

## **Original Research Paper**

### **A 17 yrs. old Analysis of autopsy cases brought at STNM Hospital – The Evolving Autopsy Trends and its role in Preventive Health Medicine.**

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#### **ABSTRACT**

Medicolegal autopsies constitutes a vital aspect of any investigative procedures for law enforcement agencies and are routinely carried out across all states in India. They serve as a crucial tool in comprehending the authentic cause and manner of death, forming an indispensable element in medicolegal investigative endeavors. The analysis of diverse data obtained through these autopsies holds significant implications for a state's preventive medicine efforts. The examination and interpretation of the compiled data can also serve as a valuable guide for the health program implementers.<sup>[1]</sup> Such comprehensive studies have the potential to delineate the various manners of deaths, identify affected communities, and pinpoint specific locations involved—a knowledge that can distinctly contribute to the preventive strategies aimed at reducing mortality rates.

**Key words: Medicolegal autopsies, Cause of deaths, Manner of deaths.**

#### **Introduction:**

Medicolegal deaths encompass cases presented to forensic experts by the police for autopsy, aiming to ascertain both the cause and manner of death. These autopsies yield valuable insights for investigative authorities regarding specific cases and provide health officials with information related to prevalent diseases. Following the autopsy, detailed findings are recorded, and a comprehensive report is submitted to the police. This data is archived in both physical and digital formats for future reference. The examination of this stored information proves beneficial in preventive medicine. By scrutinizing the records, authorities can discern specific causes and patterns associated with the impact

of certain foods, illnesses, and lifestyles across different social classes within the state. Autopsy conducted on a well-defined population can determine in detail, the frequency of many diseases, and the mortality statistics are still a useful aid in elucidating the need of medical assistance. This knowledge serves as a guide for preventive medical measures, enabling authorities to address potential health concerns within communities and formulate public health strategies<sup>[2,3]</sup> This retrospective study, spanning 16 years, aims to analyze annual post-mortem/autopsy cases to identify the most prevalent causes of death and ascertain the most affected gender and age groups. Additionally, it seeks to comprehend the evolving patterns of these autopsy cases over time.

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#### **Material and Methodology:**

Institutional Ethics Committee approval was obtained for the study. Only autopsies conducted at STNM Hospital, by a medicolegal expert has been included in the study. After conducting each autopsies, reports were prepared and handed over to the investigating officer. All conducted cases were documented both in physical autopsy registers and the departmental digital database.

For the purposes of this study, the collected data was compiled and analysed using the Microsoft Excel software A retrospective examination of stored data spanning from 2006 to 2022, was examined and studied.

#### **Results:**

**Total autopsy and Male:Female**

Between 2006 and 2022, a total of 2,574 cases of autopsies were done. Among these cases, 1,963 (76.26%) were males, while 611 (23.73%) were females, with the Male : Female ratio being 3.21:1 as is illustrated in Chart – I.

#### **Yearly Male:Female autopsy cases (2006-2022):**

In the present study the M:F ratio was 3.2:1 with an average of 3.3:1. There exists a dynamic and an evolving gender distribution with certain years displaying significant deviation from the established pattern. The most noteworthy was a rise in 2021, when the M:F ratio surged to 5.5:1 as exhibited in Fig.- 2.

#### **Age and Sex Distribution (2006 – 2022):**

The analysis of age groups revealed the highest incidence in the age group of 21-30 yrs (695 cases) with male (543 cases) and female (152 cases). In the age group of 21-50 years (1373 cases) compared to the same age group in females (365 cases only) as shown in Table -1

#### **Month wise distribution:**

It was observed that the month of February 185 cases (7.18%) had the least recorded cases while the month of October 242 cases (9.40%), recorded the highest number of conducted autopsy cases over the study period, as depicted in Fig. – 3.

#### **Manner of Death:**

Among all deaths Hanging emerged as the predominant cause of death, constituting 772 cases (29.99%), followed by cases of deaths due to fall from height 340 cases (13.20%) closely followed by cases of sudden death cases 325 cases (12.62%) as shown in Fig. 4.

#### **Autopsy Trend**

The total number of autopsies shows a notable increase over the years, with a distinct rise from 2006 to 2022. In 2007 there was a significant dip in the number of autopsies conducted, but was soon followed by a steady increase until 2010. In the year 2020, 2021, and 2022 the autopsy rate showed a peak as is shown in Fig – 5.

**Discussion:**

In the present study a total 2574 autopsies were conducted at STNM Multispecialty over the 17-year period (2006-2022). The total autopsy cases were lesser than most of the study<sup>[4,6]</sup> The reason for the same could be attributed to the fact that the state of Sikkim has a lesser population as compared to other places.

The findings on the sex of the case, were similar to other studies which also found that males cases were more than the females and the Male:Female ratios exhibited a dynamic and an evolving gender distribution, which is similar to the other studies.<sup>[7,8,9]</sup> This year to year variation suggests a potential shift in certain factors influencing mortality rates among males and females which could be indicative of health disparities or varying susceptibilities to certain conditions across genders. Understanding such gender-specific mortality rates can have a severe implication on framing public health policy. The policymakers may consider targeted interventions to address specific health challenges faced by males or females.

Hanging was found to be the commonest cause of death, like many studies, with the preponderance of male cases. The age group of 21-30yrs were the most affected age group 28.02% with male 79.47% and female 20.52%, which was closely followed by 31-40yrs where 24.25% cases with male 77.56% and female 22.43%, which is similar to other studies.<sup>[7,8,9,10]</sup> The reason for the maximum involvement of the age group of 21 -30 yrs and 31-40yrs may be due to laid back attitude of the present younger generation, increased expectation from life, social disorganization, with increasing job, study and other work-related competitions. It is also true that frustrations and breakdown in this age group is more commonly seen due to lack of patience, failures at jobs, financial instability, love affairs and domestic disputes. The findings are similar to the findings of studies conducted by Nani D.G et al; Behera A et al; Sreedevi G et al; Sharma B.R.

**Conclusion:**

The changing trends in autopsies at the Department of Forensic Medicine, STNM Hospital, provides a fascinating glimpse into the evolving dynamics of forensic science. Factors such as societal shifts, legal developments, global events like pandemics, and technological advancements collectively shape the landscape of post-mortem

examinations. As we move forward, understanding these trends becomes essential for adapting forensic practices to the evolving needs of society and ensuring that justice and medical knowledge continue to be served.

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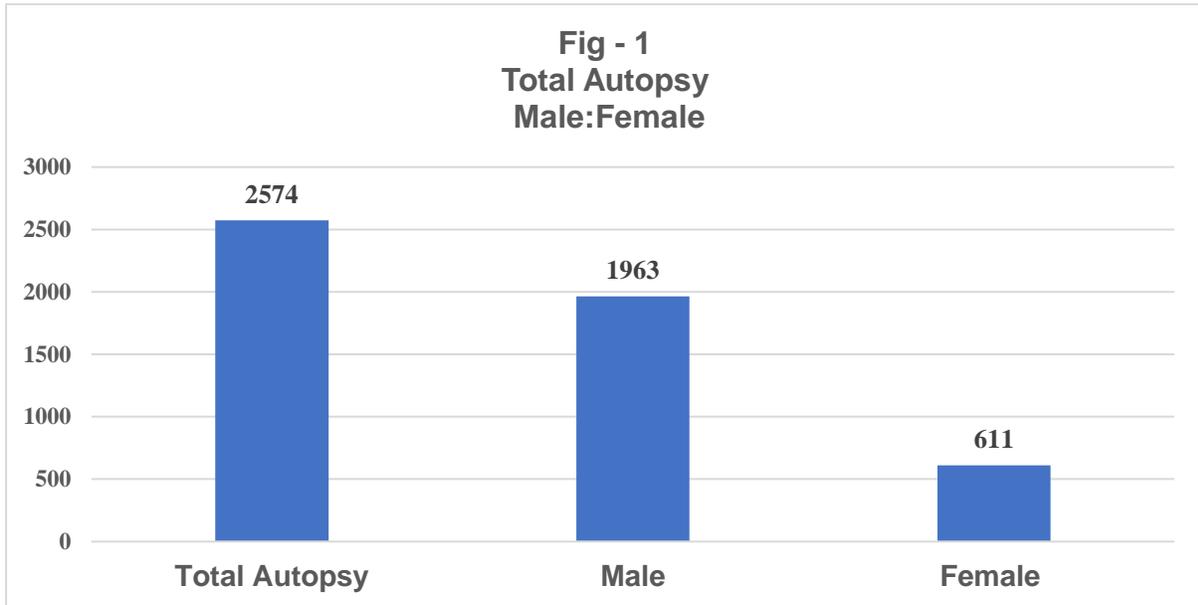
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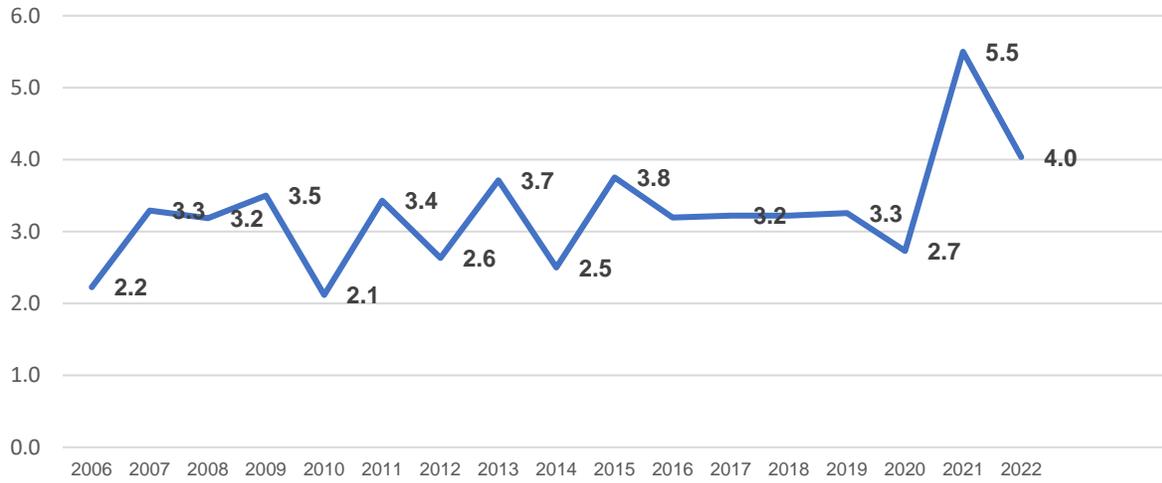
**Table – 1**  
**Showing the Age Difference**

<b>Age Range</b>	<b>Total</b>	<b>Male</b>	<b>Female</b>
0-10	104	69	35
11 - 20yrs	292	168	124
21 -30yrs	695	543	152
31-40yrs	612	475	137
41 -50yrs	431	355	76
51 -60yrs	281	229	52
61-70 yrs	97	79	18
>70yrs	62	45	17
<b>Total Autopsy</b>	<b>2574</b>	<b>1963</b>	<b>611</b>

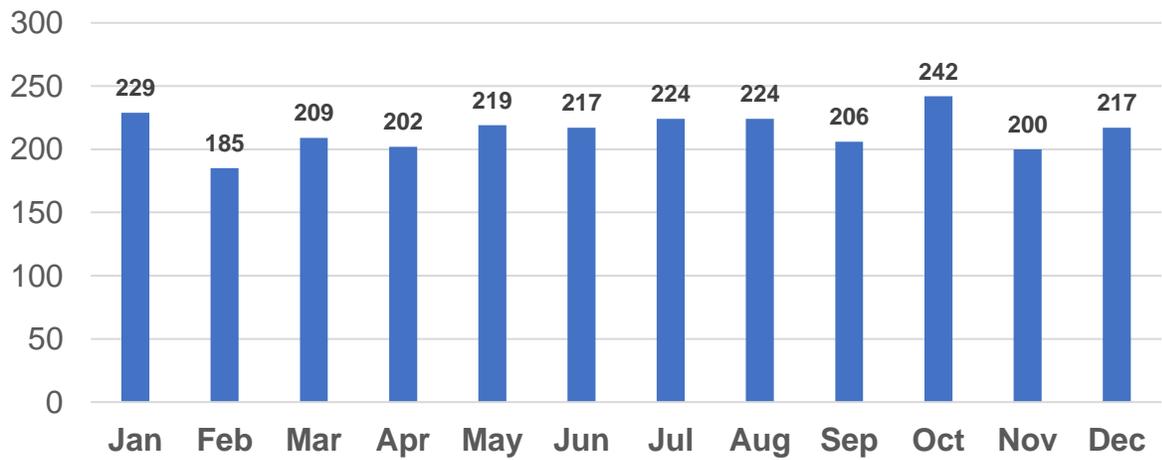
# Figure – 1 - 5



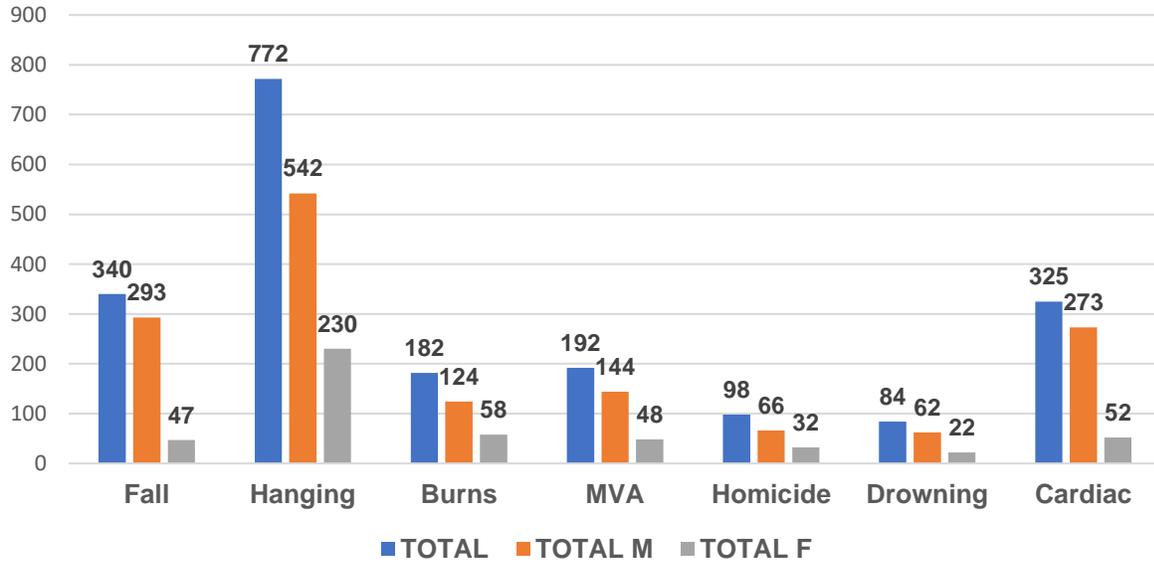
**Fig - 2**  
**Yearly Male: Femele Trend**  
**2006-2022**



**Fig - 3**  
**Month wise Autopsy**  
**2006-2022**



**Fig - 4  
Manner of Death  
2006-2022**



**Fig - 5  
17 yrs - Autopsy Trend  
2006-2022**

