



## STUDY OF HANGING IN TERTIARY CARE CENTER OF CENTRAL INDIA.

## Forensic Medicine

**Dr. M. S. Vyawahare** MD Professor and Head Forensic Medicine, Indira Gandhi Govt. Medical College, Nagpur, Maharashtra, India

**Dr. Nitin S Barmate\*** MD Assistant professor Forensic Medicine, Govt. Medical College, Nagpur, Maharashtra, India 440003 \*Corresponding Author

**Dr. D. S Akarte** MD Assistant professor Forensic Medicine, Govt. Medical College, Nagpur, Maharashtra, India 440003

## ABSTRACT

Among the unnatural deaths, violent asphyxia deaths are one of the most important causes for deaths. Hanging is that form of asphyxia which is caused by suspension of the body by a ligature which encircles the neck, the constricting force being the weight of the body. All cases of hanging brought to medico legal autopsy or with the history of hanging with different manner of death were studied. Male (74.06%) predominates the female (25.94%) most of the cases were of suicidal hanging accounted for 98.58% while accidental and homicidal hanging were rare and uncommon. Nylon rope (31.13%) was the most common material used for hanging.

## KEYWORDS

Hanging, Suicide, Nylon rope.

## Introduction:

Among the unnatural deaths, violent asphyxia deaths are one of the most important causes for deaths. Usual causes of violent asphyxial deaths are hanging, strangulation, drowning, suffocation and traumatic asphyxia.<sup>1</sup>

Hanging is that form of asphyxia which is caused by suspension of the body by a ligature which encircles the neck, the constricting force being the weight of the body, the whole weight of the body is not necessary and only a comparatively slight force is enough to produce death.<sup>2</sup>

So during the autopsy there are number of issue arises in hanging death, and hence the current study is being done to focus manner of hanging, gender and age distribution, marital status,

## Material and Method:

The study was carried out in Department of Forensic Medicine at Government Medical College and Hospital, Nagpur during 2012 to 2014.

All cases of hanging brought to medico legal autopsy in department of Forensic Medicine and Toxicology, with history of hanging and where the manner of death is different but during postmortem examination it was found that it was the case of hanging.

## Exclusion criteria:

- 1) Unknown and unclaimed body
- 2) Grossly decomposed body where postmortem finding Cannot be appreciated.

## Result:

**Table No.01: Distribution of hanging deaths according to gender and age groups of hanging death.**

Age Groups (Years)	Gender			Total	%	
	Male	%	Female			
0-10	1	00.64%	1	01.82%	2	00.94%
11-20	12	07.64%	20	36.36%	32	15.09%
21-30	50	31.84%	21	38.18%	71	33.49%
31-40	44	28.03%	7	12.73%	51	24.06%
41-50	30	19.11%	3	05.45%	33	15.57%
51-60	12	07.64%	2	03.64%	14	06.60%
Above 60	8	05.10%	1	01.82%	9	04.25%
<b>Total</b>	<b>157</b>	<b>74.06%</b>	<b>55</b>	<b>25.94%</b>	<b>212</b>	<b>100%</b>

Among 212 cases male 74.06% (n-157) predominates the female 25.94 (n-55) with male: female ratio of 2.85:1. The peak incidence of

hanging death was noted in age group of 21-30 years seen in 33.49% cases followed by 31-40 years in 24.06% cases. Two cases of accidental hanging was seen in age group 0-10 year age group and one case of homicidal hanging was in 21-30yrs age group.

**Table No.2: Distribution of hanging deaths according to marital status.**

Marital Status	Gender				Total	%
	Male	%	Female	%		
Married	103	65.61%	28	50.91%	131	61.80%
Unmarried	54	34.39%	25	45.45%	79	37.26%
Widow	0	00.00%	2	03.64%	2	00.94%
<b>Total</b>	<b>157</b>	<b>74.06%</b>	<b>55</b>	<b>25.94%</b>	<b>212</b>	<b>100%</b>

61.80% (n-131) victims were married while 37.26%(n-79) victims were unmarried. Among the unmarried victims, 2.51% (n-2) cases were of accidental hanging and one case(1.26%) was of homicidal hanging.

**Table No. 3: Distribution of hanging deaths according to ligature material.**

Ligature Material	Gender				Total	%
	Male	%	Female	%		
Nylon Rope	55	35.03%	11	20.00%	66	31.13%
Odhni	32	20.38%	24	43.64%	56	26.42%
Dupatta	29	18.47%	4	07.27%	33	15.57%
Sari	19	12.10%	13	23.64%	32	15.09%
Cotton Rope	7	04.46%	2	03.64%	9	04.25%
Jute Rope	1	00.64%	0	00.00%	1	00.47%
Other	14	08.92%	1	02.82%	15	07.07%
<b>Total</b>	<b>156</b>		<b>54</b>		<b>212</b>	<b>100%</b>

The most common ligature material used for hanging was nylon rope 31.13%(n-66) cases followed by odhani in 26.42% (n-56)cases. Other type of ligature material were noted in 7.07% cases, which includes bed sheet, jeans pant, towel, , electric wire, crape bandage and dhoti. For homicidal hanging nylon rope was used as ligature material.

**Table No. 4: Distribution of hanging deaths according to manner.**

Manner of hanging	Gender				Total	%
	Male	%	Female	%		
Suicidal	156	99.36%	53	96.36%	209	98.58%
Accidental	01	00.64%	01	01.82%	02	00.94%
Homicidal	00	00.00%	01	01.82%	01	00.47%
<b>Total</b>	<b>157</b>	<b>74.06%</b>	<b>55</b>	<b>25.94%</b>	<b>212</b>	<b>100%</b>

In the present study Out of 212 cases, most of the cases were of suicidal hanging accounted for 98.58%(n-209). Accidental hanging were observed in 00.94% (n-2) and in 0.47%(n-1)of the case of homicidal hangings were observed.

#### Discussion:

##### Gender and Age group

In the present study Among 212 case,s male 74.06% (n-157) were predominates the female25.94% (n-55) with male: female ratio of 2.85:1. Our findings were consistent with Bowen et al<sup>1</sup>, Worawat A et al (2006)<sup>2</sup>, Badkur DS et al<sup>3</sup> (2012) and Waghmare PB et al (2014)<sup>6</sup>.

In our society male expected to earn for family and bear all responsibility and work in competitive world which leads to more stress and tension culminate to suicide. While female were physically and mentally tortured by husbands and her relatives for various family problems and dowry or financial gains, which goes beyond their threshold level of self-constrain and commits suicide.

The peak incidence of hanging death was noted in age group of 21-30 years seen in 33.49% cases followed by 31-40 years in 24.06% cases. Which consistent with Vijayakumari N (2011)<sup>7</sup>. Waghmare PB et al (2014)<sup>6</sup>, and Vinita VE et al (2014)<sup>7</sup>.

Maximum number of hanging deaths observed in age group 21-30 years due to fact that this is transit phase of life in which there is transformation from student life where they were protected by parents to an adult life where they were expected to start earning and take responsibility of family associated with increase aggressive behavior and easy loss of temper, susceptible to frustration leads to terminate the life.

##### Marital status

In the present study depending on the marital status, victims of hanging deaths were married in 61.80% and unmarried in 37.26%.

Similar findings present in the study done by Saisudheer T. et al (2012)<sup>1</sup>, Vijayakumari N (2011)<sup>2</sup> and Vinita VE, et al (2014)<sup>7</sup>,

Married persons have to face more responsibilities, financial, family problems, domestic quarrel and other problems, dependence on spouse, cruelty of in laws, change of social environment unemployment and other leading them to end their life. In unmarried male and female failure in love and affair, exam failure and family problemsand. educational problems were the main reasons for to end the life.

##### Ligature Material

The most common ligature material used for hanging was nylon rope 31.13%(n-66) cases followed by odhani in 26.42% (n-56)cases. Our findings were correlated with Saisudheer T<sup>1</sup>, Patel AP et al<sup>2</sup>, Worawat A et al (2006)<sup>4</sup>and Vinita VE, et al (2014)<sup>7</sup>.

It was suggests that material which is used for hanging is easily available material present near to him on that particular period of time and is more convenient and reliable and the ligature material is related to daily use

##### Manner of hanging deaths

In the present study Out of 212 cases, most of the cases were of suicidal hanging accounted for 98.58%(n-209). Accidental hanging were observed in 00.94% (n-2)and in 0.47%(n-1)of the case of homicidal hangings were observed.

Our findings were corresponding with of Patel AP et al (2012)<sup>8</sup>, Davidson A et al (1986)<sup>9</sup>, Bowen et al (1982)<sup>3</sup> and K.S.Narayan Reddy<sup>10</sup>.

Hanging was mostly suicidal in nature unless the contrary proved. As it was painless form of death while other methods are mostly painful including poisoning, burn, suicidal fall etc. accidental hangings were uncommon but mainly observed among infant and children's who were ignorant and unaware about consequence of playing with sari, curtains, rope and entanglement with scarf which was tied around the swing to prevent the baby from falling down. Homicidal hangings were extremely rare.

##### Conclusion:

From the present study we conclude that.

Male predominates with male: female ratio of 2.85:1.and peak incidence in age group of 21-30 years seen in 33.49% cases followed by 31-40 years in 24.06% cases.

Mostly suicidal in nature. Nylon rope was most commonly used ligature material. Married persons accounted for 61.80% and unmarried for 37.26% hanging death.

##### REFERENCES

- 1) Saisudheer T, Nagaraja TV. A study of ligature mark in cases of hanging deaths. Int J Pharm Biomed Sci 2012;3:80-84.
- 2) Vijayakumari N. Suicidal Hanging: A Prospective Study. J Indian Acad Forensic Med October-December 2011;33:555-7.
- 3) Bowen BA. Hanging – a review. Journal of Forensic Science international 1982 Nov-Dec;20(3):247-9.
- 4) Worawat A, Wongchanapai W, Thamtakerngkit S. Factors Affecting Neck Injuries in Hanging Deaths. Journal of Forensic Physician Association of Thailand 2008;2(1):25-32.
- 5) Badkur DS, Yadav J, Arora A, Bajpayee R, Dubey BP. Nomenclature for Knot Position in Hanging A Study of 200 cases. J Indian Academic Forensic Med Jan- March 2012;34:34-36.
- 6) Waghmare PB, Chikhalkar BG, Nanandkar SD. Analysis of Asphyxial Deaths Due To Hanging. J Indian Acad Forensic Med 2014;36(4):343-5.
- 7) Vinita VE, Paul PM, Janani, Pradhan P, Kumar PS. Pattern of neck tissue injuries in hanging – A prospective study. J Punjab Acad Forensic Med Toxicology 2014;14(2):101-4.
- 8) Patel AP, Bansal A, Shah JV, Shah KA. Study of Hanging Cases in Ahmedabad Region. J Indian Acad Forensic Med October-December 2012;34:342-5.
- 9) Davidson A, Marshall TK. Hanging in Northern Ireland-a survey. Med Sci Law 1986; 26: 23-28.
- 10) Reddy KSN. Mechanical asphyxia. In: K Suguna Devi, Editor. The essentials of Forensic Medicine & Toxicology. 33th Edition. Hyderabad; 2014. P.338-347.