

ORIGINAL ARTICLE

# Trends of Medicolegal Autopsy Cases in a Government Medical College in Southern Odisha: An Autopsy based study

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## ABSTRACT

### INTRODUCTION:

**BACKGROUND:** Koraput district is one of the largest forest districts of Odisha with a dominant tribal population.

This study was done with an objective to assess the cause and manner of death along with the epidemiological profiling of medicolegal cases and was the first attempt to conduct an autopsy based study at this recently established Government medical College of Southern Odisha.

**MATERIALS AND METHODS:** A record based cross sectional study of total number of 1168 medicolegal autopsies was done conducted at SLN Government Medical College, Koraput during the period 1st January 2019 to 31st December 2021.

**RESULTS:** 72.43% of the cases were males with male to female ratio of 2.62:1 with 87.21% cases belong to rural population. Almost 50 percent of cases belonged to young adult age group (21-40 years). The cause of deaths in majority of the cases were due to road traffic accidents (416;35.62%) followed by poisoning cases (278;23.81%). Natural disease was observed in 114 cases (9.77%). Our study revealed that 53.51% of cases were accidental in manner with 27.22% were due to intentional self-harm. The most preferred method in suicide cases was due to poisoning (206; 64.77%) followed by hanging (64; 20.12%). Unnatural death due to suicidal poisoning was seen more in females (109; 52.9%) as compared to males whereas male preponderance was observed more in hanging (49;76.56%).

**CONCLUSION:** This study could provide valuable insight to authorities for future multidimensional studies.

**KEYWORDS** | Medicolegal autopsy; Profiling; Accidents; Suicides.

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## INTRODUCTION

The profiling of medico legal autopsy cases aid to preventable casualty and mortality statistics while manner of death contribute to legal authorities in crime profiling.

Although there has been a decreasing trend in deaths due to road traffic accidents in India but still substantive enough to affect at a 0.6 deaths per thousand vehicles.<sup>1</sup> As per NCRB data,

there had been increase in reported intentional self-harm cases by 10% in 2019 and 8.7% in 2020 when compared with the preceding year.<sup>2</sup> There has been an increasing trend in reported cases of intentional self-harm cases in Odisha from 3884 cases in 2016 to 4636 in 2019 subsequently to 5,482 in 2020 showed a steep rise during the first wave of Covid-19 pandemic.<sup>3</sup>

Koraput district with a with over 51.36% dominant tribal population and 81.36% rural area is one of the largest forest districts of Odisha.<sup>4</sup> The post mortem centre attached to department of FMT, SLN Medical College provides medicolegal services to Koraput district of Odisha along with bordering tribal districts of Nawarangpur and Malkangiri.

This study was done with an objective to assess the cause and manner of death along with the epidemiological profiling of medicolegal cases.

Since no relevant literature were available for this area, this study was the first attempt to conduct an autopsy based study at this recently established Government medical College of Southern Odisha which form the novelty of this study which could help to establish the veracity of reports pertaining to this area.

**MATERIALS AND METHODS**

A record based cross sectional study of total number of 1168 medicolegal autopsies was done conducted during the period 1st January 2019 to 31st December 2021 in department of FMT, SLN Government Medical College, Koraput to assess the nature and profile of such cases.

All medicolegal cases coming to departmental morgue for autopsy were included in the study. 9 decomposed cases where no definite opinion regarding cause of death could be framed even after extensive deliberation and chemical analysis were excluded from the study.

The cases where cause of death could be ascertained but manner of death could not be opined were included as undetermined intent.

Relevant information was obtained from the police inquest reports and hospital records were also analysed along with the post-mortem

findings. In cases of poisoning and natural disease process the chemical analysis report of viscera and histopathological findings were also corroborated. The identity of the deceased had been purely kept confidential throughout the entire study to abide by the ethical guidelines.

The data were analysed to do an epidemiological profiling along with cause and manner of death using Microsoft Excel sheets and SPSS version 22.0.

**RESULTS**

Out of total 1168 autopsied cases 846(72.43%) were males with male to female ratio of 2.62:1 over the period of three years. (Table 1)

**Table 1:** Year wise distribution of cases

Year	Male	Female	Total
2019	257	98	355
2020	304	112	416
2021	285	112	397
<b>Total</b>	<b>846</b>	<b>322</b>	<b>1168</b>

1021 (87.21%) rural areas followed by 147 (12.59%) urban population.

Our study revealed that almost 50 percent of cases belonged to young adult age group (21-40 years). Highest number of cases came for autopsy is 21-30 years of age group which comprises 30.65% of total cases followed by 31-40 years of age group (19.09%) with a smaller number of cases in extreme of ages. (Table 2)

**Table 2:** Age and Sex preponderance

Age group	Males	Females	Number of cases	Percentage (%)
0-10	27	12	39	03.34
11-20	108	46	154	13.18
21-30	256	102	358	30.65
31-40	169	54	223	19.09
41-50	116	56	172	14.73
51-60	107	34	141	12.07
61-70	54	13	67	05.74
>70	09	05	14	01.20
<b>Total</b>	<b>846</b>	<b>322</b>	<b>1168</b>	<b>100</b>

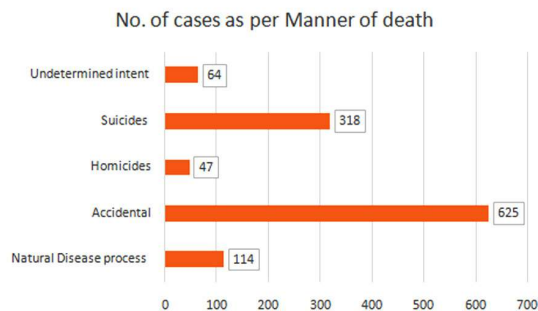
The cause of deaths in majority of the cases were due to road traffic accidents (416;35.62%) followed by poisoning cases (278 ;23.81%). Natural disease was observed in 114 cases (9.77%). (Table 3)

**Table 3:** Profiling of cases as per Cause of Death

Cause of death	Number of cases	Percentage (%)
Road Traffic Accident	416	35.62
Hanging	64	5.48
Poisoning	278	23.81
Burns	69	5.91
Electrocution	15	1.28
Fall from height	52	4.45
Assault	46	3.93
Drowning	41	3.51
Snake bite	18	1.54
Bee sting	09	0.77
Bear mauling	04	0.34
Lightning	05	0.43
Suffocation	02	0.17
Railway track injuries	34	2.91
Firearm injury	01	0.08
Natural disease Process	114	9.77
<b>Total</b>	<b>1168</b>	<b>100</b>

Our study revealed that 53.51% of cases were accidental in manner with 27.22% were due to intentional self-harm. Homicides comprised of only 4.02%. (Fig. 1)

**Fig. 1:** Profiling as per manner of death



The most preferred method in suicide cases was due to poisoning (206; 64.77%) followed by hanging (64; 20.12%). Unnatural death due to suicidal poisoning was seen more in females (109; 52.9%) as compared to males whereas male preponderance was observed more in hanging (49;76.56%). (Table 4)

**Table 4:** Profiling of cause of death in Intentional Self harm

Cause of death	Intentional Self harm			
	Male	Female	Total	Percentage
Poisoning	97	109	206	64.77
Hanging	49	15	64	20.12
Burn injuries	02	10	12	3.77
Drowning	00	02	02	0.62
Run over by train	16	18	34	10.69
<b>Total</b>	<b>164</b>	<b>154</b>	<b>318</b>	<b>100</b>

#### DISCUSSION

In our study majority of victims were male which are in line with studies done by researchers in India and Nepal.<sup>5-7</sup> In this tribal dominated population, males are sole bread-earners and exposed to outdoor activities such as farming and collecting essential supplies from forest areas thus make them more vulnerable to accidents. They are also more predisposed for addiction to locally brewed alcohol and risk-taking behaviour is more common. In our study about 50% of the total cases belonged to young adult age group which is the most productive year in one's life. These findings are consistent with studies done in Karnataka and Rajasthan.<sup>5,6</sup>

Majority of the cases were from rural community due to the fact that our medical college is the only tertiary referral centre in this entire tribal main land.

Deaths due to road traffic accidents & its complications constituted majority of cases followed by deaths due to poisoning in our study which was similar to different studies done in India.<sup>5,6,8</sup>

The reasons for more deaths due to road traffic accidents was due to the difficult hilly terrain, large number of heavy vehicles transiting the national highway and this medical college

being the only tertiary care hospital for all the referral cases in this area. To add to it the referral was usually delayed due to decision delay.

Our finding with regard to cause of death in suicides pointed towards more poisoning cases contrasted from study at Sikkim and study done at Nepal where hanging was observed in 33.72% cases.<sup>7,9</sup>

Our finding also differed from study done at Bagalkot where that 37.5% cases were due to burn injuries.<sup>10</sup> The contrast findings were due to easy accessibility to farmers to pesticides since Odisha still not an organic state like Sikkim. Unnatural death due to suicidal poisoning was seen more in females as compared to males whereas male preponderance was observed more in hanging.

Although a large number of populations of Odisha migrate to other places in search of livelihood were much affected during the Corona pandemic lockdown but population outflow from this part were very minimal. Our study revealed that there was no substantive increase in number of cases.

For the year 2020, the national average rate of suicides stands at 11.3 which is increase by 8.7% from last year and in this tribal dominated part of rural Odisha a suicide rate of 27.22 is quite alarming.<sup>2</sup>

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#### CONCLUSION

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This study findings could provide a baseline data for further studies and guide authorities for better planning and decision making. The increasing trend of suicides in this tribal dominated area need a multidimensional approach and prospective studies need to be initiated at grassroot level to address this issue.

**Limitation:** The cross-sectional nature of study and shorter duration of study form the major limitation of this study.

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#### Conflict of Interest:

*The author declares that there is no commercial or financial links that could be construed as conflict of interests.*

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