



## A STUDY OF CASES OF HANGING BROUGHT FOR AUTOPSY AT JORHAT MEDICAL COLLEGE AND HOSPITAL.

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### ABSTRACT

Hanging has been one of the most common means of deaths due to suicide since ages. Not only in India but worldwide hanging has been the 2nd most cause of unnatural deaths following Road Traffic Incidents. According to NCRB data 2020, hanging consisted of 57.8% of all suicidal cases. This study was a retrospective study carried out in the Department of Forensic Medicine of Jorhat Medical College and Hospital during the period from 1<sup>st</sup> March 2020 to 28<sup>th</sup> February 2021 with the aim of studying the pattern of deaths due to hanging. All the cases with alleged history of hanging were included in the study. It was found that the highest number of hanging was reported in males as compared to females. In the present study, 21-30 years was the most commonly involved age group. Complete hanging was seen in 76% cases. Atypical hanging was seen in most cases. Most commonly used ligature among hard ligature material was nylon rope. The most common reason for hanging deaths was financial crisis.

**KEYWORDS :** Hanging, Autopsy, Suicide, Ligature material

### INTRODUCTION

Hanging is a form of asphyxial death due to constriction of the air passages at the neck which is caused by suspension of the body by ligature which encircles the neck. Hanging may be partial or complete depending on whether the body is partially suspended or completely suspended<sup>[1]</sup>. Hanging is a common method of suicide around the world. In India, hanging was the most frequently reported method of suicide in most of the studies, accounting for 10 to 72% of all suicides<sup>[2]</sup>. Around 8,00,000 people die by suicide globally every year and its rate has been increasing year after year. World Health Organisation claims that in India, suicide is an emerging and dangerous public health issue. In 2016, suicide was the most common cause of death in 15-29 years age group<sup>[3]</sup>. Suicide by hanging is the most frequent method of suicide in India. It is a painless mode of suicide with little to no cost involvement. Hanging is undoubtedly the most lethal method of suicide with a fatality rate of about 70%<sup>[4]</sup>. Many socio-demographic and socio-economic factors in the form of economic crisis, personal problems, occupational status, stress or chronic illness are responsible for the causation of hanging.

### AIMS AND OBJECTIVES

The present study was undertaken with the aim of studying the pattern of deaths due to hanging.

### MATERIALS AND METHODS

This retrospective study was conducted during the period from 1<sup>st</sup> March 2020 to 28<sup>th</sup> February 2021. A total of 612 autopsies were conducted of which hanging contributed to 150 cases. All the autopsies had been performed in the Department of Forensic Medicine in Jorhat Medical College and Hospital situated in Jorhat, Assam. Information regarding age, sex, residence, date of death, reasons of suicide and other necessary information about the case had been collected from the accompanying police documents and the relatives of the deceased. The findings were recorded and analysis was done to find out age and sex distribution, occupation, type of hanging, type of ligature material used etc. The data was put into tables and finally inferences were made.

### Inclusion Criteria

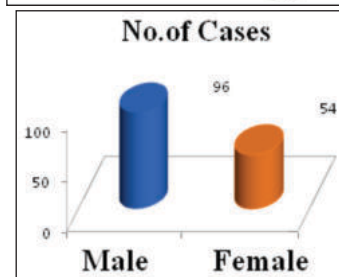
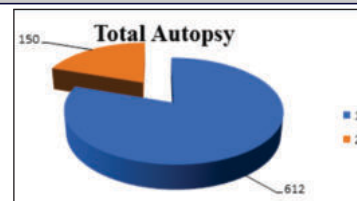
All the cases with alleged history of hanging are included in the study.

### Exclusion Criteria

All the victims who died of asphyxia other than hanging.

### RESULTS AND OBSERVATIONS

There were a total of 612 autopsies during the study period and among those 150 cases (24.51%) were of hanging. Out of the cases of hanging, males dominated over females in the ratio of 1.8:1. The most vulnerable age for hanging was observed to be between 21-30 years (32.67%) followed by 11-20 years (30.66%) and 31-40 years (22%). (Table -1)



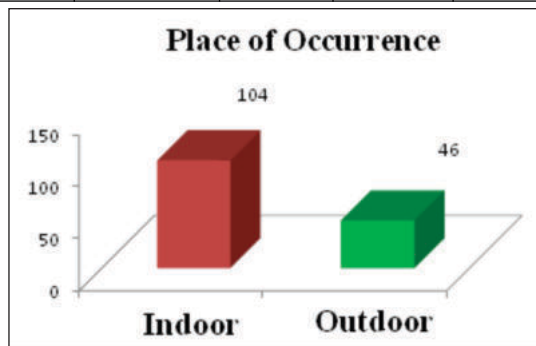
It is observed that most of the people prefer indoor locations for hanging of which maximum were at residence. (Table -2) Incidence of complete hanging was seen in 114 (76%) cases whereas partial hanging was seen in 36 (24%) cases. (Table -3) In maximum cases, the position of knot was present on the left side of the neck in – (46.67%) cases, right side of the neck in – (26%) cases and on the occipital region of the neck in – (27.33%) cases. (Table -4) It was observed that most people used hard ligature materials (59.34%) of which nylon rope (58%) was the most commonly used ligature material for hanging. While in soft ligatures (40.66%), dupatta (23.33%) was the most commonly used. (Table -5) It was seen that most of the people were unemployed (24.67%) followed by students (19.33%) and then labourers/workers (18%). (Table -6) In our study, 34% cases were seen during March to June- Summers, 36% during July to October- Monsoons and 30% were seen during November to February- Winters.

**Table 1: Age & Sex wise distribution.**

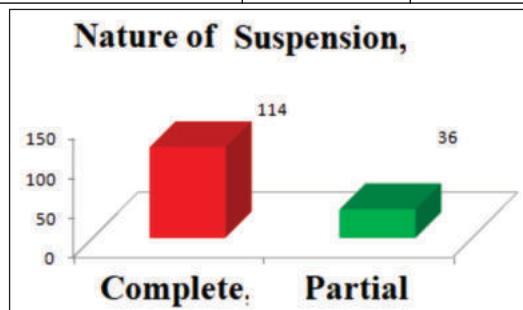
Age (in years)	Male		Female		Total no. (%)
	No.	%	No.	%	
0-10	0	0	0	0	0 (0%)
11-20	23	15.33	23	15.33	46 (30.66%)
21-30	25	16.67	24	16	49 (32.67%)
31-40	31	20.67	2	1.33	33 (22%)
41-50	11	7.33	1	0.67	12 (8%)
51-60	2	1.33	3	2	5 (3.34%)
61-70	2	1.33	1	0.67	3 (2%)
>71	2	1.33	0	0	2 (1.33%)
Total	96	64	54	36	150 (100%)

**Table 2: Place of occurrence**

Place of occurrence		No. of cases	No. of cases	Percentage
Indoor	Residence	98	104	69.33
	Working place	6		
Outdoor	Field	15	46	30.67
	Jungle	31		
Total		150	150	100

**Table 3: Nature of suspension (Complete/Partial)**

Nature of suspension	No. of cases	Percentage
Complete	114	76
Partial	36	24
Total	150	100

**Table 4: Position of knot**

Type of hanging	Position of knot	No. of cases	Percentage	Total percentage
Typical	Occipital region	41	27.33	27.33
	Front of neck	0	0	
	Right mastoid region	39	26	
	Left mastoid region	70	46.67	
Total		150	100	100

**Table 5: Type of ligature material used**

Ligature material		No.	Percentage
Hard (59.34%)	Jute rope	1	0.67
	Nylon rope	87	58
	Electric wire	1	0.67
Soft (40.66%)	Dupatta	35	23.33
	Lungi	24	16
	Saree	2	1.33
Total		150	100

**Table 6: Occupation**

Employment	No. of cases	Percentage
Unemployed	37	24.67
Students	29	19.33
Service	19	12.67
Housewives	13	8.67
Labourers/Workers	27	18
Self-employed	25	16.66
Total	150	100

## DISCUSSION

Hanging is one of the most frequent methods of suicide. Suicide by hanging at our institute constituted 24.51% of total autopsies. In the present study, incidence of hanging was more in males than females. The male : female ratio was 1.8:1. Similar findings were observed by Sahoo N.<sup>[5]</sup> and Pal SK et al<sup>[6]</sup>. The most common age group involved

was 21-30 years (32.67%) followed by 11-20 years (30.66%) and 31-40 years (22%). This is in agreement with Sahoo N.<sup>[5]</sup>, Mohanty S et al<sup>[7]</sup> and Muninarayana C et al<sup>[8]</sup>. With regard to the place of occurrence, home was the most preferred site. Majority of the victims preferred indoor sites for hanging (69.33%) as compared to outdoor sites (30.67%), which is consistent with the findings of Sahoo N.<sup>[5]</sup>, Ambade VN et al<sup>[9]</sup> and Mohanty S et al<sup>[7]</sup>. As far as the type of hanging is concerned, evidence of complete hanging was seen in – (76%) of cases, whereas that of partial hanging was present in – (24%) cases. Similar findings were seen by Patel AP et al<sup>[10]</sup>, Sudheer et al<sup>[11]</sup> and Sahoo N.<sup>[5]</sup>. The present study revealed that the position of the knot was on the left side of the neck in – (46.67%) cases, right side of the neck in – (26%) cases and on the back side of the neck in – (27.33%) cases. Similar findings were noticed by Meera Th et al<sup>[12]</sup> and Patel AP et al<sup>[10]</sup>. In the present study, nylon rope was the most commonly used ligature material for hanging, which constitutes 58% of the total cases. These findings are also found by Sahoo N.<sup>[5]</sup>, Ambade VN et al<sup>[9]</sup> and Tumram et al<sup>[13]</sup>. Dupatta was the second most commonly used material (23.33% cases) followed by lungi (16% cases). In the present study, most of the victims (24.67%) of hanging cases were found to be unemployed, which as a matter of fact is the reason for financial crisis. Similar findings were observed by Waghmode A.<sup>[14]</sup> Month-wise distribution of the cases in the present study do not show any specific time trend. Based on season-wise distribution, 34% cases were seen during March to June- Summers, 36% during July to October- Monsoons and 30% were seen during November to February- Winters. No specific seasonal variations were observed in the present study.

## Summary and conclusion

Out of 150 cases, 96 (64%) victims were males and 54 (36%) cases were females. Age group of 21-30 years was most commonly involved which comprises 49 (32.67%) cases, followed by 11-20 years (30.66%) and 31-40 years (22%) cases. Most of the people preferred indoor locations (69.33%) for hanging. Evidence of complete hanging was seen in 76% of deaths due to hanging. Atypical hanging was seen in 24.67% cases. Nylon rope was the most commonly used ligature material (58% cases). The most common reason for hanging deaths was unemployment and financial crisis which was seen in 37 (24.67%) cases. Deaths by suicidal hanging can be prevented by creating social awareness and by creating protective environments. Other methods include treating mental illness and reducing potential risk factors such as poverty and social vulnerability.

## Conflict of Interest

Nil

## Source of funding

Self

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