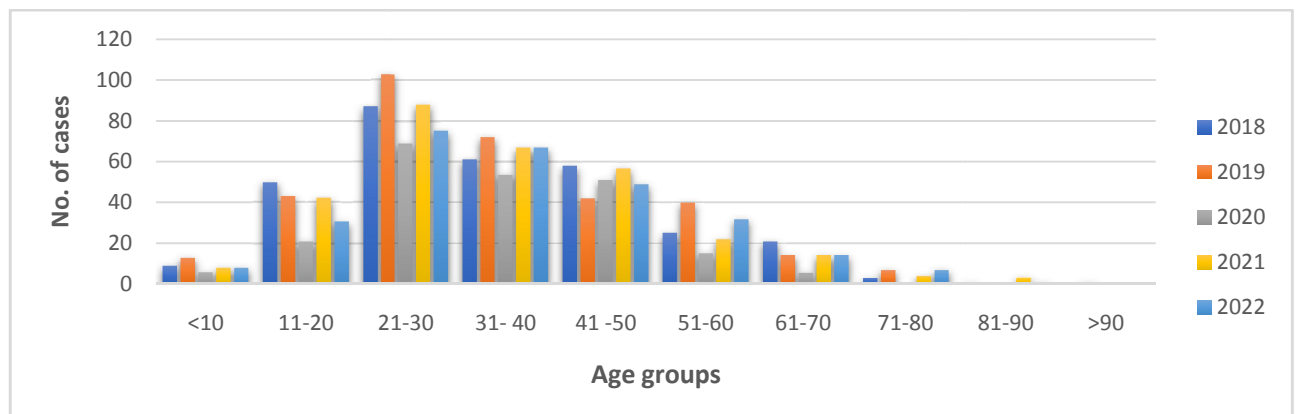
Regarding the nature of the cases, 689 (47.15%) were accidental, 460 (31.48%) were suicides, 222 (15.19%) were natural deaths, and 90 (6.16%) were homicidal.

The age group most affected was 21 to 30 years.

Sl no.	Age group	2018	2019	2020	2021	2022	Total
1	<10	9	13	6	8	8	44
2	11-20	50	43	21	42	31	187
3	21-30	87	103	69	88	75	422
4	31- 40	61	72	54	67	67	321
5	41 -50	58	42	51	57	49	257
6	51-60	25	40	15	22	32	134
7	61-70	21	14	6	14	14	69
8	71-80	3	7	0	4	7	21
9	81-90	1	0	0	3	1	5
10	>90	0	1	0	0	0	1
		315	335	222	305	284	1461

**Table 1: Age wise distribution**

**Figure 1: Age wise distribution**

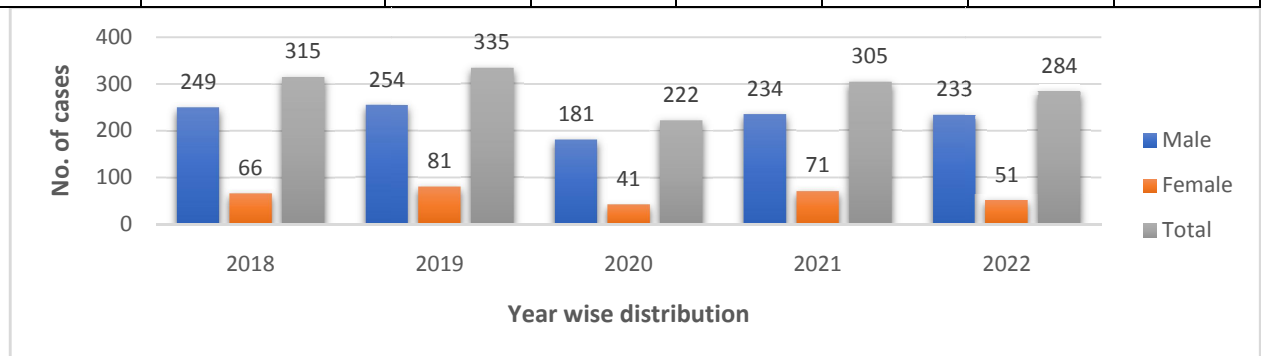


Sl no.	Sex	2018	2019	2020	2021	2022	Total
1	Male	249	254	181	234	233	1151
2	Female	66	81	41	71	51	310
		315	335	222	305	284	1461

**Table 2: Gender wise distribution**

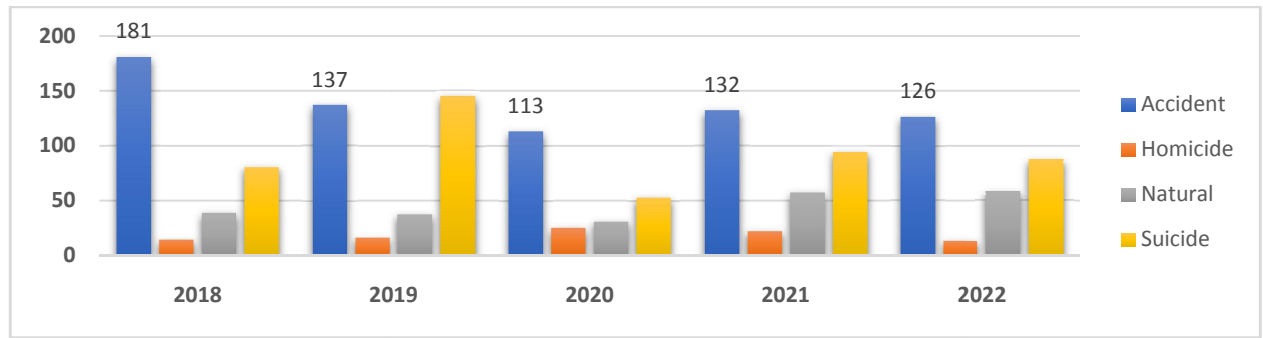
**Figure 2: Gender wise distribution**

Sl no.	Manner of death	2018	2019	2020	2021	2022	Total
1	Accident	181	137	113	132	126	689
2	Homicide	14	16	25	22	13	90
3	Natural	39	37	31	57	58	222
4	Suicide	81	145	53	94	87	460
		315	335	222	305	284	1461



**Table 3: Manner of death**

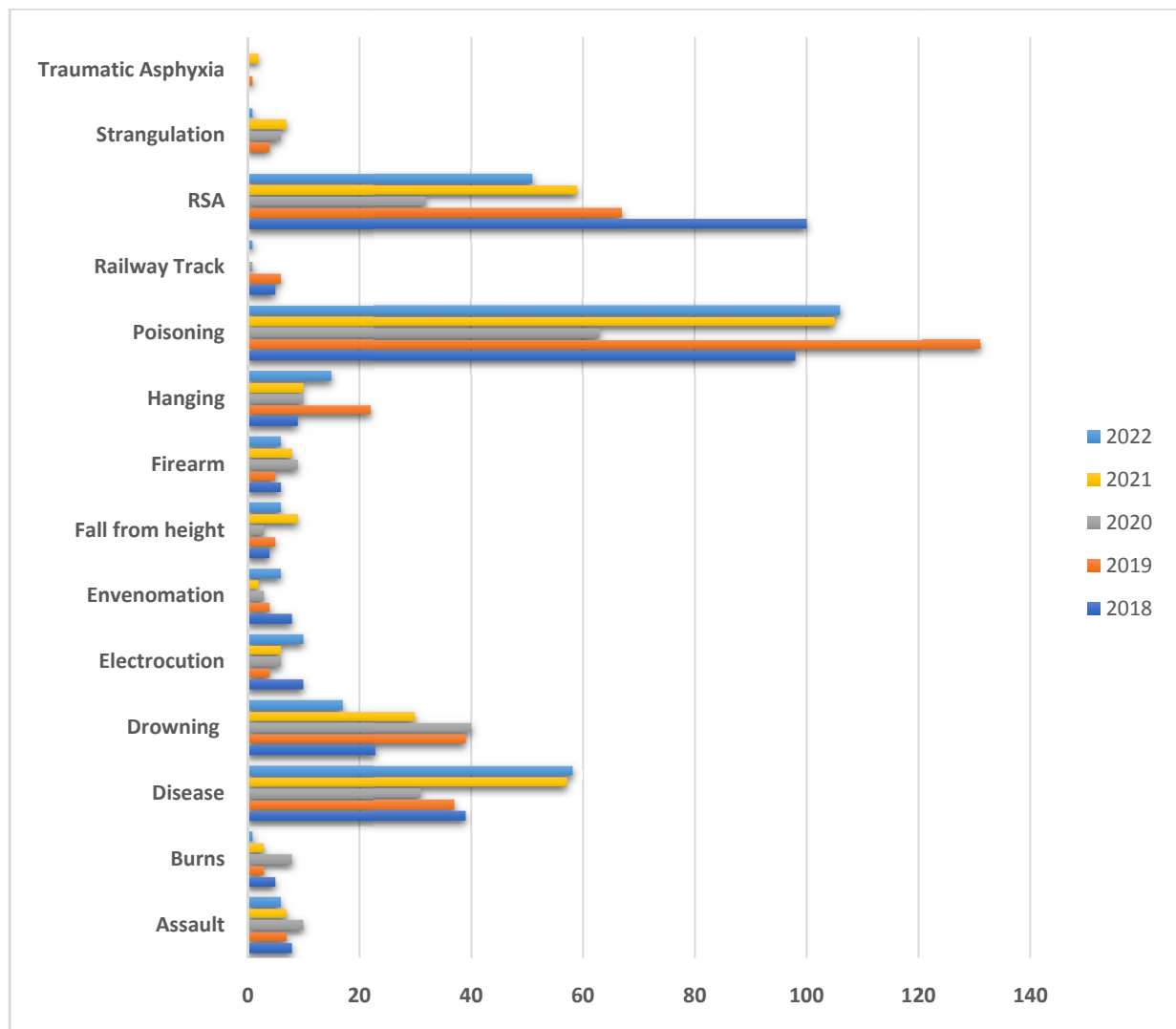
**Figure 3: Manner of death**



Sl no.	Cause of death	2018	2019	2020	2021	2022	Total
1	Assault	8	7	10	7	6	38
2	Burns	5	3	8	3	1	20
3	Disease	39	37	31	57	58	222
4	Drowning	23	39	40	30	17	149
5	Electrocution	10	4	6	6	10	36
6	Envenomation	8	4	3	2	6	23
7	Fall from height	4	5	3	9	6	27
8	Firearm	6	5	9	8	6	34
9	Hanging	9	22	10	10	15	66
10	Poisoning	98	131	63	105	106	503
11	Railway Track	5	6	1	0	1	13
12	RSA	100	67	32	59	51	309
13	Strangulation	0	4	6	7	1	18
14	Traumatic Asphyxia	0	1	0	2	0	3
		315	335	222	305	284	1461

**Table 4: Cause of death**

**Figure 4: Cause of death**



## DISCUSSION

A total of 1,461 medico-legal autopsies were performed in the Department of Forensic Medicine during the study period. The age range of 21 to 30 years was the most affected, followed by the age range of 31 to 40 years. This age distribution is particularly significant because it encompasses what is often considered the prime and most productive period of life. Since these individuals are typically major contributors to the workforce, their deaths have not only a tangible economic impact but also a profound emotional effect on families and communities.

Men outnumber women by a ratio of 3.7 to 1. Males often serve as the sole breadwinners in their families and are therefore more vulnerable to stress, aggression, and accidents on the roads and trains. They are also more prone to addiction and risk-taking behaviours. Similar

findings have been reported in studies conducted by Mugadlimath A<sup>5</sup>, Kumar A<sup>1</sup>, Gogoi NK<sup>6</sup>, Singh N<sup>7</sup>, Khan S<sup>8</sup>, Prasad KJ<sup>2</sup>, Roy S<sup>9</sup>, Kumar A<sup>10</sup>, Kumar P<sup>3</sup>, and Gupta S<sup>11</sup>.

In the present study, out of a total of 1,461 autopsies, most of the deaths were accidental in nature (689, or 47.15%), followed by suicides (460, or 31.48%), natural deaths (222, or 15.19%), and homicides (90, or 6.16%). Similar findings have been reported in studies conducted by Mugadlimath A<sup>5</sup>, Kumar A<sup>1</sup>, Gogoi NK<sup>6</sup>, Singh N<sup>7</sup>, Prasad KJ<sup>2</sup>, Kumar A<sup>10</sup>, Kumar P<sup>3</sup>, and Gupta S<sup>11</sup>.

The findings from this study indicate a significant pattern in the causes of death within the population studied. Poisoning is the leading cause of death, accounting for 34.4%, which suggests a critical public health issue that may require targeted interventions. This is followed by road traffic accidents at 21.1% and diseases at 15.1%.

## CONCLUSIONS

- Overall, this study provides valuable insights into the patterns of mortality within the community, which can be instrumental in shaping effective public health policies and preventive measures.
- It also opens avenues for further research into the specific causes and risk factors associated with each category of death, particularly the high incidence of poisoning among males.
- This could lead to a deeper understanding and more targeted approaches to reducing these fatalities in the future.
- In terms of public health implications, these findings could inform policymakers and healthcare providers about the most pressing areas for intervention.
- For instance, enhancing poison control measures, improving road safety, and addressing prevalent diseases could be prioritized.
- Additionally, the data could be used to tailor health education campaigns and emergency response protocols to the most affected demographics, such as males in cases of poisoning incidents.

**Funding** - Nil

**Conflict of interest** - Nil

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